



# NGK Sustainability Data Book 2020

**NGK INSULATORS, LTD.**

## NGK Group Philosophy

### Our Mission

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**Enriching Human Life  
by Adding New Value to Society.**

### Our Values

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- |                              |   |
|------------------------------|---|
| <b>Quality of People</b>     | <b>Embrace challenges and teamwork.</b> |
| <b>Quality of Product</b>    | <b>Exceed expectations.</b>             |
| <b>Quality of Management</b> | <b>Social trust is our foundation.</b>  |

Visit the “About NGK” section of our website to read the NGK Group Philosophy.

<https://www.ngk-insulators.com/en/info/governance/>

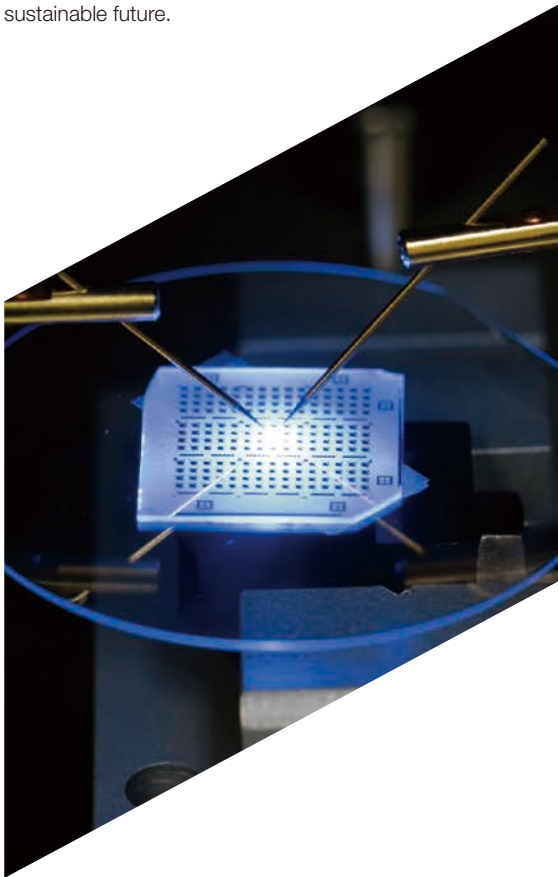
The NGK Group Philosophy is a signpost that guides every employee of the NGK Group. Formulated in 2019 to mark our 100th anniversary, it encompasses our desire to use our proprietary ceramic technology to contribute to future energy, environmental protection, and industrial progress, and to help people around the world live a happy, comfortable life.

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Message from the President

### Unique ceramic technology for a future of coexistence between environment and humanity

The current spread of the novel coronavirus has caused an abrupt slowdown in the global economy, having a significant impact on the NGK Group's business performance. Nevertheless, we must not halt our progress. Placing utmost priority on ensuring the safety of employees and their families and infection control, we will take advantage of our unique ceramic technology to provide products that exceed society's expectations and continue growing to create a sustainable future.



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NGK Group Research and Development

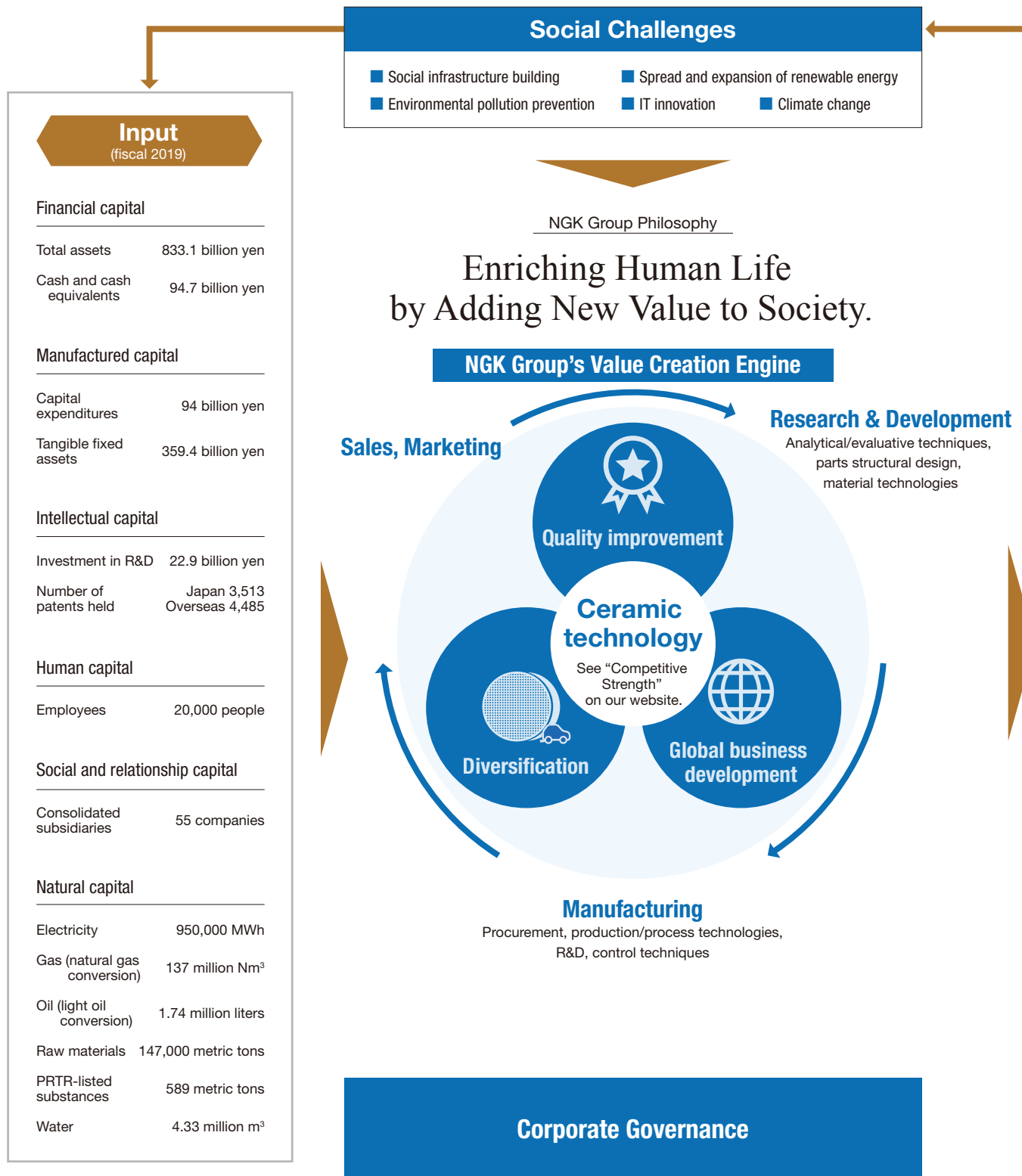
### Embracing challenges with tenacity and a dedication to discovering technologies that will change the world

The new product development period lasts anywhere from three to more than 10 years, but we do not give up, even on research that takes a long time to bear fruit. A culture that makes it easy to embrace such challenges is the strength of the NGK Group's approach to R&D.

## Creating Value

# Using advanced ceramic technology to create value and address social challenges

The NGK Group uses its advanced ceramic technology to bring the world unique product lineups in the energy, ecology, and electronics sectors. By creating new value for customers, we help society solve its problems.



### Output

#### Ceramic Products Business Group



Gasoline particulate filters (GPFs)

#### Process Technology Business Group



Ceramics for semiconductor manufacturing equipment

#### Electronics Business Group



EnerCera® lithium-ion rechargeable batteries

#### Energy Infrastructure Business Group



NAS® batteries

### Results (fiscal 2019)

#### Consolidated net sales

442 billion yen

#### Net income attributable to owners of the parent

27.1 billion yen

#### ROE

5.8%

#### Total sales of products contributing to environmental protection

259.9 billion yen

#### Social contribution spending

0.24 billion yen

#### Avoided NOx emissions

4 million metric tons per year

Note: Assumes exhaust systems are equipped on new automobiles that do not have equivalent systems.

### Values Provided by the NGK Group

#### Supporting Social Infrastructure



#### Ensure access to affordable, reliable, sustainable, and modern energy for all

- Insulators are indispensable to stable power supply
- NAS batteries allow stable supply of renewable energy



#### Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation

- Ceramics used in electronics make ICT cheap and ubiquitous
- Ceramics used in semiconductor manufacturing equipment let the semiconductor industry be the foundation for modern daily life
- Metal-related products are widely used in mobile phones, automobiles, industrial equipment, and other devices that undergird modern life
- Lithium-ion rechargeable batteries contribute to the dissemination of next-generation products such as IoT devices and smart cards

#### Protecting the Environment



#### Ensure access to affordable, reliable, sustainable, and modern energy for all

- Ceramics for purifying automobile exhaust make exhaust gas clean, thus enabling clean usage of fossil fuels



#### Take urgent action to combat climate change and its impacts

- NAS batteries aid in the fight against climate change by allowing stable supply of renewable energy



#### Conserve and sustainably use the oceans, seas, and marine resources for sustainable development

- Ceramic membrane filters purify wastewater to prevent marine pollution

#### Improving People's Lives



#### Ensure healthy lives and promote well-being for all at all ages

- Ceramics for purifying automobile exhaust make exhaust gas clean



#### Ensure availability and sustainable management of water and sanitation for all

- Ceramic membrane filters provide highly safe water
- Ceramic membrane filters purify wastewater



#### Make cities and human settlements inclusive, safe, resilient, and sustainable

- NAS batteries enable innovation in urban energy management for the creation of sustainable cities



## Message from the President



# Unique ceramic technology for a future of coexistence between environment and humanity

My heart goes out to all those affected by COVID-19. I would also like to express my sincere respect and gratitude to medical professionals and all the other people who are supporting our society.

The current spread of the novel coronavirus has caused an abrupt slowdown in the global economy, having a significant impact on the NGK Group's business performance.

Nevertheless, we must not halt our progress. We strive to ensure the safety of employees and their families and prevent the spread of infection. With this as our top priority, we will take advantage of our unique ceramic technology to provide products that exceed society's expectations and continue growing to create a sustainable future.

NGK Insulators, Ltd.  
President



Commemorating 101 years in business

## Look into the future and set a goal to realize the NGK Group Philosophy

Last year, on the occasion of its 100th anniversary, the NGK Group took a new look at its philosophical framework and established the NGK Group Philosophy. In the 101st year, we would like to define the Group's goals and work on formulating a new business vision.

Large-scale investments we had carried out over the past four years have been mostly completed. The path for the business expansion of existing products has been laid out, and new products with good prospects are beginning to emerge in each business. We already know what needs to be done in the 2020s. Now, the NGK Group must develop a vision looking into the future beyond that.

The new vision will focus on the ways we can achieve coexistence between environment and humanity, based on which we aim to resolve diverse social issues through the effective use of our technologies and create new value.

The reduction of CO<sub>2</sub> emissions is an important global challenge, and investors consider ESG initiatives as part of corporate responsibility. Society 5.0, an initiative promoted by

the Japanese government, advocates a people-centered society and encourages companies to drive reforms. The concept of achieving coexistence between environment and humanity took shape as we examined the ideal state as a company based on this trend.

Nonetheless, coexistence between environment and humanity is no easy feat. In order to create a future where people coexist with the rich natural environment, we must further improve ceramic technology as our strength and resolve diverse social issues through innovative solutions. To this end, we need to drive transformation and growth through the Group's collective efforts.

Therefore, since the end of 2019, we have been holding discussions with the management team, outside directors, and younger employees to formulate a new vision. I constantly think about contributions we can make to society by believing in the future of ceramics and further evolving our unique technology.

## Message from the President

COVID-19

### Sustaining business activities while prioritizing human life

Meanwhile, when I look at the current global situation, COVID-19 remains rampant. I am afraid that a great number of people are now living with fear in their hearts.

The NGK Group has positioned preventing the spread of COVID-19 as an important crisis management issue and launched the Business Continuity Plan (BCP) Countermeasures Headquarters to gather information. Under the three policies, namely priority on human life, cooperation with the government and collaboration with local communities, and the achievement of sustainable business activities, we are looking into various measures for business continuity while placing utmost priority on ensuring safety and preventing the spread of the virus.

Specifically, in back-office departments, employees are encouraged to switch over to staggered commuting and telecommuting to the greatest extent possible, while in production lines, measures are taken to reduce

people-to-people contact such as by installing vinyl curtains and using face shields in some sections. The shift to telecommuting proceeded relatively smoothly as we had been working to establish a network environment such as by introducing new software. There are more departments now taking this opportunity to review conventional work patterns to improve operational efficiency.

COVID-19 has also had an impact on the Group's respective businesses, forcing some production sites in Europe, North and Central America, and Asia to suspend operations or reduce factory utilization. A number of major markets have been affected in terms of demand. Nonetheless, we anticipate a recovery in demand from a medium- to long-term perspective. Therefore, we will focus on the creation of new products for the future while flexibly addressing the immediate drop in demand.

Business risks

### Strengthening the management system for diversified business risks

We categorize business risks that are considered significant from a management perspective, including COVID-19, into those related to the business environment, strategies, and internal factors respectively and review them on a continual basis.

In the automotive-related business, changes in demand may be anticipated in the future due to internal combustion engine vehicles (ICEVs) gradually being replaced with non-ICEVs such as electric vehicles (EVs) and fuel-cell vehicles (FCVs). However, for the time being, the ICEV market is expected to further expand with tightened exhaust regulations, and therefore, we are anticipating business growth through an

increase in new and high-performance products. In the Chinese market, which is growing in importance, although Chinese competitors are expected to become more active, we will continue to strengthen our competitive edge with capabilities to provide technologies that preemptively address environmental regulations and through a steady supply of products.

As global business expansion proceeds, in order to minimize the impact of diversified business risks, the NGK Group is working to strengthen risk management. We will improve the risk management system to further reinforce our management base.

Business overview

### Production capacity up to 2023 has been secured; focusing on the dissemination of new products

Now, I would like to give an overview of the NGK Group's respective businesses.

In the automotive-related business, fiscal 2019 results were affected by a number of factors. In China, an economic slowdown began in the automotive market from late 2018 and the introduction of environmental regulations for large vehicles was later than anticipated. In Europe, diesel vehicle sales dropped further and resulted in lower-than-anticipated demand. However, the prospect that the number of ICEVs will continue to increase until 2030 remains the same. We are

proceeding with the development of high-performance products that can address new exhaust regulations.

Due to large-scale capital investments that we have been carrying out since fiscal 2016, production capacity up to fiscal 2023 has been secured. Although there are factors such as recent depreciation cutting into profits, we hope that success in our other businesses can offset a drop in demand in the automotive market.



In the semiconductor-related business, investments for the Internet of things (IoT), artificial intelligence (AI), and the 5G next-generation communication standard show a trend of expansion, based on which we are assuming that they will continue to increase. We will maximize the use of a new factory in Tajimi City, Japan, which began operation in October 2019, to raise production efficiency and increase our earning capacity. Moreover, we will work on the development of next-generation products for higher-performance semiconductor manufacturing equipment.

With regard to the power-related business, the Power Business was renamed the Energy Infrastructure Business in 2020. In addition to existing power system insulators and NAS<sup>®</sup> batteries, zinc rechargeable batteries for utility customers have been added to the product lineup. In comparison to lithium-ion batteries, zinc rechargeable batteries provide greater safety, which allowed them to eventually acquire the world's first UL verification mark\* in the storage battery field. We will continue with their development and sales expansion. In order to ensure access to low-cost, reliable energy for everyone, we will not only support the stable supply of electricity, but also expand the possibility of its efficient use, thereby establishing a business that can contribute to social infrastructure.

In the electronics-related business, samples of EnerCera<sup>®</sup> lithium-ion rechargeable batteries have been shipped to more than 200 companies inside and outside of Japan. These batteries were commercialized in fiscal 2019. We are promoting the assessment of these products for use in IoT devices including smart cards and smart keys for automobiles. We are also strengthening our marketing forces and working on cost reduction in an attempt to promptly generate sales and profits.

In fiscal 2019, the Advanced Device Components Division was launched under the Electronics Business to handle all promising new products such as the EnerCera battery, bonded wafers, and gallium nitride (GaN) wafers. Bonded wafers are

used as substrates for electronic devices, which are incorporated in products like smartphones. Against the backdrop of the spread of mobile communication speed enhancement technology, they are expected to achieve reliable growth in the future. GaN wafers are high-performance wafers that will improve an LED's luminous efficacy and enable the higher output of semiconductor lasers. In anticipation of their application to power semiconductors, which constitute a large market, we have also established technology to create bigger 6-inch types.

All these products were developed based on our own technologies, such as crystalline orientation control, ultra-high-precision polishing, wafer bonding, and liquid-phase crystal growth and deliver unrivaled high performance. These businesses have a promising future in that customers approach us with potential new applications or we discover application needs that we have never thought of.

\* The UL verification mark signifies a high level of safety, backed up by a rigorous safety testing and evaluation process carried out by Underwriters Laboratories (UL), a third-party safety science organization in the U.S. Valid until the end of October 2020.



## Message from the President

ESG

### Consolidating relevant matters to be discussed by the ESG Committee and promoting them as Group policy

In fiscal 2019, in order to consolidate discussions related to the environment, society, and governance, we launched the ESG Committee, which established a structure for discussing ESG initiatives, including the Fifth Five-Year Environmental Action Plan that will start from fiscal 2021, among senior management and promote them as part of the Group policy.

In the Fourth Five-Year Environmental Action Plan, which will be completed in fiscal 2020, target values have already been achieved in terms of the reduction of discarded materials and recycling. However, the target achievement in terms of CO<sub>2</sub> emission intensity of sales has been difficult due to our expanded scale of production. We are likely to focus on actions to combat climate change in the next plan. In order to achieve targets, we will continue to improve the structure to enable the development and introduction of production technologies that will help reduce the environmental impact and to facilitate the dissemination of products and services.

In February 2020, we endorsed the recommendations made by the Task Force on Climate-related Financial Disclosures (TCFD). We, as a responsible party, will work to realize a sustainable society and strive to disclose and enhance related information.

With respect to the social aspect, we will concentrate primarily on job satisfaction reforms. I have been persistently communicating to our employees the importance of pursuing our essence, because I would like them to spend time on what is truly necessary and perform higher-value-added work. Since

the start of my tenure as president, I have been personally visiting each workplace and asking employees what they are focusing on and what they are doing to solve problems. With each passing year, I have seen positive changes in the attitudes of both department heads and employees. We will also further enhance corporate systems to be a company where each employee can actively engage in work without any worries and deliver higher-quality performance.

The NGK Group has shown respect for employees' diversity and designed our human resource system to meet the needs of the times. In April 2020, we established the HR Committee as an organ for cross-sectoral discussion of corporate activities that respect human rights and human resource issues that should be addressed by the Group as a whole. Concurrently, we also launched the Diversity & Inclusion Department.

With regard to governance and compliance, we will promote honest business activities. In the past, the NGK Group caused problems that must never be repeated, including an anti-trust law violation and a non-conformity in the testing procedures of insulators and related products. It is important to never repeat these problems, and to this end, we must foster a culture where each employee strictly follows routines and rules as they are required. We are currently carrying out initiatives such as holding compliance seminars at Group company sites in an effort to instill this attitude in every employee.

Post-COVID-19

### Be ingenious by adopting new work styles

The global economy has suffered an unprecedented level of damage due to the effects of COVID-19. Looking back on the past, infectious diseases have had a considerable impact on society in the long history of the world. Considering these historical facts, we may have to prepare for the long haul. In the future, I believe that a variety of measures including vaccines will be implemented and new values and technologies suited to the post-COVID-19 era will be developed. The NGK Group will continue to look into various measures while placing utmost priority on ensuring safety and infection control.

The current catastrophe significantly reframed my attitude toward the environment. While keeping in mind a future of coexistence between environment and humanity, we have up to this point viewed the environment with a focus on CO<sub>2</sub> emissions reduction such as in the form of global warming countermeasures, and examined the effective use of the NGK Group's strengths and other initiatives. However, due to the spread of COVID-19, we confronted the reality that we are fighting an invisible threat every day. This reminded me that we

are always living side by side with nature. Thinking about how we should approach lifestyles in harmony with nature will broadly lead us to discuss what the company can do for society in 10, 20, or 100 years into the future. Toward the formulation of a new vision, we will redefine environmental protection in a broader context and clarify the direction to take as the NGK Group.

As we undergo social changes, our work styles have also shifted significantly. New working methods such as telecommuting and web conferencing have become ubiquitous, which I believe provided us with an opportunity to determine how essential each task is by spending time on thinking about contributions that each of us can make to the team and then discussing such ideas with them. Currently, we are internally gathering and summarizing feedback on changes that we have experienced and what we have felt throughout this calamity. We will be holding discussions on new work styles suitable for the NGK Group.

When I think of change, I value the idea of being ingenious. In the world, the word “innovation” is casually mentioned; however, in order to change the world, the accumulation of research activities over an extended period of time and the repetition of the trial and error process to develop ingenuity are crucial. This ingenuity stems from findings and inspirations, based on which we shall work toward materialization. Products are the fruit of these steady efforts, and there is no silver bullet

that allows us to reach a goal in a single bound. Work is meaningful only because we spend time on the process. I believe that the least I can do is to create a pleasant working environment where each employee can exercise their ingenuity.

In order to create a future of coexistence between environment and humanity, we will continue to pursue unrivaled ceramic technology with ingenuity and keep growing as a company capable of contributing to society.



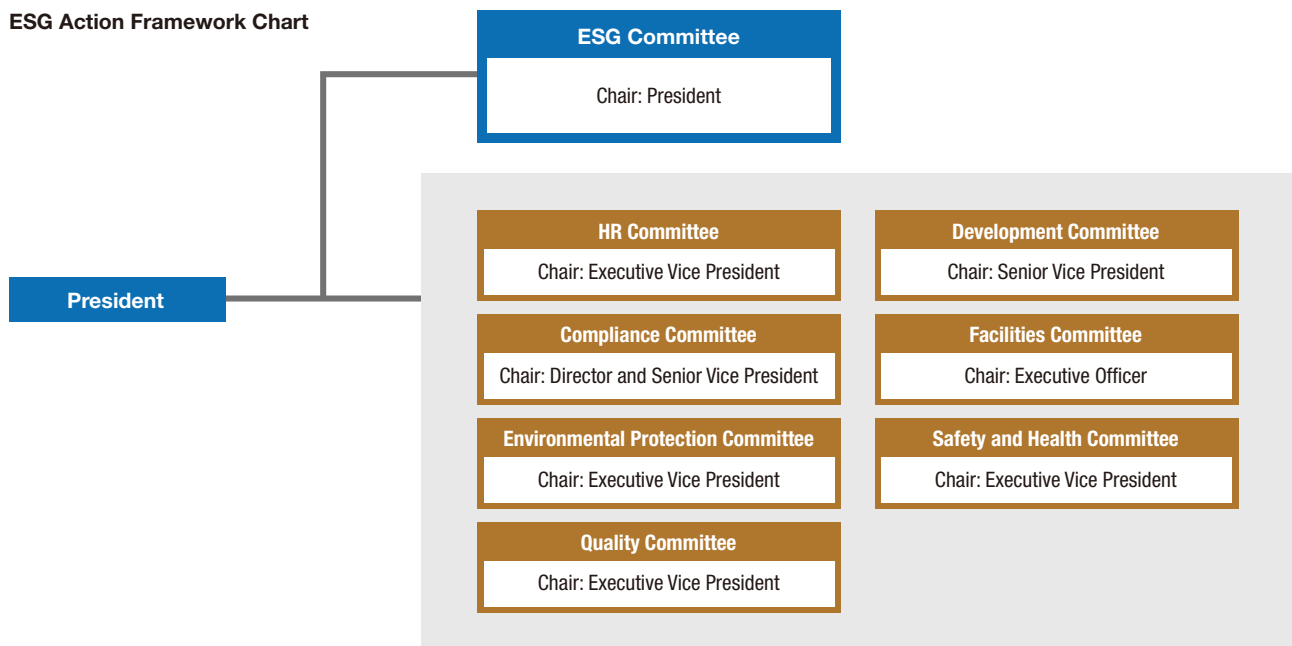
## ESG Management

To help realize the Sustainable Development Goals (SDGs) adopted by the United Nations, the NGK Group seeks to provide new value to society with our unique technology, thus contributing to the realization of a sustainable world and winning positive expectations and trust among society. All those who work in the NGK Group respect human rights and comply with the law by acting on a foundation of fair values and internationally recognized norms of judgment.

### ESG Action Framework

In April 2019, the ESG Committee was established with the president serving as its chair. In line with the Group Philosophy, this committee deliberates on management issues pertaining to ESG. In fiscal 2020, other NGK committees discussed ESG issues in their functions.

#### ESG Action Framework Chart



### Fiscal 2019 ESG Committee Achievements

Session	Date	Agenda
1st	April 11, 2019	<ul style="list-style-type: none"> <li>Formulate basic concept of ESG Committee</li> <li>Analyze other companies' trends</li> </ul>
2nd	July 4, 2019	<ul style="list-style-type: none"> <li>Plan environmental, quality, health and safety, and compliance activities</li> <li>Analyze ESG corporate rankings</li> </ul>
3rd	September 25, 2019	<ul style="list-style-type: none"> <li>Discuss risk management issues</li> <li>Plan community service activities</li> </ul>
4th	December 18, 2019	<ul style="list-style-type: none"> <li>Make long-term environmental plan</li> </ul>
5th	March 19, 2020	<ul style="list-style-type: none"> <li>Step up risk management</li> <li>Plan ESG information disclosure</li> </ul>



## Key ESG Action Themes

At the first ESG Committee session in fiscal 2020, we decided on the key action themes for the fiscal year.

Key themes	Main activities	Activity leader
Human rights protection	<ul style="list-style-type: none"> <li>Formulate human rights policies</li> <li>Carry out human rights due diligence</li> </ul>	<ul style="list-style-type: none"> <li>HR Committee</li> </ul>
Climate change countermeasures	<ul style="list-style-type: none"> <li>Formulate next term's environmental action plan and environmental vision</li> <li>Plan specific action on TCFD</li> </ul>	<ul style="list-style-type: none"> <li>Environmental Protection Committee</li> <li>Task force</li> </ul>
Support for ESG in supply chain	<ul style="list-style-type: none"> <li>Disseminate CSR procurement policy</li> </ul>	<ul style="list-style-type: none"> <li>Task force</li> </ul>
Revamping of governance system	<ul style="list-style-type: none"> <li>Study framework giving clearer separation of execution and supervision</li> <li>Strengthen risk management system</li> </ul>	<ul style="list-style-type: none"> <li>Task force</li> </ul>
Contribution to SDGs from new business	<ul style="list-style-type: none"> <li>Assess development themes from an SDG standpoint</li> </ul>	<ul style="list-style-type: none"> <li>Development Committee</li> </ul>
Implementation of ESG-related capital investment	<ul style="list-style-type: none"> <li>Plan environment-related capital investment</li> <li>Spread barrier-free facilities</li> </ul>	<ul style="list-style-type: none"> <li>Facilities Committee</li> </ul>
ESG information disclosure (integrated report, securities report)	<ul style="list-style-type: none"> <li>Increase number and depth of disclosure items</li> </ul>	<ul style="list-style-type: none"> <li>Task force</li> </ul>
Concept of community service activities	<ul style="list-style-type: none"> <li>Plan NGK Foundation for International Students and international student center activities</li> </ul>	<ul style="list-style-type: none"> <li>Task force</li> </ul>

Note: Task forces are project teams comprising members of relevant business divisions.

## NGK Group Signs UN Global Compact

The NGK Group is a signatory to the United Nations Global Compact, which advocates for independent action on the part of companies. We believe that addressing a broad range of social problems through our business activities, while measuring progress against indicators such as the SDGs, is an important corporate social responsibility.

The UN Global Compact is a global framework for realizing sustainable growth through companies and organizations acting as good members of society.





## Position on SDGs

Ever since its foundation, the NGK Group has pursued business in the energy, ecology, and electronics sectors in efforts to keep nature's air and water clean and thus help people live a comfortable, healthy life. Many of our technologies and products contribute to the SDGs, and we will continue to provide new value by leveraging our unique ceramic technology towards the realization of a sustainable society.

	Goals	Values provided by the NGK Group
	End poverty in all its forms everywhere	<ul style="list-style-type: none"> <li>• Creating appropriate employment helps to end poverty</li> <li>• NGK's climate change countermeasures help mitigate natural disasters</li> </ul>
	End hunger, achieve food security and improved nutrition, and promote sustainable agriculture	<ul style="list-style-type: none"> <li>• The social infrastructure created by NGK products helps secure equal access to work opportunities</li> </ul>
	Ensure healthy lives and promote well-being for all at all ages	<ul style="list-style-type: none"> <li>• High-output, high-efficiency semiconductor lasers using gallium nitride (GaN) wafers are a substitute for ultra-high-pressure mercury lamps, thus contributing to less use of mercury</li> <li>• Micro-lenses are increasingly used instead of mercury in UV LED light sources for applications such as the sterilization of water and air, thus contributing to less use of mercury</li> <li>• Ceramics for purifying automobile exhaust make exhaust gas clean</li> </ul>
	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	<ul style="list-style-type: none"> <li>• Creating appropriate employment gives people the chance to have equal access to education</li> </ul>
	Achieve gender equality and empower all women and girls	<ul style="list-style-type: none"> <li>• The social infrastructure created by NGK products helps provide more opportunities for women to enhance their abilities</li> <li>• Securing equal opportunities for women to participate and be leaders in society</li> </ul>
	Ensure availability and sustainable management of water and sanitation for all	<ul style="list-style-type: none"> <li>• Ceramic membrane filters provide highly safe water</li> <li>• Ceramic membrane filters purify wastewater</li> </ul>
	Ensure access to affordable, reliable, sustainable, and modern energy for all	<ul style="list-style-type: none"> <li>• Insulators are indispensable to stable power supply</li> <li>• NAS® batteries allow stable supply of renewable energy</li> <li>• Ceramics for purifying automobile exhaust make exhaust gas clean, thus enabling clean usage of fossil fuels</li> </ul>
	Promote sustained, inclusive and sustainable economic growth, full and productive employment, and decent work for all	<ul style="list-style-type: none"> <li>• Creating appropriate employment and providing employees with a satisfying work environment contributes to economic growth</li> </ul>
	Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation	<ul style="list-style-type: none"> <li>• Thin lithium-ion rechargeable batteries provide power for the new IoT generation</li> <li>• Ceramics used in electronics make ICT cheap and ubiquitous</li> <li>• Ceramics used in semiconductor manufacturing equipment let the semiconductor industry be the foundation for modern daily life</li> <li>• Metal-related products are widely used in mobile phones, automobiles, industrial equipment, and other devices that undergird modern life</li> </ul>
	Reduce inequality within and among countries	<ul style="list-style-type: none"> <li>• We prevent discrimination and take prompt and appropriate action when violations occur</li> </ul>
	Make cities and human settlements inclusive, safe, resilient, and sustainable	<ul style="list-style-type: none"> <li>• NAS batteries enable innovation in urban energy management for the creation of sustainable cities</li> </ul>
	Ensure sustainable consumption and production patterns	<ul style="list-style-type: none"> <li>• We efficiently use the natural resources used to make ceramics</li> </ul>
	Take urgent action to combat climate change and its impacts	<ul style="list-style-type: none"> <li>• NAS batteries aid in the fight against climate change by allowing stable supply of renewable energy</li> </ul>
	Conserve and sustainably use the oceans, seas, and marine resources for sustainable development	<ul style="list-style-type: none"> <li>• Ceramic membrane filters purify wastewater to prevent marine pollution</li> </ul>
	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	<ul style="list-style-type: none"> <li>• We protect biodiversity on land owned by NGK</li> </ul>
	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all, and build effective, accountable and inclusive institutions at all levels	<ul style="list-style-type: none"> <li>• We comply with the rules and regulations of the countries and regions in which do business, and ensure respect for and strict compliance with international treaties</li> </ul>
	Strengthen the means of implementation and revitalize the global partnership for sustainable development	<ul style="list-style-type: none"> <li>• We encourage and promote effective partnerships among governments, corporations, and society as a whole</li> </ul>

# Environmental

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## Environment

In addition to promoting the development and popularization of products and services that can help protect the environment, the NGK Group is endeavoring to preserve the global environment by improving manufacturing processes and developing and introducing manufacturing technology that has less environmental impact.

### Activities covered

All NGK Group sites

- NGK Headquarters, Nagoya Site, Chita Site, Komaki Site, Ishikawa Plant, Tokyo Main Office, Osaka Branch, and six other sales offices
- Group companies: 55 consolidated subsidiaries

## NGK's Core Policy on the Environment

Recognizing that protecting the environment is a vital issue that all of humanity must face, the NGK Group formulated its Core Policy on the Environment in April 1996 based on Environmental Philosophy and Guidelines for Environmental Action in order to bring its corporate activities into harmony with the environment. On the basis of this policy, the NGK Group works to reduce the environmental impact of business activities, and actively strives to help protect the environment by developing products and technologies to that end.

### NGK's Core Policy on the Environment

#### Environmental Philosophy (revised in June 2019)

The NGK Group continues our commitment to improving the global environment through our "Triple E" businesses representing the energy, ecology, and electronic sectors.

#### Guidelines for Environmental Action

1. Strive to develop, design, and manufacture products that contribute to the environment and products with low environmental impact.
2. Work to reduce the environmental impact arising from business activities. Conduct design reviews to scientifically study and evaluate the environmental impact of business activities.
  - Promote energy conservation measures for all processes and facilities, and make efforts to control CO<sub>2</sub> emissions.
  - Promote resource saving and recycling, and make efforts to control the generation of by-products.
  - Through the appropriate use and control of chemical agents, work to reduce the risks inherent in toxic substances.
  - Give precedence to environmentally friendly materials, parts, products, and facilities in procurement and purchasing, strengthening cooperative alliances with our business partners.
3. Enhance environmental management systems from a global perspective while continuously reducing our environmental impact.
4. Not only abide by environmental laws, regulations, and other requirements, but also institute voluntary standards and work to improve our own environmental conservation.
5. Provide environmental information to the public at the appropriate time and pursue dialogue with all stakeholders. Proactively develop social action programs. Also, engage in education and publicity in order to improve employees' environmental consciousness.

# Five-Year Environmental Action Plan

The NGK Group has established the Fourth Five-Year Environmental Action Plan (fiscal 2016–2020). To achieve the goals of the Plan, we are promoting environmental activities, setting annual targets.

## Outline of the Fourth Five-Year Environmental Action Plan (Fiscal 2016–2020)

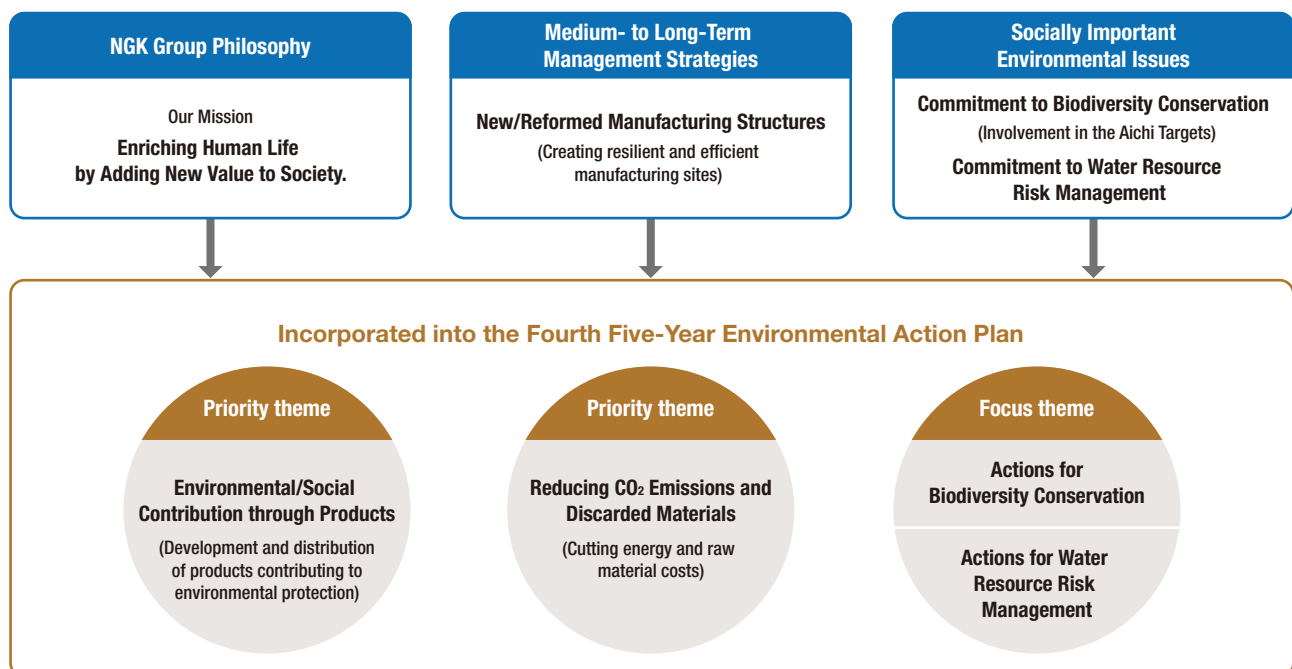
The NGK Group organizes environmental initiatives by creating five-year action plans. The Fourth Five-Year Environmental Action Plan, initiated in fiscal 2016, has been formulated to broadly encompass major global environmental challenges and to select two key issues each for two groups of themes, namely, priority themes and focus themes.

The two priority themes are: environmental/social contribution through products; and reducing CO<sub>2</sub> emissions and discarded materials. The first priority theme directly reflects the core concept of the NGK Group philosophy, while the other theme closely relates to NGK’s medium- to long-term initiative of New/Reformed Manufacturing Structures for increasing competitiveness. For focus themes, we have also set two issues: biodiversity conservation and water resource risk management/response, both being major challenges for which socially responsible corporate action is required with greater urgency.

### Base Year, Target Year, Control Scope

- Base Year: Fiscal 2013
- Target Year: Fiscal 2020
- Control Scope: Consolidated

The new Five-Year Environmental Action Plan has been designed to correspond with the business initiative of New/Reformed Manufacturing Structures. Accordingly, the base year of the Plan has been set to coincide with the initiative. In principle, activities are managed on a consolidated basis. The consolidated method has been adopted in response to the recent changes in our global production output structure, particularly increased production at overseas manufacturing sites and more products that go through the supply chain covering multiple locations worldwide.



# Five-Year Environmental Action Plan Progress Report

The initiatives planned under the Fourth Five-Year Environmental Action Plan and their progress (targets and results for fiscal 2019; targets for fiscal 2020, the final year) are summarized in the table below.

In fiscal 2019, compared to forecasts at the start of the period, negative factors such as lower sales volume in core products and negative currency effects prevented us from achieving annual goals for a number of the items for which we set numerical goals. Fiscal 2020 is the final year of the Fourth Five-Year Environmental Action Plan. Despite the uncertainty in the global economy caused by the growing COVID-19 pandemic, the NGK Group is working in concert to undertake environmentally beneficial activities that will enable us to meet the targets of the Five-Year Environmental Action Plan, including the smooth start-up of new plants and production lines and an increase in the production yield ratio.

Category	Item	KPI	FY2019			FY2020	Take action in 11 of the 17 SDGs	
			Target	Result	Self-evaluation*	Target		
Environmental/social contribution	 Develop and distribute products contributing to environmental protection	Sales growth (%) (consolidated)	Increase by 52% from FY2013	Increased by 45% from FY2013	×	Increase by at least 60% from FY2013		
		Promote green procurement	Plan progress (%)	<ul style="list-style-type: none"> <li>At least 99% of NGK's suppliers in Japan agree to comply with the CSR Procurement Guidelines</li> <li>Survey of overseas efforts methods</li> </ul>	<ul style="list-style-type: none"> <li>99.5% agreed (100% including suppliers who partially agreed)</li> <li>Unable to get useful information on overseas activities</li> </ul>	○		Maintain in Japan, expand overseas
	 Promotion of environmental communication	Contribute to local communities	Plan progress (%)	Participate in local environmental protection activities	Group companies participated	○	Continually enhance actions partnering with communities	
		Raise environmental awareness	Plan progress (%)	<ul style="list-style-type: none"> <li>Provide environmental education for employees</li> <li>Disseminate environmental policy</li> <li>Encourage participation in environmental events</li> </ul>	<ul style="list-style-type: none"> <li>Provided training programs by job grade</li> <li>Installed "green curtains"</li> </ul>	○	Continually enhance environmental training and information disclosure	
	 Conservation of biodiversity	Promote actions based on biodiversity conservation guidelines	Plan progress (%)	Continue to expand employee participation in My Action Declaration project	396 employees participated in FY2019 (cumulative total: 6,550)	○	Expand and enhance content of Aichi Targets actions	
 Prevention of global warming			Reduce CO <sub>2</sub> emitted from manufacturing* <sup>5</sup>	Basic unit per net sales (consolidated)	Reduce by 17% from FY2013	Reduced by 9% from FY2013	×	
Environmental impact reduction	 Prevention of global warming	Reduce CO <sub>2</sub> emitted from manufacturing* <sup>5</sup>	Reduction rate against BAU (%) <sup>*2</sup> (consolidated)	Reduce by 16% from FY2013	Reduced by 16% from FY2013	○	Reduce by 18% from FY2013 (upward revision from initial 15% target)	
		Reduce CO <sub>2</sub> emitted from supply chains	Basic unit per transport volume* <sup>3</sup> (non-consolidated)	Reduce by 1% per year on 5-year average* <sup>4</sup>	Increased by 5.1% per year on 5-year average* <sup>4</sup>	×	Reduce by 1% per year on 5-year average* <sup>4</sup>	
	 Effective use of resources	Reduce discarded materials emitted from manufacturing* <sup>5</sup>	Basic unit per net sales (consolidated)	Reduce by 30% from FY2013	Reduced by 32% from FY2013	○	Reduce by 30% from FY2013	
			Reduction rate against BAU (%) <sup>*2</sup> (consolidated)	Reduce by 19% from FY2013	Reduced by 24% from FY2013	○	Reduce by 23% from FY2013 (upward revision from initial 20% target)	
		Promote resource recycling	Recycling rate (Japan)	At least 99%	99.3%	○	Maintain at least 99%	
Manage and respond to water resource risks	Plan progress (%)	Follow-up of water consumption results	Water consumption continued at stable pace	○	Strengthen actions by production bases for evaluating risks and streamlining water use			

Notes:

\*1: Self-evaluation standards for achievement level: ○: Target achieved; ×: Target not achieved

\*2: Reduction rate against BAU (business as usual) indicates the percentage rate of emissions reduction resulting from implemented actions compared to a case in which no improvement action was taken since fiscal 2013. By not incorporating the influence of foreign exchange movements and other factors, this indicator allows a direct grasp of the efforts by each site.

\*3: NGK basic unit per transport volume expresses in metric ton-kilometers the amount of crude oil equivalent fuel used.

\*4: Based on the computation criteria stipulated in the Act on the Rational Use of Energy.

\*5: Covers all manufacturing sites of the NGK Group.



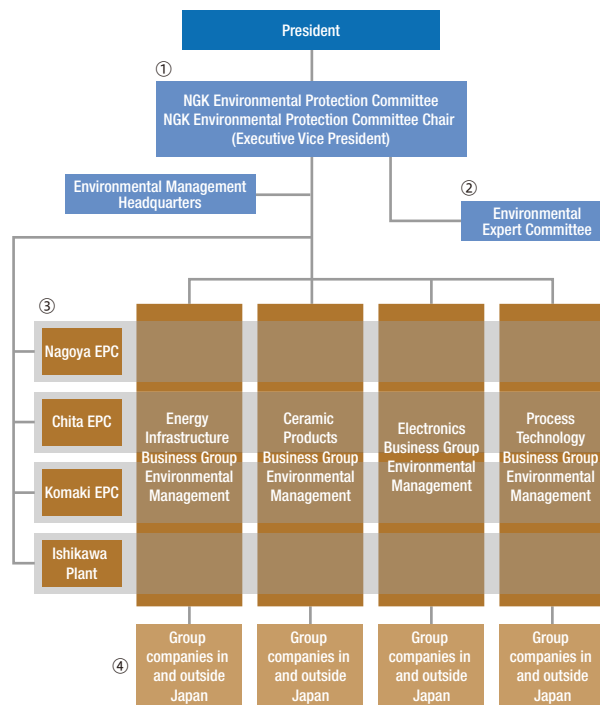
# Environmental Management Frameworks and Environmental Management System

The NGK Group promotes environmental conservation activities in accordance with our Core Policy on the Environment through initiatives pertaining to environmental management frameworks and the Environmental Management System (EMS) implemented by global Group companies working in conjunction with one another.

## Environmental Management Promotion System

In addition to environmental management systems built independently at each site of NGK (Nagoya, Chita, Komaki, Ishikawa), we have established a consolidated management system to control environmental activities at all Group companies in and outside Japan under the leadership of each Business Group. The Five-Year Environmental Action Plan and the related annual plan are shared across the entire Group via the Business Groups to be incorporated into activity plans of each Group company.

To promote unified environmental management for the entire Group, annual liaison meetings are held for Group companies in Japan, while headquarters personnel visit Group companies outside Japan on a regular basis. Thus, we create interactive discussion and support opportunities to address issues facing each company.



### ① NGK Environmental Protection Committee

In principle, this committee meets twice each year. Other meetings are held at the discretion of the chair.

#### Governing Structure

Chair	President makes decision in light of Executive Committee deliberations (As of July 2020, Executive Vice President)
Vice Chair	Appointed by NGK Environmental Protection Committee Chair (As of July 2020, General Manager of Environmental Management Dept.)
Members	Executive Vice President, Vice Presidents responsible for Headquarters Departments, Group Executives, General Managers, General Manager of Pollution Control at each site, General Manager of Environmental Management Dept., General Manager of Safety and Health Management, General Manager of Corporate Strategy Office, General Manager of Corporate Communications, General Manager of Human Resources Dept., General Manager of Group Compliance, General Manager of Finance & Accounting Dept., General Manager of Legal Dept., General Manager of General Affairs Dept., General Manager of Purchasing Dept., General Manager of Construction & Maintenance Dept., General Manager of Global Engineering Center, and others designated by the Committee Chair

### ② Environmental Expert Committee

The committee meets before the NGK Environmental Protection Committee to review and discuss items to be reported to the committee.

#### Governing Structure

Expert Committee Chair	General Manager of Environmental Management Dept.
Vice Chair	General Manager of Construction & Maintenance Dept.
Members	General Manager of Business Planning Dept., persons in charge of promoting environmental activities in each division, Group Manager of Environmental Management Dept., others designated by the Expert Committee Chair

### ③ Environmental Committees at Each NGK Site

In principle, committees of each NGK site (Nagoya Site [headquarters, Atsuta/Mizuho], Chita Site, Komaki Site, Ishikawa Plant) meet twice each year in each area. They thoroughly convey matters determined by the NGK Environmental Protection Committee, and communicate and discuss issues and topics in each area (five sites hold two meetings each for total of 10 per year).

### ④ Environmental Management In and Outside Japan

Business divisions of NGK, including those at Group companies in and outside Japan, have environmental management systems aimed at realizing NGK's Core Policy on the Environment. The NGK headquarters surveys environmental performance at Group companies and conducts audits to monitor their conformance to environmental laws. If problems are discovered, the causes and remedies are determined and disseminated throughout the Group. At Group companies in Japan involved in manufacturing, annual liaison meetings are held in order to convey environmental policy and to share information on matters such as companies' environmental management status and effective environmental initiatives.

## Environmental Management System (ISO 14001, etc.) Initiatives

The NGK Group encourages the acquisition of ISO 14001 or third-party certifications (such as Eco Stage 2 or Eco Action 21 in Japan) meeting this standard to systematically and continuously develop its environmental conservation activities in line with NGK's Core Policy on the Environment.

Under this initiative, all Group companies (excluding new Group companies), including those outside Japan, as well as the Nagoya, Chita, Komaki, and Ishikawa sites, have received certification. Five of these are bases that were newly certified in fiscal 2019.

#### Certified Production Bases

**47** bases **100%** of entire Group

## External Organizations' Evaluation of NGK Environmental Management

On the right is an evaluation by external organizations of NGK's recent environmental management and ESG activities.

Our fiscal 2019 rank was "A-" on CDP's Climate Change list. Since fiscal 2016, we have been selected every year for the Dow Jones Sustainability Asia Pacific Index. In the Nikkei Environmental Management Survey, NGK's highest placing was 50th, in fiscal 2017. In the fiscal 2019 Nikkei SDGs Management Survey, we received a deviation value of 59.6.

### Certification of Environmental Management System As of July 2020

Category		Number of manufacturing bases	Number of bases certified
NGK		4	4
Domestic Group	Energy Infrastructure Business Group	5	5
	Ceramic Products Business Group	1	1
	Electronics Business Group	12	12
	Process Technology Business Group	4	4
Overseas Group	Energy Infrastructure Business Group	3	3
	Ceramic Products Business Group	9	9
	Electronics Business Group	5	5
	Process Technology Business Group	4	4

New bases operating less than two years not covered.

### ESG Company Evaluation

Evaluation index	Survey year			
	2016	2017	2018	2019
CDP-Climate Change	B	B	B	A-
CDP-Water Security	B	B	B-	B-
DJSI/Asia Pacific	Selected	Selected	Selected	Selected
Nikkei Environmental Management Survey	109th	50th	62nd	
Nikkei SDGs Management Survey				Deviation value: 59.6

## Environmental Audits

NGK conducts internal audits and external audits (renewal audits) of the environmental management system at the Nagoya, Chita, and Komaki sites, as well as the Ishikawa Plant. Group companies also conduct these same internal audits, and external reviews of the environmental management systems are conducted by external auditors at all Group companies.

In fiscal 2019, in the same way as with the previous year, there were no significant findings. In the event of a significant finding, the relevant division and Environmental Management Dept. work together to review and implement countermeasures, as well as inform environmental committees in each area in an attempt to horizontally deploy these measures.

## Environmental Risk Management

At the NGK Group, each manufacturing site has individually established environmental management systems to prevent environmental pollution.

In fiscal 2019, the NGK headquarters conducted audits, which were focused on environmental risk control, at 14 manufacturing bases in Japan and 9 overseas. The main purpose of the audits was to ascertain progress on improvement since the previous year's audits and to determine the situation at overseas bases that could not be audited in the previous year. Based on audit results, problems were remedied and support was provided for improvements as part of efforts to improve the management level for the entire Group.

## Regulatory Compliance

NGK conducts monitoring and assessments as well as vigorous control of exhaust and wastewater produced from its sites, observing relevant regulations and environmental preservation-related and other agreements with control authorities. Additionally, we organize environmental management specialist seminars on a regular basis for all Group companies in Japan to keep responsible persons updated on related topics, thereby enhancing our capabilities to prevent environmental pollution.

In fiscal 2019, there were no major violations of environment-related laws by NGK.

## Environmental Patrols and Emergency Response Drills

NGK implements environmental patrols in line with annual plans to prevent environmental pollution and conducts response drills based on emergency scenarios to minimize damage.

In fiscal 2019, environmental patrols were conducted at the Nagoya, Chita, and Komaki sites and the Ishikawa Plant to prevent atmosphere and water pollution, ensure the appropriate management of chemical substances, and suppress noise and vibrations. Response drills based on emergency scenarios were also conducted at these four areas. Going forward, NGK will continue to proactively engage in patrols and drills in an attempt to improve operational methods and mitigate environmental risks.

### Activities Conducted in FY2019

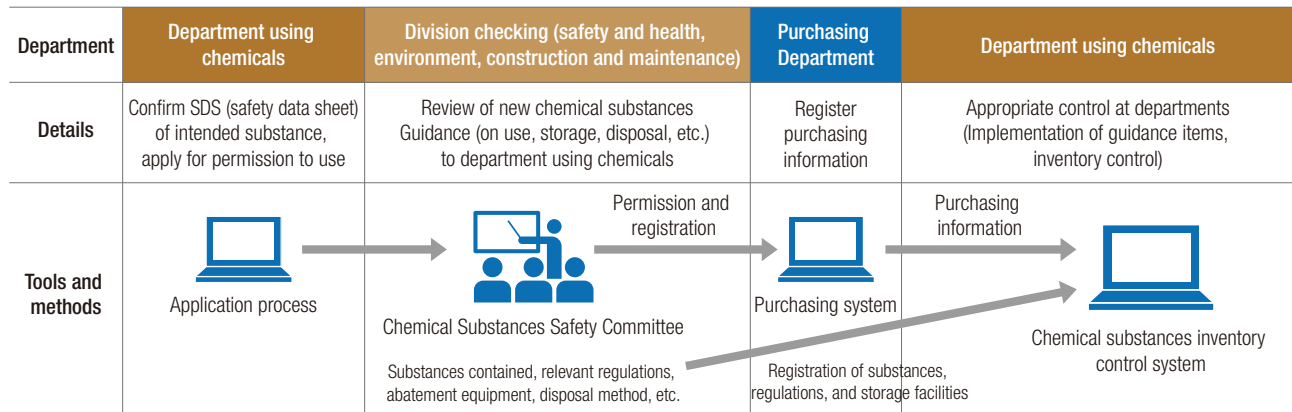
		Atmosphere	Water	Noise and vibrations	Chemical substances
Nagoya	Environmental patrols	4	4	4	1
	Emergency response drills	4	2	—	2
Chita	Environmental patrols	1	2	1	1
	Emergency response drills	4	5	—	—
Komaki	Environmental patrols	1	2	1	1
	Emergency response drills	9	9	—	—
Ishikawa	Environmental patrols	2	2	2	2
	Emergency response drills	5	2	—	2

Note: "—" indicates emergency response drills were considered of low importance and not conducted.

## Chemical Management System

For NGK sites on a non-consolidated basis, strict checks are carried out when new substances come into use as part of efforts to maintain and raise the level of management. Before purchasing a new chemical substance, the Chemical Substances Safety Committee decides whether it should be used, then confirms with, and provides guidance to, the departments that will use the chemical on important matters regarding the chemical's use and disposal. The departments using the new chemicals thus take the lead in proper management of the substances. Thanks to these efforts, atmospheric emissions of organic solvents and other PRTR-listed substances at NGK decreased in fiscal 2019 against fiscal 2010 by 62%. We are transferring this success to our main overseas manufacturing bases so that they lead to a lower environmental impact for the NGK Group as a whole.

### Chemical Management Flowchart



## Strengthening of Global Environmental Management

In accordance with the Guidelines for Environmental Action, the NGK Group horizontally deploys domestic environmental impact reduction initiatives in Group companies outside Japan while creating mechanisms to strictly comply with amendments to environmental laws and regulations to propel our global environmental management to the next level.

### Mitigating Environmental Risks throughout the Group

All NGK Group manufacturing bases in and outside Japan have completed acquisition of ISO 14001 or third-party certifications meeting this standard and implement environmental management in line with environmental management systems.

NGK shares information regarding changes in domestic environmental laws and regulations with Group companies and has created a structure to ascertain the status of responses to these changes. Overseas, NGK headquarters is enhancing its ability to regularly ascertain the status of responses and management in terms of important legal and regulatory system revision information in the countries and regions where Group companies are located.

In fiscal 2019, staff of the NGK headquarters continued their work from fiscal 2018 in conducting audits at 14 manufacturing bases in Japan and 9 overseas, with a focus on environmental risk. Based on audit results, problems were remedied and support was provided for improvements as part of continuing efforts to mitigate environmental risks throughout the Group. Periodic audits will continue to be conducted at all bases in fiscal 2020 and beyond.

### Strengthening Environmental Management Linked to Business Planning

The NGK Group aims to build an environmental management system that can cope with changes in both our business plan and the state of the social environment.

Initiatives aimed at reducing environmental impact in accordance with business plans include conducting biannual forecast estimates and achievement evaluations in each business group, product line, and manufacturing base to determine which initiatives to pursue next.

These efforts include the establishment of the Environmental Expert Committee under the NGK Environmental Protection Committee as a company-wide decision-making body. The Environmental Expert Committee facilitates discussions among managers from planning and production divisions who formulate and promote actual business planning in each business division, strengthening the company-wide environmental management system. Going forward, we will continue to strengthen management integration with the aim of promoting environmental management that combines global environmental protection and corporate growth.

## Overall Perspective of Environmental Impact

The table below shows aggregate inputs to and outputs from manufacturing operations of the entire NGK Group at all domestic and overseas sites. Inputs represent data for raw materials and energy etc. and outputs for manufactured products and services as well as substances that are discharged into the atmosphere and into water.

### FY2019 NGK Group Material Balance (Input and Output)

Category	Item	Unit	FY2017		FY2018		FY2019	
			Consolidated	Non-consolidated	Consolidated	Non-consolidated	Consolidated	Non-consolidated
INPUT	Electric power	GWh	880	230	930	250	950	250
	Gas (natural gas conversion)	Million Nm <sup>3</sup>	140	19	142	20	137	19
	Oil (light oil conversion)	Million L	2.55	0.27	2.11	0.28	1.74	0.30
	Raw materials	10 <sup>3</sup> metric tons	192	36	180	35	147	28
	Recycled materials	10 <sup>3</sup> metric tons	4.4	4.4	3.8	3.8	3.8	3.8
	PRTR-listed substances	Metric tons	707	232	694	219	589	236
	Total water usage	Million m <sup>3</sup>	4.32	1.50	4.53	1.60	4.33	1.55
OUTPUT	Energy-origin CO <sub>2</sub>	10 <sup>3</sup> metric tons of CO <sub>2</sub>	932	156	960	164	960	157
	Other greenhouse gases	10 <sup>3</sup> metric tons of CO <sub>2</sub>	5	1	5	1	5	2
	CO <sub>2</sub> (non-energy origin)	10 <sup>3</sup> metric tons of CO <sub>2</sub>	1	1	0	0	0	0
	CH <sub>4</sub>	10 <sup>3</sup> metric tons of CO <sub>2</sub>	1	1	0	0	0	0
	N <sub>2</sub> O	10 <sup>3</sup> metric tons of CO <sub>2</sub>	0	0	0	0	0	0
	HFC	10 <sup>3</sup> metric tons of CO <sub>2</sub>	0	0	0	0	0	0
	PFC	10 <sup>3</sup> metric tons of CO <sub>2</sub>	4	0	4	1	3	0
	SF <sub>6</sub>	10 <sup>3</sup> metric tons of CO <sub>2</sub>	0	0	0	0	0	0
	VOC	Metric tons	145.3	0.0	119.7	0.0	68.4	0.2
	PRTR-listed substances (emissions into atmosphere)	Metric tons	154.2	2.4	127.5	2.8	76.3	2.6
	Discarded materials	10 <sup>3</sup> metric tons	59	11	58	11	54	11
	Recycled	10 <sup>3</sup> metric tons	44	11	43	11	43	11
	Disposed of externally	10 <sup>3</sup> metric tons	15	0	16	0	11	0
	Total water discharge	Million m <sup>3</sup>	2.87	1.31	2.81	1.37	3.14	1.40
	PRTR-listed substances (discharge into bodies of water)	Metric tons	0.4	0.4	0.3	0.3	0.5	0.5
	Scope 1 (energy-origin CO <sub>2</sub> )	10 <sup>3</sup> metric tons of CO <sub>2</sub>	320	43	323	44	309	43
	Scope 2 (energy-origin CO <sub>2</sub> )	10 <sup>3</sup> metric tons of CO <sub>2</sub>	612	113	637	120	651	114

#### Notes:

1. Environmental performance values in this report have been rounded off for convenience; therefore the sum of individual values may not match the totals.
2. "Discarded materials" indicates the total amount of industrial waste and valuables.
3. Figures in the non-consolidated column indicate data from non-consolidated NGK production bases (Headquarters, Nagoya Site, Chita Site, Komaki Site, Ishikawa Plant).
4. Fiscal 2017 non-consolidated CO<sub>2</sub> emissions have been revised so that calculation uses the CO<sub>2</sub> conversion factor stipulated under enforcement orders of Japan's Act on Promotion of Global Warming Countermeasures.
5. There was an error in adding up fiscal 2018 VOC emissions values, but this has been corrected.
6. There was an error in adding up fiscal 2018 consolidated PRTR values (emissions into atmosphere), but this has been corrected.



## Reporting Scope 3 CO<sub>2</sub> Emissions

Starting in fiscal 2017, NGK has been calculating Scope 3 emissions on a non-consolidated upstream basis in response to emerging expectations for businesses to expand the relevant data reporting scope to include supply chain CO<sub>2</sub> emissions levels. In fiscal 2019, NGK confirmed that the total volume of CO<sub>2</sub> emission from NGK logistics was 977,000 metric tons, which was over six times more than the 157,000 metric tons of NGK in-house CO<sub>2</sub> emissions (sum of Scope 1 and 2), and that Category 1 (purchased goods and services) amounted to over 80% of total CO<sub>2</sub> emissions. NGK will continue to develop calculation methods that can ascertain CO<sub>2</sub> emission levels in relation to a greater range of items.

Please note that the calculation used for Scope 3 data was carried out in accordance with Basic Guidelines Regarding the Calculation of Greenhouse Gas Emissions through the Supply Chain (Ver. 2.2) (Ministry of the Environment; Ministry of Economy, Trade and Industry).

### Scope 3 GHG Emissions

Category	Item	Unit	FY2017	FY2018	FY2019
			Non-consolidated	Non-consolidated	Non-consolidated
1	Purchased goods and services (including resale items)	10 <sup>3</sup> metric tons of CO <sub>2</sub>	762	863	842
2	Capital goods	10 <sup>3</sup> metric tons of CO <sub>2</sub>	84	152	99
3	Fuel- and energy-related activities	10 <sup>3</sup> metric tons of CO <sub>2</sub>	16	18	16
4	Upstream transportation and distribution	10 <sup>3</sup> metric tons of CO <sub>2</sub>	11	8	14
5	Waste generated in operations	10 <sup>3</sup> metric tons of CO <sub>2</sub>	1	3	2
6	Business travel	10 <sup>3</sup> metric tons of CO <sub>2</sub>	1	1	1
7	Employee commuting	10 <sup>3</sup> metric tons of CO <sub>2</sub>	2	2	2
8	Upstream leased assets	10 <sup>3</sup> metric tons of CO <sub>2</sub>	0	0	0
Total		10 <sup>3</sup> metric tons of CO <sub>2</sub>	877	1,047	977

### Water Withdrawal by Source, Water Discharge by Destination, Recycled Amount, Recycling Rate

Item	Unit	FY2017		FY2018		FY2019		
		Consolidated	Non-consolidated	Consolidated	Non-consolidated	Consolidated	Non-consolidated	
Water withdrawal	Municipal government water utility (or other water utility)	Million m <sup>3</sup>	3.69	1.06	3.91	1.14	3.71	1.08
	Groundwater	Million m <sup>3</sup>	0.63	0.44	0.62	0.47	0.62	0.47
	Surface water (lakes, rivers, etc.)	Million m <sup>3</sup>	0.002	0.0	0.002	0.0	0.001	0.0
	Total	Million m <sup>3</sup>	4.322	1.502	4.532	1.610	4.331	1.550
Water discharge	Sewerage	Million m <sup>3</sup>	0.73	0.20	0.71	0.19	0.66	0.20
	Rivers, lakes, etc.	Million m <sup>3</sup>	2.14	1.11	2.10	1.18	2.48	1.20
	Waste	Million m <sup>3</sup>	0.0	0.0	0.0	0.0	0.0	0.0
	Ground permeation	Million m <sup>3</sup>	0.0	0.0	0.0	0.0	0.0	0.0
	Total	Million m <sup>3</sup>	2.87	1.31	2.81	1.37	3.14	1.40
Recycled amount		Million m <sup>3</sup>	0.09	0.0	0.09	0.0	0.09	0.0
Recycling rate		%	2.04	0.00	1.95	0.00	2.04	0.00

## INPUT

### 1. Energy

Electric power:

Consumption amount of electric power

Gas: Consumption volume of each type of fuel gas converted into natural gas volume =  $\Sigma$  (Consumption volume of each fuel gas  $\times$  Unit heating value of each fuel gas / Unit heating value of natural gas)

<Unit heating value of fuel gas>

Natural gas: 43.5 MJ/Nm<sup>3</sup> City gas: 45.0 MJ/Nm<sup>3</sup>

LPG: 50.8 MJ/kg LNG: 54.6 MJ/kg

Oil: Consumption volume of each type of fuel converted into light oil volume =  $\Sigma$  (Consumption volume of each fuel  $\times$  Unit heating value of each fuel / Unit heating volume of light oil)

<Unit heating value of fuel>

Light oil: 37.7 MJ/L Fuel oil A: 39.1 MJ/L Kerosene: 36.7 MJ/L Gasoline: 34.6 MJ/L

### 2. Water

Total consumption volume of city water, industrial water, well water, and rainwater

### 3. PRTR-listed substances

Total amount handled of Japan's PRTR Type 1 listed substances

### 4. Raw materials

Total weight of raw materials used in product manufacturing

## OUTPUT

### 5. Energy-origin CO<sub>2</sub> emission volume

Energy-origin CO<sub>2</sub> emission volume =  $\Sigma$  (Consumption of each energy  $\times$  CO<sub>2</sub> conversion factor of each energy)

<CO<sub>2</sub> conversion factor of energy>

(Unit of electric power factor: kgCO<sub>2</sub>/kWh Unit of fuel factor: kgCO<sub>2</sub> / fuel unit)

Electric power

Japan: Emission coefficient for each electric utility in Japan based on the Act on Promotion of Global Warming Countermeasures;

United States: 0.709; Belgium: 0.292; France: 0.061; Poland: 0.986; South Africa: 1.096; China: 0.983; Thailand: 0.687;

Indonesia: 0.790; Australia: 1.390; Mexico: 0.741; Malaysia: 0.543

Fuel Natural gas (Nm<sup>3</sup>): 2.22; City gas (NGK on a non-consolidated basis) (Nm<sup>3</sup>): 2.244;

City gas (except NGK on a non-consolidated basis) (Nm<sup>3</sup>): 2.23; LPG (kg): 3.00; LNG (kg): 2.70; Light oil (L): 2.58;

Fuel oil A (L): 2.71; Kerosene (L): 2.49; Gasoline (L): 2.32; Industrial steam (MJ): 0.06

### 6. Emission volume of other greenhouse gases

Emission volume of other greenhouse gases = Active mass  $\times$  Emission factor  $\times$  Global warming potential

<Global warming potential>

CO<sub>2</sub>: 1; CH<sub>4</sub>: 25; N<sub>2</sub>O: 298; HFC: Differs by type; PFC: Differs by type; SF<sub>6</sub>: 22800; NF<sub>3</sub>: 17200

### 7. Water discharge

Total amount of discharged water excluding rainwater

### 8. PRTR-listed substances

Discharge into bodies of water: Total amount of Class 1 substances listed under Japan's PRTR Act discharged into public bodies of water

Emissions into the atmosphere: Total amount of Class 1 substances listed under Japan's PRTR Act emitted into the atmosphere

### 9. Total amount of discarded materials generated

Total amount of discarded materials generated = Externally disposed amount\*<sup>1</sup> + Externally recycled amount

Recycled amount: Externally recycled amount = Paid disposal\*<sup>2</sup> + Valuable amount (selling off)

\*<sup>1</sup> Externally disposed amount: Direct disposal by landfill, or simple incineration

\*<sup>2</sup> Paid disposal: Outsourcing disposal and paying for recycling

### 10. Scope 1 to 3

Scope 1: Direct emissions of greenhouse gases by the reporting company (generated from the burning of fuel or industrial processes)

Scope 2: Indirect emissions of greenhouse gases by the reporting company resulting from the use of electricity, steam, or heat purchased from other companies

Scope 3: All other indirect emissions of greenhouse gases (not included in Scope 1 or 2) that occur in the reporting company's value chain

## Preventing Global Warming

The NGK Group strives to reduce CO<sub>2</sub> emissions, a major cause of global warming, by setting and working toward achievement of emission reduction targets.

NGK is a member of the Japan Climate Leaders' Partnership (Japan-CLP), a business coalition in Japan that aims to create a low-carbon society through decarbonization of business, trial business collaborations, policy creation and publicity activities, and cooperation with like-minded international organizations.

### NGK Endorses TCFD\*

The NGK Group is committed to making even greater efforts amidst government and private sector actions to achieve the goals of the Paris Agreement. The Group's top management determined the importance of endorsing the recommendations of the Task Force on Climate-Related Financial Disclosures (TCFD), which encourages the disclosure of climate-change related risks and opportunities towards making plans for reducing CO<sub>2</sub> emissions. In February 2020 the Group announced its endorsement of the recommendations of the TCFD.



\*TCFD: The Task Force on Climate-Related Financial Disclosures was established by the Financial Stability Board (FSB). The G20 Osaka Summit in June 2019 provided the impetus for many Japanese companies to announce their endorsement of the TCFD recommendations. (As of June 22, 2020, 276 companies and organizations have announced endorsement.)

### Management of Climate Change Risks

Action plans proposed by the NGK Environmental Protection Committee are deliberated on by the Board of Directors before being carried out under group environmental management. In fiscal 2019, the ESG Committee, made up of management and chaired by the President, was launched to discuss important tasks and strategies and create action plans related to ESG. The ESG Committee discusses the management of climate change risks.

### Reducing CO<sub>2</sub> Emissions Associated with Manufacturing Activities

By creating and implementing annual improvement plans in line with the business plans of each of our manufacturing sites both within Japan and overseas, the NGK Group has been making steady progress toward achieving the CO<sub>2</sub> emissions reduction targets set under our Five-Year Action Plan.

Demand for NGK's main products has gone down due to the effects of the COVID-19 pandemic beginning in late fiscal 2019. Factors such as the occurrence of temporary energy losses due to the start-up of facilities at new bases have presented difficulties in our efforts to reduce CO<sub>2</sub> emissions. Combined with the effects of a strong yen, these have prevented us from achieving the target for CO<sub>2</sub> emissions per unit of net sales that we set under the Five-Year Action Plan.

However, thanks to steady reduction efforts at manufacturing bases, we were able to achieve our annual target for reduction rate against BAU, an indicator newly introduced under the Five-Year Action Plan to help visualize the effect of measures to reduce emissions.

In fiscal 2020, the final year of the Five-Year Action Plan, we predict a large decrease in demand for most products due to the COVID-19 pandemic. We thus foresee extreme difficulty in achieving the Five-Year Action Plan targets. That being said, we will revamp our production system and do everything possible to carry out our initially planned CO<sub>2</sub> reduction measures.

Believing that preventing future global warming is one of our most important duties as a company, from a long-term perspective we have already started deliberating on how to further reduce CO<sub>2</sub> emissions after the end of our current Five-Year Action Plan. As part of this we are considering where we want to be as a company during the period between 2030 and 2050, and the policies that we will need to implement to realize that.

Note: In calculating CO<sub>2</sub> emissions under our environmental action plan, considering consistency with the target values from the past, we use the following CO<sub>2</sub> conversion factors, which differ from the figures in the section titled "Overall Perspective of Environmental Impact."

CO<sub>2</sub> emission volume = Σ (Consumption of each energy × CO<sub>2</sub> conversion factor of each energy)

<CO<sub>2</sub> conversion factor of energy>

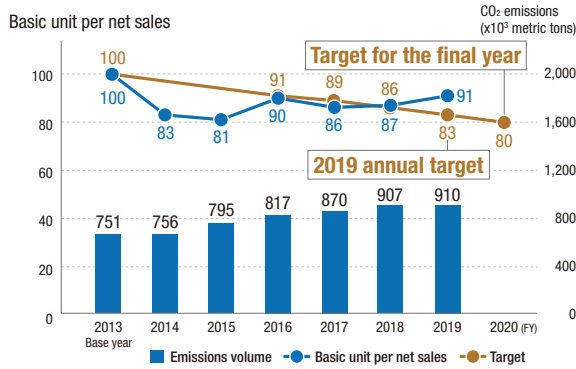
(Unit of electric power factor: kgCO<sub>2</sub>/kWh Unit of fuel factor: kgCO<sub>2</sub>/fuel unit)

Electric power: Japan: 0.42; United States: 0.709; Belgium: 0.292; France: 0.061; Poland: 0.986; South Africa: 1.096; China: 0.983; Thailand: 0.687; Indonesia: 0.790; Australia: 1.390; Mexico: 0.741; Malaysia: 0.543

Fuel: Natural gas (Nm<sup>3</sup>): 2.02; City gas (Nm<sup>3</sup>): 2.29; LPG (kg): 3.007; LNG (kg): 2.70; Light oil (L): 2.64; Fuel oil A (L): 2.677; Kerosene (L): 2.49; Industrial steam (MJ): 0.06

**CO<sub>2</sub> Emissions / Basic Unit per Net Sales\***

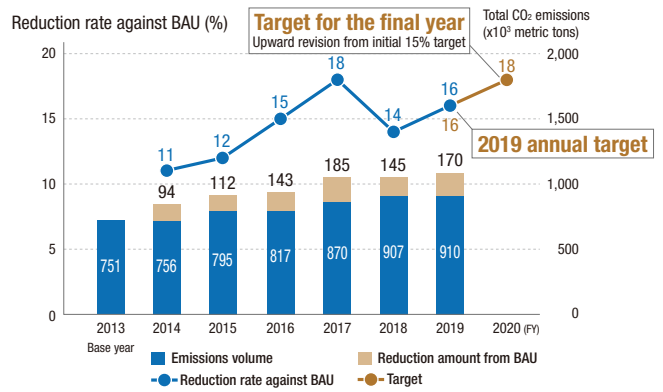
(All NGK Group manufacturing sites)



\*Basic unit per net sales calculated with the value in fiscal 2013 set at 100.

**CO<sub>2</sub> Emissions / Reduction Rate against BAU\***

(All NGK Group manufacturing sites)

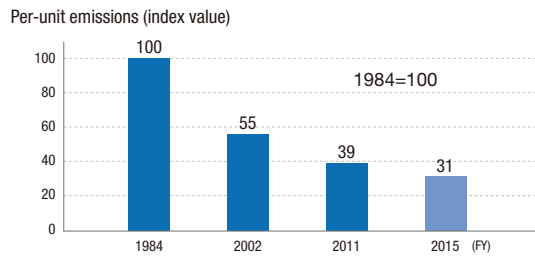


\*Reduction rate against BAU: The percentage rate of emissions reduction resulting from implemented actions against a computed value for the hypothetical absence of the actions.

**Adoption of Environmentally Friendly Production Processes**

Through the introduction of highly efficient equipment and the promotion of the collection and use of exhaust heat and improved production efficiency, the NGK Group makes efforts to reduce environmental impacts resulting from production. Also, we will create further advanced eco-processes through our New/Reformed Manufacturing Structures, which are aimed at enhancing competitiveness.

**Change in CO<sub>2</sub> Emissions from Continuous Kilns by Year of Introduction**



Note: Change in CO<sub>2</sub> emissions from continuous kilns, which constitute major production equipment

**Measures to Reduce CO<sub>2</sub> Emissions and Effects**

As we continue to expand overseas manufacturing, the NGK Group is particularly striving to raise manufacturing efficiency at our overseas sites in order to reduce the CO<sub>2</sub> emissions of the Group as a whole. We have made steady progress by introducing the innovative manufacturing processes and improvements to facilities and operations that we have implemented to date in Japan in our overseas manufacturing sites, as well as promoting energy-saving activities for general-purpose equipment.

**Examples of Initiatives Aimed at Reducing CO<sub>2</sub> Emissions**

Category	Measures	Effects (FY2019)
Highly efficient manufacturing processes	Main production efficiency initiatives at overseas sites <ul style="list-style-type: none"> <li>• Introduction of innovative production processes</li> <li>• Facility improvements</li> <li>• Operational improvements</li> </ul>	CO <sub>2</sub> reduction effect (17,000 metric tons) Japan: 7,000 metric tons Overseas: 11,000 metric tons
Group company energy-saving diagnostics	Promoted energy savings at overseas sites <ul style="list-style-type: none"> <li>• An English version of the voluntary energy-saving guidelines and a best practice brochure created and distributed to overseas sites</li> <li>• Headquarters staff visited overseas sites and conducted activities with local employees</li> </ul>	Of which <ul style="list-style-type: none"> <li>• Production process improvements                              Japan: 4,000 metric tons                              Overseas: 10,000 metric tons</li> </ul>
General-purpose equipment energy-saving activities	Horizontally deployed main improvements <ul style="list-style-type: none"> <li>• Replaced boilers with more efficient models</li> <li>• Eradicated air and steam leaks from plumbing</li> <li>• LED lighting</li> <li>• Renewed air-conditioning equipment and eliminated wasteful air conditioning</li> </ul>	<ul style="list-style-type: none"> <li>• General-purpose equipment energy savings                              Japan: 3,000 metric tons                              Overseas: 1,000 metric tons</li> </ul>

**Energy-Saving Activities for General-Purpose Equipment and Buildings**

The NGK Group has been actively promoting energy-saving activities in relation to general-purpose equipment, such as lighting, air conditioners, boilers, and compressors. The headquarters plays a central role in this in terms of sharing know-how among different manufacturing locations, thereby achieving more efficient activities.

Whenever our buildings are built or altered, we ensure that large-scale energy-saving measures and ZEB (zero energy building) principles are incorporated.

### (1) Headquarters Supporting Energy-Saving Activities at Overseas Manufacturing Sites

The headquarters Engineering Department has, over the years, sent personnel to overseas manufacturing sites to perform energy audits and, as necessary, help local staff develop and carry out effective energy-saving measures using the know-how gained from practices in Japan. These efforts have produced solid results at overseas companies, including NGK Ceramics Polska. (See “Global Warming Countermeasures Taken by Group Companies.”)

### (2) Creating and Distributing a Printed Version of the Energy-Saving Brochure and Guidelines

We have created a printed version (Japanese, English) of our energy-saving guidelines and brochure of best practices, both of which were previously available only in digital formats. Copies have been distributed to each manufacturing site in and outside of Japan to be kept handy at worksites for easy reference. This is expected to help enhance activities to reduce CO<sub>2</sub> emissions.



### (3) Efforts to Conserve Energy within Buildings

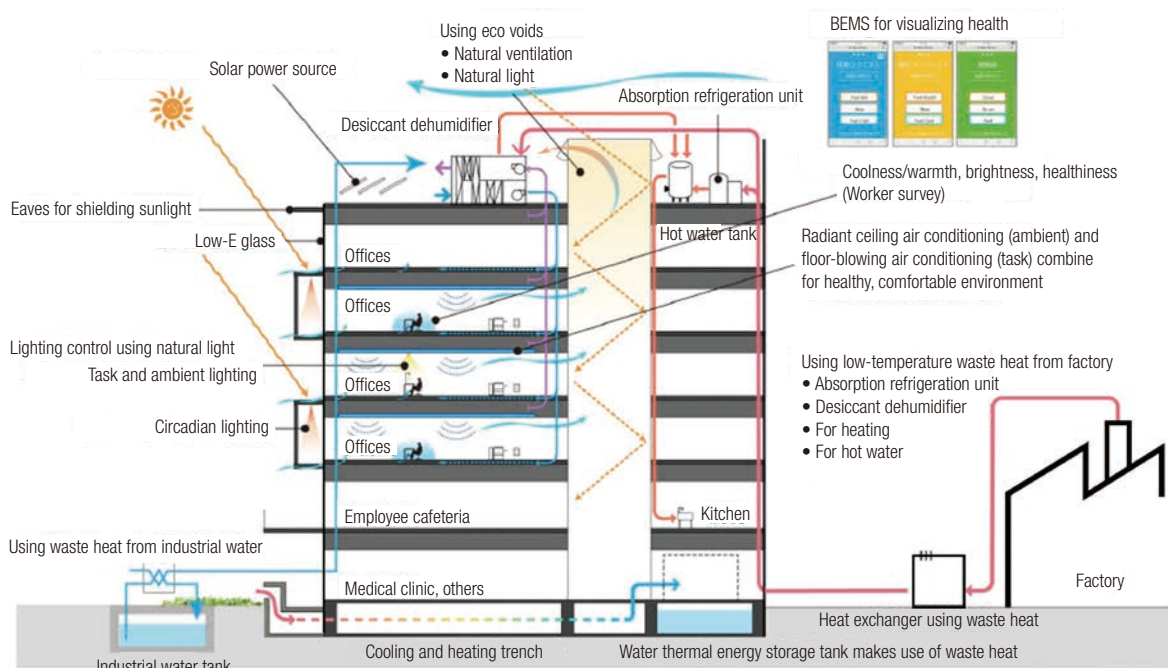
Whenever there is the opportunity to build or renovate a building, we actively endeavor to utilize high-efficiency equipment and introduce renewable energy, and carefully consider each location so as to be able to effectively utilize any natural advantages, such as low-temperature waste heat from our adjacent factories and natural ventilation/lighting, to achieve significant energy savings.

Efforts like these allowed the new administration/welfare wing, which was completed in Mizuho, Nagoya in January 2020, to be a zero energy building (ZEB)-oriented office facility whose CO<sub>2</sub> emissions are less than half of the official standard. This construction project has been lauded for its pioneering CO<sub>2</sub> reduction technology. It was adopted as a Leading Sustainable Building Project (CO<sub>2</sub> Reduction) by Japan’s Ministry of Land, Infrastructure, Transport and Tourism.



New administration/welfare wing

We have many more construction/renovation projects lined up as part of our plans to reorganize corporate structure and update old buildings, all of which will include energy saving and ZEB measures.





## Global Warming Countermeasures Taken by Group Companies

### NGK Stanger Pty. Ltd. and Hokuriku Energys Corporation

NGK Stanger and Hokuriku Energys collect and recycle gas-filled switches that are being disposed of by clients. These units contain sulfur hexafluoride (SF<sub>6</sub>) for insulation purposes, and as it has a very high global warming potential, the companies collect all SF<sub>6</sub> when disassembling the unit without allowing it to be released into the atmosphere. The total amount of SF<sub>6</sub> recovered in fiscal 2019 was approximately 910 kg, which is the equivalent of approximately 20,800 metric tons of CO<sub>2</sub>.



### NGK Ceramics Polska Sp. z o.o.

Since 2011, NGK Ceramics Polska has been focusing on improving processes for manufacturing SiC-based DPFs, its main product. Target areas include particularly energy-intensive calcination and drying processes, for which we have carried out various measures to reduce our CO<sub>2</sub> emissions. To further improve our performance, we will introduce new measures, including technologies provided by the Nagoya Site.



### NGK Metals Corporation

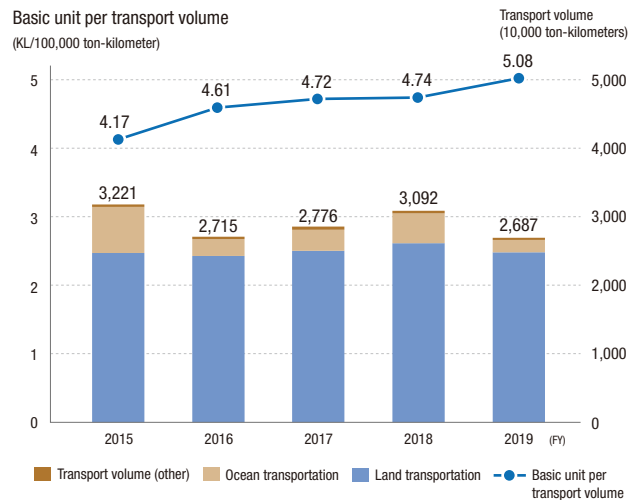
NGK Metals is reducing CO<sub>2</sub> emissions by updating control systems and improving the operation of production equipment. Among various efforts, a particularly distinctive effect resulted from automating the control units of the oil circulation system for rolling mills. The automation eliminated unnecessary around-the-clock operation, a measure taken to address inefficient activation/deactivation processes, as well as simplifying complex manual processing. This change helped reduce electric power consumption as well as CO<sub>2</sub> emissions.



## Reduction of CO<sub>2</sub> from Logistics

NGK has worked to reduce CO<sub>2</sub> emissions from logistics, setting a target of reducing the basic unit per transport volume by 1% year-on-year on a five-year average, as required by the Energy Conservation Act. To achieve this target, we have implemented a number of measures, including improving loading efficiency and promoting a modal shift. In recent years, the basic unit per transport volume has shown a tendency to deteriorate due to a decline in the volume of goods transported by sea on account of a change in the product mix. In fiscal 2019, the five-year average deteriorated by 5.1% year-on-year.

### Transport Volume / Basic Unit per Transport Volume



## Introduction of Green Power

As part of our corporate activities aimed at harmony with the environment, NGK began introducing “green power” (energy sources such as wind and solar power and biomass fuels) in 2002. The Green Power Certification System contract we signed with Japan Natural Energy Company Limited calls for them to generate two million kilowatt hours of biomass-generated electricity for us each year.

This accounts for about 60% of the power consumed annually at the NGK headquarters building, attaining a reduction effect of approximately 1,000 metric tons of CO<sub>2</sub> emissions per year, or the annual amount of CO<sub>2</sub> absorbed by approximately 71,000 cedar trees.



# Promoting Effective Use of Resources

To boost yield from manufacturing process improvements, the NGK Group reuses in-process materials in an effort to curb discarded materials while also focusing efforts on recycling to reduce final disposal volumes to promote resource recycling.

## Reducing Discarded Materials from Manufacturing Activities

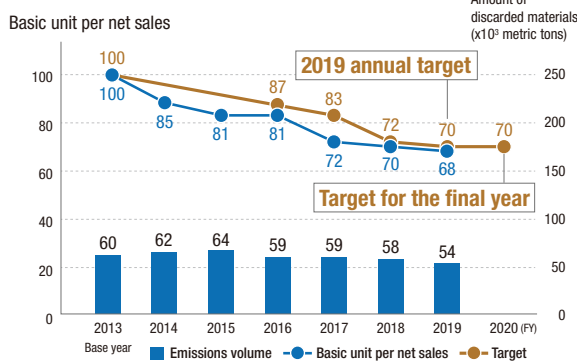
In the same way as for CO<sub>2</sub>, the NGK Group works to suppress the generation of waste (discarded materials) by formulating and managing annual improvement plans with the aim of achieving the waste reduction targets contained in the Five-Year Action Plan.

In fiscal 2019, as with CO<sub>2</sub>, there were numerous factors that hampered waste reduction, such as lower demand for NGK's main products and a strong yen. However, the basic unit per net sales steadily improved over the previous fiscal year, allowing us to achieve our fiscal year target and, as was the case last year as well, reach the target under our Five-Year Action Plan ahead of schedule. This was thanks to the continuing improvement activities of our manufacturing divisions, such as improving the material utilization rate and production yield, and recycling within each process.

Meanwhile, the reduction rate against BAU, which indicates the rate of improvement in the basic unit per production volume from the fiscal 2013 level, was 24%. This not only achieved the fiscal year target but also met the 23% target set for the final year of the Five-Year Action Plan a year ahead of schedule.

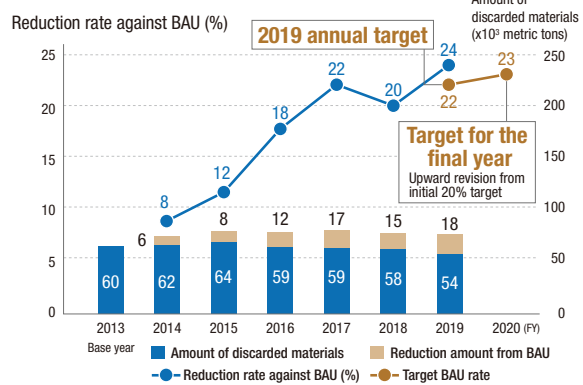
In fiscal 2020, we will continue with these and other efforts with the goal of further improvement.

### Amount of Discarded Materials Generated / Basic Unit per Net Sales\* (All NGK Group manufacturing sites)



\*Basic unit per net sales calculated with the value in fiscal 2013 set at 100.

### Discarded Materials / Reduction Rate against BAU\* (All NGK Group manufacturing sites)



\*Reduction rate against BAU: The percentage rate of emissions reduction resulting from implemented actions against a computed value for the hypothetical absence of the actions.

## Promoting Resource Recycling

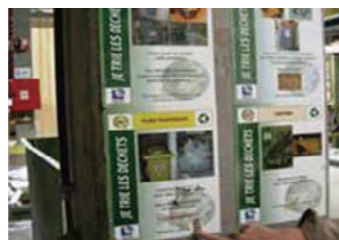
At the NGK Group, we promote resource recycling initiatives, pursuing rigorous sorting and separating practices and seeking out new methods of recycling.

In fiscal 2017, we started sharing information with our production sites in Japan regarding waste recycling methods and companies that can process such waste. This has allowed us to choose highly reliable waste processing contractors and continue to improve waste recycling efficiency. Through such ongoing efforts, we have managed to sustain a domestic recycling rate of 99% or higher since fiscal 2013, which is the target set under the Five-Year Action Plan.

Meanwhile, at our Group companies outside Japan, where the situation varies according to country and region, suitable targets are set taking into account circumstances specific to each location. The average recycling rate at the 21 overseas Group manufacturing companies has remained at over 90% (with the exception of three companies that generate non-recyclable waste).

### Examples at Group Companies Outside Japan

At Group companies outside Japan, waste material separation management is strictly enforced. Waste separation rules are posted where waste materials are stocked and color-coordinated containers are provided for each category of waste to avoid confusion.



NGK Ceramics Europe



NGK Ceramics USA

## Risk Management of Water Resources and Response

The NGK Group recognizes the management of water resources as an important issue for the company in achieving a sustainable society, and promotes relevant initiatives as described below.

### Water Risk Evaluation

To ascertain water supply risks for each of our production facilities in and outside Japan, the NGK Group performed a simplified internal survey to assess water shortage risks based on the water supply capacity of rivers in the respective regions. For production facilities located in areas where there is a risk of water shortages, particularly overseas, we commissioned a third party to conduct a comprehensive survey. As part of that survey, in addition to the water supply capacity of rivers, factors such as groundwater, seasonal fluctuations in water supply capacity, and the holding capacity of dams are evaluated and used to create water supply/demand forecasts. The risk of water-related disasters (flooding, landslides) and water quality deterioration (public health, ecosystem) is also analyzed as part of a comprehensive risk assessment.

These efforts allow us to determine water risk at all overseas manufacturing sites, information that we share among all of our sites.

Although no serious water-related risks have been identified to date at any of our facilities, we stay abreast of regulatory trends and we strive to make more efficient use of water.

**Number of Manufacturing Bases Outside Japan with Inherent Water-Related Risks**

Region	Number of bases	Water supply/demand		Disasters	Vulnerability to pollution	
		Current	2040		Public health	Ecosystems
North and Central America	5	0	1	0	0	0
Europe, other	5	2	0	0	2	3
China	3	0	0	0	0	0
Asia, Australia	7	0	5	0	1	1

### Water Usage Guidelines

NGK created guidelines (an implementation status checklist) aimed at appropriate water usage and, in fiscal 2015, launched inspections to ascertain the efficiency of water usage at all manufacturing sites in and outside of Japan. Going forward, we will enhance these guidelines through internal and external case studies while encouraging efforts at each location to strengthen the operational structure against a future tight water supply.

## Promoting Efficient Water Use at Group Companies

### NGK Ceramics Mexico, S. de R.L. de C.V.

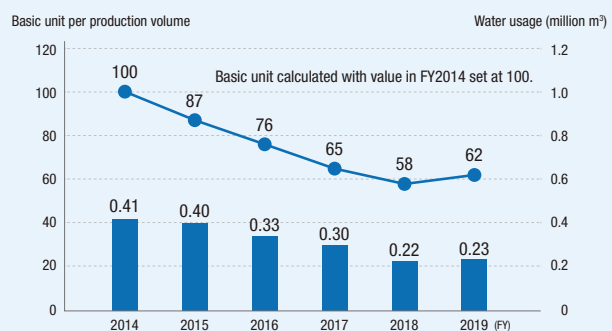
We use precious local water resources as appropriately and efficiently as possible, including the recycling of water used inside plants, at Group companies located in highly water-stressed regions.

For example, at NGK Ceramics Mexico, manufacturing process waste water is filtered using reverse osmosis membranes and the recycled water is reused as coolant and boiler water or sprinkled on vegetation. Since production lines went into full operation in fiscal 2014, the basic unit of water usage per production volume has improved with each year.



Filtration device using reverse osmosis membranes

**Basic Unit of Water Usage per Production Volume (NGK Ceramics Mexico)**



### Cooperation with Suppliers

Believing that it is important to address issues related to water resources throughout the supply chain, the NGK Group asks its suppliers to practice water resource-related risk management and efficient water usage in accordance with the CSR Procurement Guidelines. In fiscal 2019, 99.5% of companies in NGK's domestic supply chain agreed to our request.

# Protecting Biodiversity

In the NGK Group, we view the challenge of protecting biodiversity as an integral part of achieving a sustainable society, and towards that end we are undertaking the following activities.

## Activities for Achieving the Aichi Targets

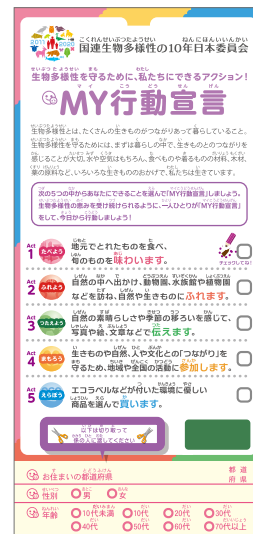
The NGK Group has been pushing forward with activities pursuant to the Aichi Targets (international goals for biodiversity) agreed upon at the 10th Meeting of the Conference of the Parties to the Convention on Biological Diversity (COP 10).

Since fiscal 2016 under the current Five-Year Action Plan, we have done biodiversity surveys of company-owned sites, taken part in the Ministry of the Environment’s “My Action Declaration” initiative, and worked in unison with our suppliers.

### Promoting Participation in the “My Action Declaration” Initiative

In fiscal 2017, as a way of raising awareness among employees, we began promoting participation in the “My Action Declaration” initiative led by the Japan Business Federation and the Ministry of the Environment. This project aims to have by 2020 a million people make a declaration to take action to conserve biodiversity.

Declarations have been received from a total of 5,200 employees who promised to take a personal interest in and work to protect the biodiversity around them. We have also expanded this initiative throughout NGK Group companies in Japan and so far a cumulative total of 6,500 group employees have made the declaration.



My Action Declaration card

Aichi Targets		NGK Group Activities
<b>Target 1</b> Spread awareness	People are aware of the value of biodiversity and actions to be taken to conserve it.	<ul style="list-style-type: none"> <li>Employee environmental education</li> <li>Next-generation education</li> <li>Cooperation with suppliers</li> <li>Promoting participation in My Action Declaration initiative</li> <li>Encouraging employees to participate in volunteer activities</li> </ul>
<b>Target 4</b> Sustainable production and consumption	Stakeholders at all levels have taken steps to achieve sustainable production and consumption.	<ul style="list-style-type: none"> <li>Expanding sales of products contributing to environmental protection</li> <li>CO<sub>2</sub> reduction</li> <li>Effective use of resources</li> <li>Cooperation with suppliers</li> </ul>
<b>Target 5</b> Inhibit loss of all natural habitats	The rate of loss of all natural habitats, including forests, is at least halved, and degradation and fragmentation is significantly reduced.	<ul style="list-style-type: none"> <li>Voluntary employee participation in forestation and other environmental conservation activities</li> <li>Biodiversity survey/appropriate control of company-owned site</li> </ul>
<b>Target 8</b> Control pollution by chemical substances, etc.	Pollution from use of chemicals, including fertilizers and agrichemicals, has been brought to levels that are not detrimental to the ecosystem.	<ul style="list-style-type: none"> <li>Chemical substance management</li> <li>Management of exhaust and wastewater</li> <li>Expanding sales of products that prevent air pollution</li> <li>Cooperation with suppliers</li> </ul>
<b>Target 9</b> Alien species	Invasive alien species are controlled or eradicated.	<ul style="list-style-type: none"> <li>Biodiversity survey/appropriate control of company-owned site</li> </ul>
<b>Target 11</b> Conserve protected areas	At least 17% of terrestrial and inland water areas and 10% of coastal and marine areas are placed under appropriate conservation management.	<ul style="list-style-type: none"> <li>Voluntary employee participation in forestation and other environmental conservation activities</li> </ul>
<b>Target 14</b> Ecosystem services	Ecosystems that provide essential natural services are restored and safeguarded.	<ul style="list-style-type: none"> <li>Voluntary employee participation in forestation and other environmental conservation activities</li> <li>Biodiversity survey/appropriate control of company-owned site</li> </ul>

Note: Source: “Guidelines for Action by the E&E Industries concerning Biodiversity Conservation” (The Biodiversity Working Group, The 4 Electrical and Electronic Industry Associations)



## Cooperation with Suppliers

We have added to the CSR Procurement Guidelines items pertaining to water resource-related initiatives and biodiversity conservation initiatives. We have won the agreement of 99.5% of our suppliers in Japan to comply with the expanded Guidelines.

### Biodiversity Survey of Company-Owned Site

At an NGK employee welfare facility located on the outskirts of Nagoya City, we carry out periodic summer and winter surveys of birds, plants, and insects. Among the diversity of wildlife confirmed, no alien species that require urgent action has been found, meaning that biodiversity is being adequately maintained. The results of the surveys are displayed on panels at the facility in order to raise awareness of the area's biodiversity among facility users.



Biodiversity survey

### Employee Volunteering

NGK bases work with local governments and NPOs in community service, and this includes contributing to the preservation of biodiversity.

Employees of NGK Okhotsk (in Abashiri, Hokkaido Prefecture) help the Lake Abashiri Mizu-to-Midori-no-kai (Water and Greenery Association) in its activities to preserve Asian skunk cabbage colonies. These efforts have been held twice a year, in spring and autumn, since 2009 as one way to conserve the local natural environment.

Employees of the Ishikawa plants of NGK and NGK Ceramic Device join local citizens every year in cleaning up the Neagari coastline in Nomi, Ishikawa Prefecture. Ocean plastic pollution has become a worldwide problem in recent years, not only spoiling the aesthetic beauty of beaches but also presenting serious threats to ecosystems. To help alleviate this problem NGK employees—in fiscal 2019 a total of 109 from NGK and NGK Ceramic Device in Ishikawa—have joined beach cleanups conducted under Ishikawa Prefecture's Clean Beach Ishikawa initiative.

Group companies outside Japan are also doing their part for the environment. NGK Electronics Devices Malaysia (in Penang) takes part in tree-planting activities of the Forestry Department of Peninsular Malaysia. In fiscal 2019, employees joined mangrove planting in a forest reserve in Nibong Tebal, Penang. By planting trees in this way, the effort raises employee awareness of the importance of environmental protection and ecosystem maintenance. The 88 employees who took part planted a total of 500 mangrove seedlings.



Employees help preserve Asian skunk cabbage colonies  
NGK Okhotsk



Employees in beach cleanup  
NGK Ishikawa Plant, NGK Ceramic Device Ishikawa Plant



Joining mangrove-planting in Malaysia  
NGK Electronics Devices Malaysia



## Environmental Education and Communication

In accordance with the Guidelines for Environmental Action under NGK's Core Policy on the Environment, we conduct ongoing environmental education and awareness activities aimed at increasing employee environmental awareness. Our aim is to deepen the understanding of environmental problems among each employee to inculcate an awareness of environmental conservation activities.

We also conduct environmental events and provide information to a wide range of stakeholders, including on-site classes at elementary schools, to increase environmental awareness.

### Participating in Local Environmental Education

#### Offering Guest Lectures at Elementary Schools and Children's Centers

NGK sends instructors to participate in lectures and workshops for young people that are hosted each year by EPOC (Environmental Partnership Organizing Club)\*. Our instructors offer classes on water resources and usage in which children can experience how soil can purify water.

So far, a cumulative total of 2,300 people have participated in environmental education programs with which NGK is affiliated.

\*EPOC (Environmental Partnership Organizing Club): A voluntary organization consisting mainly of companies in the Chubu region of Japan, which was established in 2000. Its purpose is to spread information regarding the environment with the aim of building a recycling-oriented sustainable society. NGK has been involved in the planning and management of this organization since its establishment. EPOC currently has approximately 270 members.



#### Sharing Information with Other Companies

The EPOC subcommittee chaired by NGK organizes seminars and field trips several times a year under the theme of corporate environmental management (low carbon, resource recycling, biodiversity, water resources, environment-related laws, etc.) and sends out information to members.



### Raising Environmental Awareness

#### Environmental Education inside the Company

We conduct position-based training related to environmental management systems to familiarize employees with the aims and content of NGK's environmental policies. We also provide specialized environmental training courses for personnel who will be directly involved in environmental management, as well as special environmental training for the entire workforce.

#### Fiscal 2019 Specialized Environmental Training

- (1) Regulatory reporting and compliance with regards to facilities covered by environment-related laws  
Held four times in September, 189 participants.
- (2) Managing machinery that uses CFCs  
Four seminars were planned for March, but in order to prevent the spread of COVID-19 participants studied relevant educational materials on their own.

## Promoting the Acquisition of Qualifications

To continue conducting environmental conservation activities in compliance with laws and regulations, we make an effort to develop and increase the skills of legally qualified personnel. We provide support in each department for the acquisition of environment-related legal qualifications targeting managers engaged in pollution prevention required for the management of each site.

We systematically educate Qualified Energy Managers in the Engineering Department, and Special Controlled Industrial Waste Managers and others involved in waste-related activities in the Environmental Management Department and other business divisions.

### Qualifications Acquired as of March 31, 2020 (NGK) (Persons)

Pollution Control Managers			Qualified Energy Managers	Special Controlled Industrial Waste Managers	Waste Disposal Facility Technical Managers
Air	Water	Noise/Vibration			
81	99	19	19	17	3

## Support for Acquisition of Eco Test Certification

With the aim of ensuring that each employee acquires a strong environmental awareness and a wide range of knowledge with respect to the environment, NGK encourages employees sitting the Eco Test\* by lending them reference materials and subsidizing test-related expenses.

To date, a total of 845 people—more than 20% of all NGK employees—have passed the test.

### Eco Test Certification

Year	2015	2016	2017	2018	2019
Number of successful examinees	94	120	125	90	37

\*The Eco Test is an environmental and social certification test administered by the Tokyo Chamber of Commerce and Industry focused on a wide-range of environmental issues.

## NGK Eco Point System

NGK promotes its Eco Point System in an effort to contribute to regional environmental improvement. Employees earn points for environmental behavior conducted at work and in the home, a portion of which is converted into cash and donated to local government-managed funds (environmental funds).

In addition to the company's three sites in Nagoya, Komaki and Chita and the Ishikawa Plant, the system was newly introduced to the Tokyo Main Office and Osaka Branch and sales offices in fiscal 2016.

### Donation of NGK Eco Points

The NGK Eco Points earned by individual employees through their engagement in environmental activities are aggregated on an annual basis for each site (Nagoya, Chita, Komaki, Ishikawa), and top scorers are commended every year. For earned points, employees select from two options: exchange for eco goods or donate to local funds. The number of employees choosing donation is growing every year, indicating increasing environmental awareness.



From left: Kazuhiro Hasegawa, environmental manager at NCDK Ishikawa Plant; Mayumi Seto, leading Eco Point earner for NCDK Ishikawa Plant; Mayor Ide of Nomi City, Ishikawa Prefecture; Yukari Yamaguchi, last year's top Eco Point earner for NGK; Takahisa Kaneko, environmental manager at NGK Ishikawa Plant

## Creating Products That Contribute to the Environment

The NGK Group considers contributing to society through business activities to be one of its most important missions. For nearly a century since its founding, NGK has made use of accumulated technologies to develop and provide products and technologies that reduce burdens on the global environment.

### Development and Distribution of Products Contributing to Environmental Protection

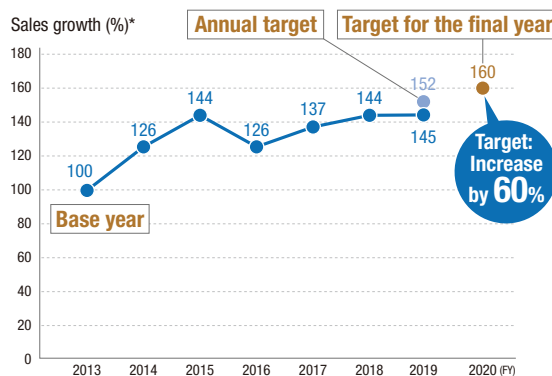
Under our fourth Five-Year Environmental Action Plan initiated in fiscal 2016, NGK has set a goal of increasing sales of products that contribute to environmental protection by 60% compared with fiscal 2013 (and maintaining the sales percentage for products contributing to environmental protection at over 50% of all products).

In fiscal 2019, sales of products that contribute to environmental protection increased by 45% over fiscal 2013, which fell short of our fiscal year goal of 52%. Demand was down from forecasts due to factors such as a cooling down of the global economy from the effects of the COVID-19 pandemic.

In fiscal 2020 as well, the pandemic prevented a recovery of demand in the first half of the year, and we predict difficulties in reaching our targets for the final year of the Five-Year Environmental Action Plan.

We have a total of nine products that contribute to environmental protection, including two registered last fiscal year: gallium nitride (GaN) wafers and micro-lenses for ultraviolet LEDs. We are currently developing other products that contribute to environmental protection; for example, zinc rechargeable batteries, fuel cells, and CO<sub>2</sub> separation membranes.

#### Sales Growth for Products Contributing to Environmental Protection (NGK Group)



\*Figures are indexed with fiscal 2013 set at 100.

### Definition of NGK Products That Contribute to Environmental Protection

- 1) Certified or awarded by third-party institutions
- 2) Control or reduce impact on the Earth's environment
- 3) Reduce impact on the local environment

### NGK Group Products Contributing to Environmental Protection

#### HONEYCERAM®

HONEYCERAM is a ceramic substrate for catalytic converters to purify harmful contents in the exhaust of automobiles. It carries a catalyst that detoxifies harmful substances by chemical reaction, and its honeycomb structure provides a greater contact surface area for the exhaust and thus gives better purifying performance.

Since the launch of mass production in 1976, over 1.5 billion units have been shipped of this essential ceramic product for purifying exhaust. NGK's HONEYCERAM eliminates a total of four million metric tons of NOx per annum\*<sup>1</sup>, equivalent to double the annual NOx emissions in Japan\*<sup>2</sup>.

\*1 Assumption based on installation of exhaust gas system in new cars that are not equipped with such systems

\*2 Source: OECD Environmental Statistics (2012)

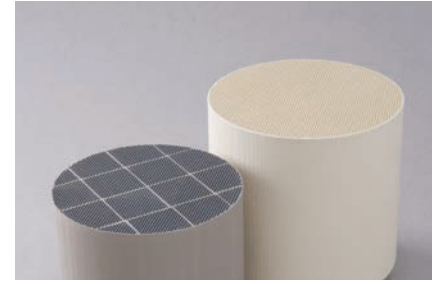


NOx elimination: **4** million metric tons annually

## Diesel Particulate Filters (DPF)

The DPF is a porous ceramic filter used worldwide in the exhaust systems of diesel vehicles. With a pore structure, the filter ensures particulate matter (PM) is captured to purify the exhaust emitted from diesel vehicles. NGK is the only company to produce two types of DPFs based on both cordierite and silicon carbide. NGK's ceramic technology support further developments for diesel vehicles.

The honeycomb structure, where the inlet and outlet of the through-holes are alternately sealed, enables the thin ceramic walls to efficiently capture PM while exhaust passes through.



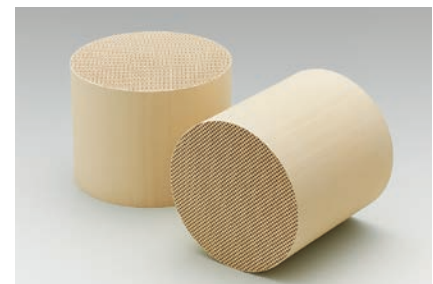
Eliminates up to **99%** of PM

## Gasoline Particulate Filters (GPF)

GPFs are ceramic filters that remove particulate matter (PM) from the exhaust of gasoline-powered vehicles.

We developed this filter based on diesel particulate filter (DPF) technology, and succeeded in producing a GPF that can achieve high performance (captures more PM) and low pressure loss (lower fuel costs and higher output) at the same time through the use of our proprietary micropore creation and control technologies. We were the first to commercialize a GPF in 2012, and commenced mass production in January 2016 at one of our subsidiaries.

As automobile emission regulations throughout the world become stricter, we expect that demand for GPFs will increase. To respond to this demand increase, we are boosting production capacity.



## In-Vehicle High-Precision NOx Sensors

NGK developed the world's first in-vehicle sensor to measure concentrations of nitrogen oxides (NOx) in exhaust in real time with high precision. Specifically, the sensor is capable of measuring NOx concentration at the parts per million (ppm) level and can thus detect even very small amounts of the noxious substance. The sensor supports precise control of the exhaust purification device used in diesel vehicles, which leads to a reduction in NOx emissions and helps to promote the use of clean diesel vehicles.



## NAS® Batteries

Providing clean energy that burns no fossil fuels and releases no CO<sub>2</sub> emissions, renewable energy is on the rise worldwide. The NAS battery stabilizes fluctuations in the output of renewable energy such as wind and solar power—which are susceptible to weather conditions—by appropriately storing and discharging the electricity provided.

Increases in the amount of renewable energy depending on the season or time of day lead to electricity surpluses that make it difficult to constantly balance electricity supply and demand. NAS batteries use their high capacity to store excess electricity and enable supply-demand balance, thus making more widespread use of renewable energy practical.



Installed at over **200** locations worldwide with a **580 MW/4000 MWh** capacity

(As of June 2020)

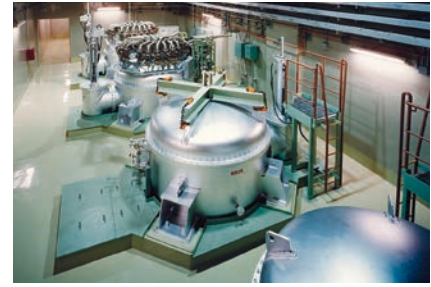


## Low-Level Radioactive Waste Treatment Systems

NGK has developed a wide range of systems to safely treat low-level radioactive waste generated from nuclear facilities and has supplied these systems to nuclear power stations and related facilities across Japan. The systems are developed utilizing NGK's proprietary treatment technology and high-performance filter-based dust collection technology.

We undertake a variety of engineering projects including design, manufacturing and site construction, and also provide a long-term maintenance service to deliver stable and high-level radioactive decontamination. NGK thereby provides essential support for the safe and stable operation of nuclear facilities.

In addition, we focus on the development of new systems for treating various types of radwaste expected to be generated from the decommissioning and dismantling of aging nuclear reactors.



### Importance of Treating Radioactive Waste

When treating and disposing of waste generated in radiation-controlled areas, including nuclear power stations, it is critically important to prevent the spread of radioactivity via the release of radioactive matter. This requires special treatment and disposal methods that differ from those for general waste.

## Wavelength Control Drying Systems

Our wavelength control drying system uses a proprietary heater unit developed in-house to promote the evaporation of solvents.

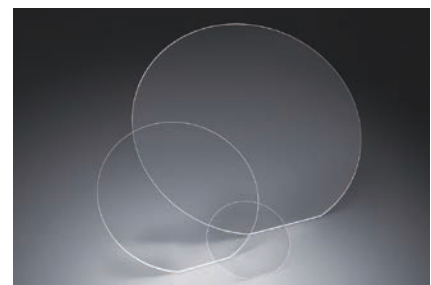
This system uses specific infrared frequencies to effectively facilitate evaporation, shortening drying time to approximately  $\frac{1}{2}$  to  $\frac{1}{3}$  of that required for conventional drying methods using heat, and reducing power consumption by 30 to 50%. It is also possible to suppress binder segregation, which is an expression of variations in concentration that occur due to drying of the soluble component in films during drying, by 30 to 40% (in-house binder segregation study).



## Gallium Nitride (GaN) Wafers

This low-defect density gallium nitride (GaN) wafer uses NGK's original crystal growth method covering the entire wafer. With the Minamata Convention on Mercury going into effect in August 2017, there is expected to be high demand for high-output, high-efficiency semiconductor lasers using GaN wafers as a substitute for ultra-high-pressure mercury lamps. They are expected to see use in light sources for projectors, stadium lighting, car headlamps, and other products.

We see applications for the gallium nitride (GaN) wafer in high-frequency devices for next-generation 5G wireless base stations, and power devices key to realizing a low-carbon society such as inverters for electric vehicles and power conversion equipment for photovoltaic power.



## Micro-Lenses for Ultraviolet LEDs

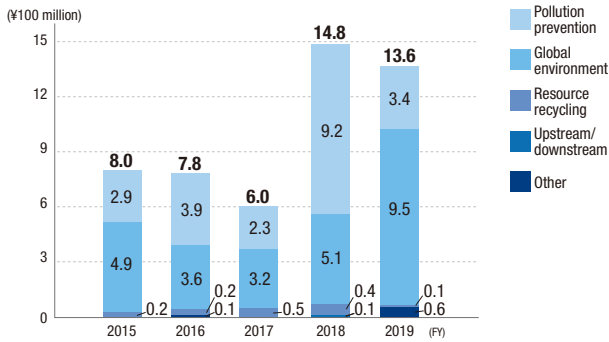
Micro-lenses for UV LEDs are transparent quartz glass lenses developed by NGK that are used in UV LEDs in place of mercury lamps. Mercury lamps are currently used in light sources used in applications such as the sterilization of water and air. However, factors such as the Minamata Convention going into effect are increasing the likelihood that mercury lamps will be banned and sparking interest in UV LEDs that do not use mercury. NGK's micro-lenses for UV LEDs are characterized by a cavity that holds a UV LED chip, a feature that improves UV LED efficiency and lowers costs.



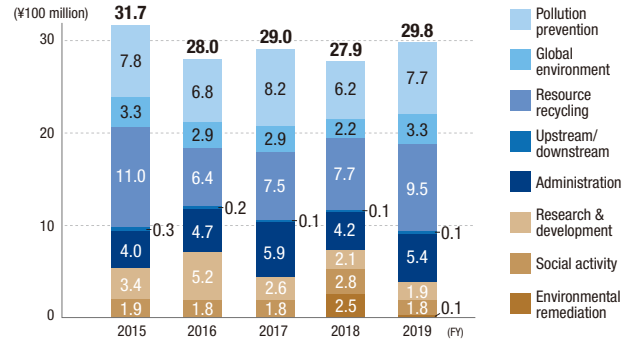
# Environmental Accounting

As an important index of environmental management, NGK conducts environmental accounting and announces the results. In addition to announcing environmental conservation costs (capital investment, expenses), economic benefits, and cost effectiveness, information on the environmental efficiency of CO<sub>2</sub> and discarded materials has been added since fiscal 2007.

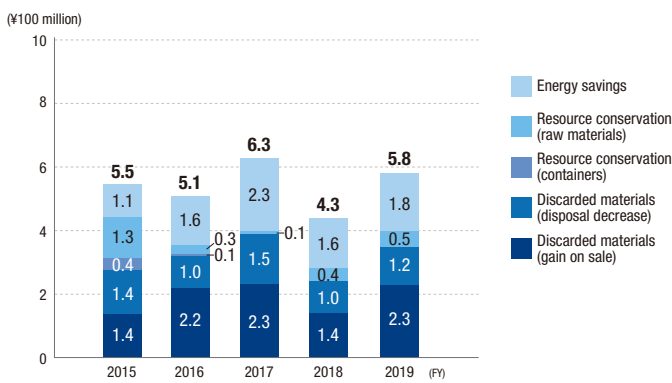
**Capital Investment** (NGK and Group companies in Japan)



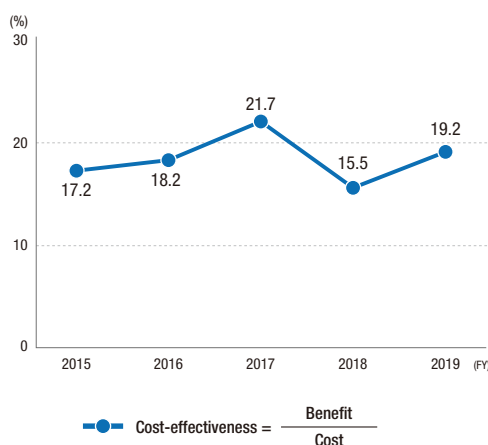
**Expenditures** (NGK and Group companies in Japan)



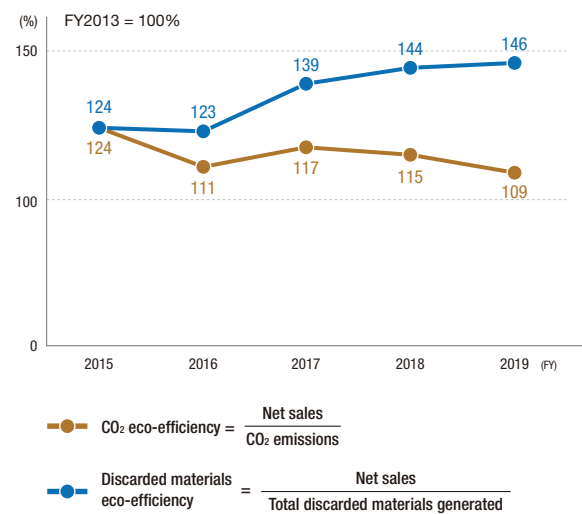
**Economic Benefits** (NGK and Group companies in Japan)



**Cost-Effectiveness** (NGK and Group companies in Japan)



**Environmental Efficiency** (consolidated)



Note: The above charts do not include data for NGK Electronics Devices, Inc. and other manufacturing subsidiaries for fiscal 2015.



# Social

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## Communication with Stakeholders

In addition to promoting understanding regarding the NGK Group among customers, suppliers, shareholders, investors, regional communities, governments, international organizations, universities, research institutes, and employees, we are continuously improving our activities and initiatives through dialogue with all of our stakeholders.



## Basic Approach

In the NGK Group Code of Conduct revised in January 2019, our commitment to “Disclosure of Company Information and Accountability” as a part of stakeholder communication is expressed through the following.

### Disclosure of Company Information and Accountability



- **We will increase healthy and transparent management by active disclosure of information and discussion with stakeholders.**
  - We will accurately and promptly disclose information required by society.
  - We will take seriously the voices of our stakeholders and fulfill our obligation of accountability.

Reference  
URL

**NGK Group Code of Conduct**

<https://www.ngk-insulators.com/en/sustainability/guideline/>

## Stakeholder Engagement

Stakeholders	Approach	Communication (objectives)	Communication (methods)
Customers	To earn and maintain the trust of customers, we engage in the creation of new value through the provision of products and services realizing global environmental conservation and social safety and peace of mind from a long-term and global perspective.	Enhance customer services Quality improvement	Official website Contact desk Participation in exhibitions Open innovation
Procurement Partners	With a basic policy centered on the three principles of openness and fairness, partnership, and relationship with society, the NGK Group is engaged in fair, free, and transparent business transactions with the procurement partners in our supply chain. We also established a supplier helpline to provide unwavering support for important inquiries in an effort to build and maintain fair supplier relationships.	Realize fair, free, and transparent transactions Exchange information with suppliers Establish better supply chain	Financial results presentations Supplier helpline Individual visits to suppliers in Japan and overseas
Shareholders and Investors	The NGK Group aims to meet expectations for enhanced corporate value through dialogues and efforts to disclose information pertaining to management, finance, products, and services in a timely and appropriate manner.	Enhance corporate value	General Meeting of Shareholders Information sessions Individual visits and interviews Participation in IR events Countermeasures for socially responsible investment (SRI) Official website
Employees	The NGK Group strives to create a safe and comfortable workplace environment with respect for employee humanity. We also support the growth of human resources and fair treatment enabling each employee to maximize their skills.	Respect the human rights of employees Develop safe and comfortable workplace environments Conduct surveys on workplace environment and employee satisfaction Inculcate corporate philosophy and policies	Company newsletter <i>Global MIZUHO</i> English-version company newsletter Video news Intranet Labor-Management Advisory Board meetings, regular Labor-Management Council meetings Survey on workplace vitality CRS (Corporate Risk Survey) Helpline Hotline
Regional Communities	We proactively engage in social contribution activities in response to community needs with the intent of becoming a corporate citizen trusted by society with concern for social issues in all countries and regions where we do business.	Contribute to regional communities as a trusted corporate citizen	Collaborative activities with NPOs, etc. Volunteer activities by employees Social contribution activities in cooperation with labor unions Invitation to plant tours and events
Governments and International Organizations	We proactively participate in international initiatives and other activities in order to realize mutual cooperation as key actors seeking to resolve social problems.	Promote initiatives to solve social problems	Participation in international initiatives
Universities and Research Institutes	Through research and educational activities based on industry-academia collaboration, we have been pushing forward with the development of scientific technologies and other technologies that will contribute to solving social problems.	Develop scientific technologies Develop technologies that will contribute to solving social problems	Joint research

## Human Rights

### Basic Approach

In the NGK Group Code of Conduct revised in January 2019, our relationship with employees is based on the idea of “Respect for Human Rights” and “Provide a Safe and Enjoyable Work Environment” and defined as follows.

#### We will strictly comply with international standards of human rights and respect the diversity of all people.

- We will respect human rights and undertake business activities without the use of forced labor or child labor.
- We will respect the individuality and independence of each employee and not engage in discrimination on the basis of race, citizenship, gender, age, religion, belief, existence of handicaps, sexual diversity or any other aspect.
- We will prevent the occurrence of harassment in the workplace and take prompt and appropriate action in the case where it occurs.

#### We will provide a safe and enjoyable work environment that is comfortable for everyone to work in for all.

- We will strictly comply with laws and regulations of each country and region relating to labor, safety and sanitation.
- We will aim to harmonize work and life, and support a variety of working styles.
- We will build up a relationship of trust through sincere debate and discussion with employees.
- We will give educational opportunities to employees and provide opportunities to stretch their motivation and abilities.

Reference  
URL

NGK's employee-focused initiatives

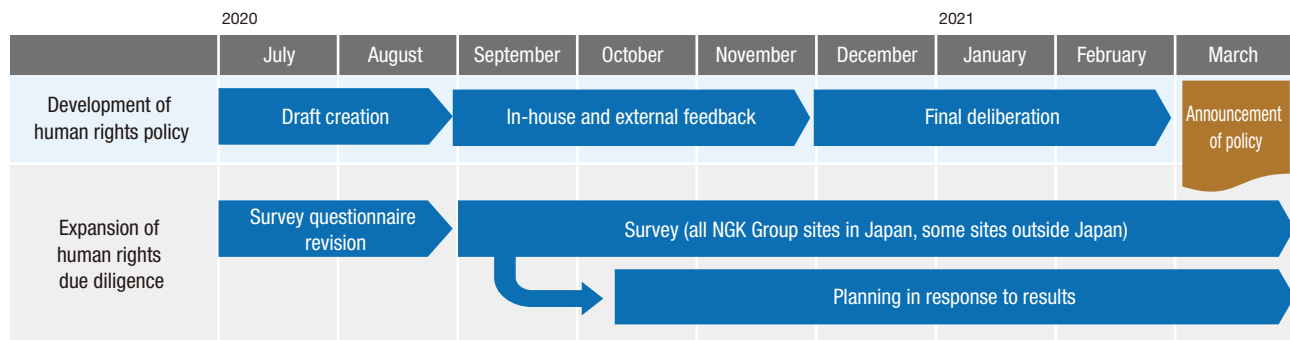
<https://www.ngk-insulators.com/en/sustainability/society.html>

### Protecting Human Rights and Establishing an HR Committee

The NGK Group complies with international human rights standards and respects all aspects of employee diversity, including racial, nationality, and gender diversity. Our basic hiring policy is to recruit diverse personnel and to provide them with stable employment and equal opportunities. In April 2020, we established the HR Committee as a cross-sectoral, deliberative body tasked with ensuring that corporate activities have a stronger focus on human rights and that important personnel issues are addressed by the NGK Group as a whole.

In fiscal 2020, we will focus on the following human rights initiatives.

1. Development and announcement of human rights policy
2. Expansion of human rights due diligence across the entire NGK Group



## Customers

Guided by the Corporate Philosophy, which puts customers first, the NGK Group considers the provision of products and services that contribute to a better social environment to be one of its most important missions in an effort to create quality from the customer's perspective.

## Basic Approach

The NGK Group engages in the creation of quality from the customer's perspective by defining Quality Objectives each year in accordance with the Quality Policy based on the NGK Group Code of Conduct.

### Quality Policy

NGK is dedicated to quality and committed to providing valuable products and services that are trusted by our customers and respected by society

### Quality Objectives 2020

Transparency is the key to improving our quality of operation

## Initiatives for Fiscal 2020

In fiscal 2019, we further built upon the quality of operation<sup>\*1</sup> initiatives begun in the previous fiscal year by instituting training aimed at boosting senior management's awareness, as well as strengthened the system to reflect contractual specifications into operations. These initiatives have led to continued improvement in quality of operation among NGK's various business divisions and to more widespread adoption of quality of operation improvement activities.

In fiscal 2020, we expanded the scope of training aimed at boosting managers' awareness to also include section managers and supervisors. We also made a concerted effort to foster an environment where employees are encouraged to voice their concerns.

With regard to product quality, we are working to strengthen business department-led implementation of ongoing QRE-P<sup>\*2</sup> efforts.

Additionally in fiscal 2020, we sought to ensure that organizational culture reforms take hold by establishing quality objectives, which promote problem awareness and place positive value on problem identification.

<sup>\*1</sup> Quality of operation: Level of operational systems that are in place to ensure that promises made to customers are fulfilled.

<sup>\*2</sup> QRE-P (Quality Risk Elimination Process): An operational protocol intended to more effectively eliminate quality-related risks at every stage when bringing products to market, from product planning to mass production.

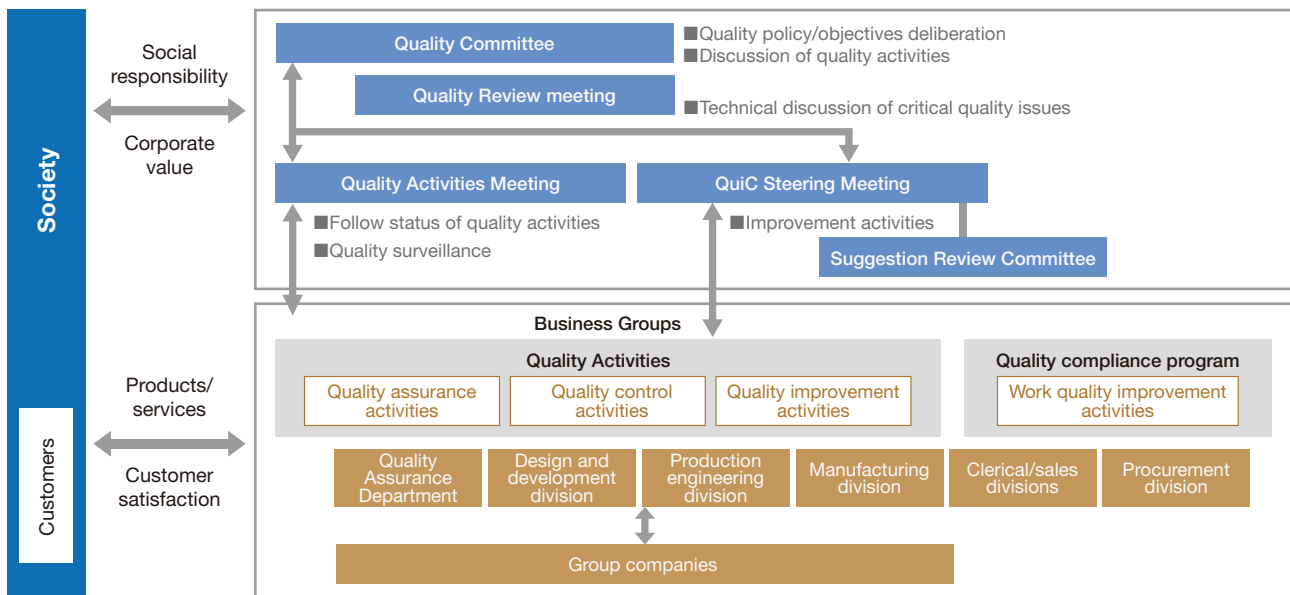
# Quality Activity System

The NGK quality activity system consists of a company-wide system, led by the Quality Committee Chair, and business division internal activity systems, led by the heads of each business division. In terms of company-wide activities, the Quality Committee was established to function as a deliberative body assisting the Quality Committee Chair, while business division internal activity systems were put in place for each business line, creating appropriate quality systems for each. Quality assurance, quality control, quality improvements, and quality education activities are promoted by the acquisition of ISO 9001 or IATF 16949 certification.

Starting in fiscal 2018, we have sought to address non-conformity issues in the delivery tests by codifying standardized rules that will further strengthen our quality compliance. In addition we have expanded quality-focused activities for “quality of operation” as well as “product quality”.

As a result of crisis management revisions implemented in fiscal 2020, in the event that a serious quality issue arises that involves legal, ethical, or other such concerns, it will be dealt with by the Quality Committee Chair in conjunction with the relevant committee. Technical issues are discussed at Quality Review meetings, as necessary, to plan countermeasures, and the Quality Committee Chair supervises execution of the measures at the responsible division.

## Quality Activity System



### Acquisition of ISO 9001 or IATF 16949 Certification

	FY2015	FY2016	FY2017	FY2018	FY2019
Percentage of ISO 9001 certified sites (% Group)	100	100	97	97	97

Note: NGK Ceramics (Thailand) Co., Ltd. has been preparing to obtain certification since fiscal 2017.



# Enhancing the Elimination of Quality Risks Company-Wide

## NGK Group Quality Activity Rules

The NGK Group promotes restructuring of its quality activities to respond more precisely to increasing and diversifying quality demands from customers in different target markets. In particular, quality activity rules have been formulated to enhance the elimination of quality risks in the market; we are promoting the establishment and improved effectiveness of the rules.

### Four Rules for Quality Activities

#### Quality confirmation rule

Establish milestones, from development to start of production, and confirm conformance with six quality levels when production processes change.

#### Quality monitoring rule

Monitor and share information company-wide with respect to quality status changes or problems concerning products or markets. Manufacturing defects and customer complaints are shared company-wide every month through reports to the Quality Management Department, and the appropriateness of countermeasures is discussed.

#### DR\* function strengthening rule

Register DR plans with quality risks of medium or high level as important DR subjects with participation of company-wide DR reviewers. The Quality Management Department head holds company-wide DRs for cases with particularly high risk level.

\*Design review

#### Rule for handling major customer complaints

In the event of a serious customer complaint, including a potential complaint, the situation is promptly reported to the Quality Committee Chair to formulate company-wide countermeasures.

## Seeking Greater Effectiveness from Quality Activities and Innovation in Operational Procedures

We have been promoting Quality Risk Elimination Process (QRE-P) activities throughout the NGK Group. Through these activities, we can identify procedural innovations in product realization in order to eliminate risk while improving quality. In fiscal 2019, we added Guidelines for Quality Risk Prevention in New Product Development to the company-wide regulations in order to better facilitate quality risk elimination during new product development by the Research and Development Division and others. Two quality assurance review meetings were held in accordance with these guidelines. The findings of not only the developer but also those of numerous experts were collected, so that robust discussion about quality risk elimination could be carried out prior to the product being used on the market.

A lot of practice and experience are necessary to reach the level of understanding required to be in charge. Staff members deepen their understanding by working closely with the person in charge.

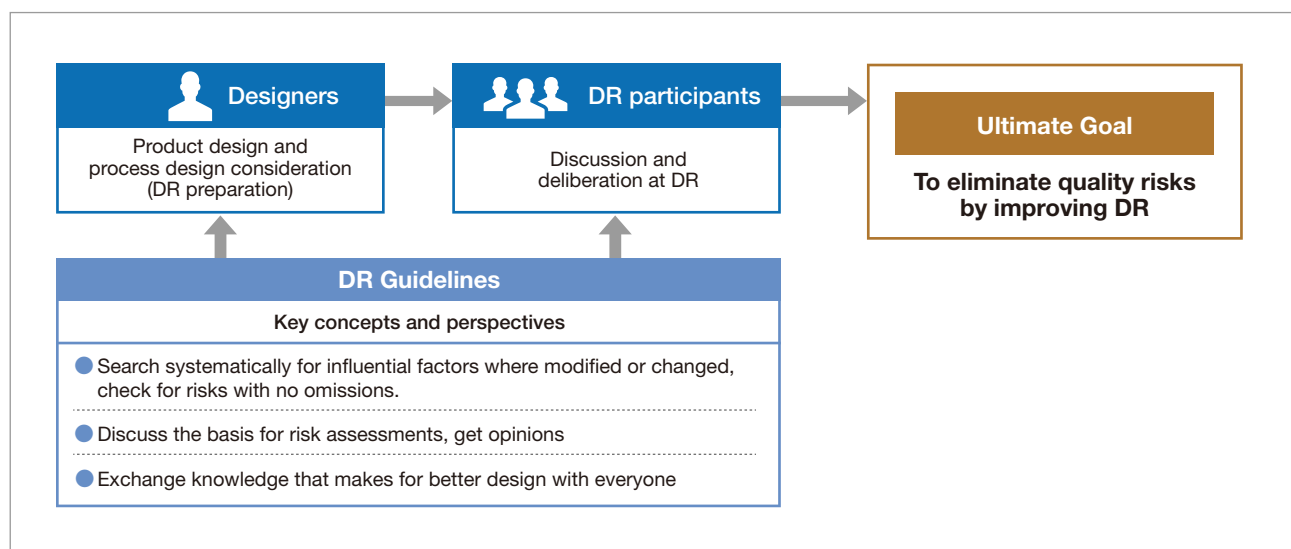
## Activities to Strengthen DR Functions

The increasing and diversifying quality demands from customers call for the integration of knowledge among various members, not only from the design division but also from the manufacturing and production engineering divisions, throughout the development process. For this reason, the NGK Group considers the Design Review (DR) to be the most critical activity. DRs are conducted when development milestones are reached or when production processes change. Critical DRs are conducted by reviewers from throughout the company to support the elimination of quality risks.

The DR Guidelines were created to promote DR discussions and to thoroughly eliminate quality risks. We are constantly enhancing the effectiveness of DRs through efforts to spread these guidelines company-wide, including awareness and review of each DR.

Furthermore, NGK organizes a company-wide DR (quality review meeting) for quality issues that are difficult to solve by one division. At this meeting, relevant engineers and experts from across the company discuss broad aspects of issues related to the reliability and safety of products.

We are also deploying the above-mentioned QRE-P approach to facilitate improvement of design level at the pre-DR period as well as to ensure the more effective utilization of organizational knowledge and experience from DRs.



## Quality Activities at Production Bases outside Japan

From their inception, production bases outside Japan have created quality systems appropriate to their situations and acquired ISO 9001 or IATF 16949 certification.

Monthly reports from each base regarding customer complaints and the status of manufacturing quality are discussed at quality activity meetings, enabling the entire NGK Group to evaluate the quality status in a timely manner. Moreover, quality activity rules and annual quality objectives are distributed in an attempt to develop and enhance quality activities.

### Strengthening Quality Education at Production Bases outside Japan

In fiscal 2019, quality compliance-related education seminars were held at six NGK Group companies in the U.S. as part of quality of operation activities focused on maintaining and improving the operational systems that are in place to ensure that promises made to customers are fulfilled.

The issue of the NGK Group's non-conformity in delivery testing procedure of insulators, along with the initiatives undertaken and rules put in place in response, was presented to the attendees in order to foster greater understanding of, and recognition about the importance of, quality compliance.

### Expanding Improvement Activities to Production Bases outside Japan

The NGK Group is working to expand improvement activities to production bases outside Japan.

For the overseas training in 2019 we visited Group company ACE in Belgium and implemented the following:

- Team discussion and a presentation to local staff on the topic of "What is 'improvement'?—proposals and small groups"
- Toured the factory with local staff and discussed how to identify problems and solve them
- Presented examples of improvement



# QuiC Activities to Improve Quality with Full Employee Participation

Since 2003, the NGK Group has held QuiC (Quality up innovation Challenge) quality improvement activities in which all employees participate. These activities consist of quality improvement activities by small groups or individuals and suggestions that strive to enhance the quality of production; best practices are then shared by the entire NGK Group. Every July, NGK holds a company-wide contest at its headquarters to highlight examples of outstanding improvement activities with the intent of horizontal expansion throughout the company.

In fiscal 2019, the contest was held over two days, and was divided between manufacturing and non-manufacturing divisions.

For the manufacturing division contest, 13 practices were introduced, including those from six Group companies in and outside Japan. The non-manufacturing division contest began with a keynote speech in the morning about how to create a “self-propelled” organization. This was followed in the afternoon by the introduction of eight non-manufacturing practices, including those from three Group company teams. Around 700 NGK Group employees and executives attended the competition.

## Suggestion Activity Participation Rate

	FY2017	FY2018	FY2019
Manufacturing divisions	98%	100%	98%
Non-manufacturing divisions	93%	92%	85%
Clerical divisions	–	–	60%
Number of suggestions	Approx. 38,000	Approx. 28,000	Approx. 29,000

### Manufacturing Division

At the manufacturing division contest held on July 10, ACC won the Grand Prize for successfully improving testing capacity, along with lowering the incidence of defects, to accommodate growing demand.



### Non-manufacturing Division

At the non-manufacturing division contest held on July 16, the President's Special Award was presented to NGK Adrec for enlisting the help of sales and manufacturing divisions in sorting through the build-up of unneeded part numbers and implementing a smart product control system.



## Sending Award Recipients and Outstanding Proposal Commendation Recipients to Training in and outside Japan

### Training at a Group Company outside Japan

From the end of October to the beginning of November, four fiscal 2018 QuiC Outstanding Proposal Commendation recipients and two fiscal 2019 QuiC Grand Prize recipients visited NGK Group company ACE in Belgium. There, the visitors and local employees presented and discussed best practices and mutually reinforced the importance of pursuing operational improvement.

### Training in Japan

In late December, six fiscal 2018 Outstanding Proposal Commendation recipients and 13 fiscal 2018 QuiC Excellence Award and Special Award recipients visited Okinawa to attend a nationwide QC Circle Conference and participate in discussion sessions about the differences between NGK and other companies, among other topics.

### Group Company outside Japan

Local staff and team members take part in a training session at ACE



### Training in Japan

Team members sent to attend the nationwide QC Circle Conference



## Strengthening Quality-Related Education

In order to facilitate greater product value and to better meet the expectations of customers, the NGK Group provides employees with quality-related education focused on acquiring skills that can be used to incorporate specific customer needs into new products.

NGK, along with other Group companies, is continuously working to improve quality management system (QMS) training, which incorporates real-life topics into practical training and the promotion of operational improvement measures.

### Quality-Related Education in FY2019

Program name	Number of days and participants	Objective
QCI	3-day lecture, 1 consultation session, 1-day report session, total approx. 40 days; 51 manufacturing staff members in their 3rd year and 80 mid-career hires	Perform data-based decision-making and QC7 tools exercises; carry out QC story-guided problem-solving procedures
QCI Training for Group Companies	2-day lecture, 3-day consultation session, 1-day report session, total 11 days; Soshin Electric (Nagano and Miyazaki): 8 people in total	QCI level problem-solving practical training implemented by NGK
Quality Basic II	4-day lecture, 3 guidance sessions, 1-day report session, total approx. 45 days; 62 engineering staff members in their 3rd year + 2 Group company staff members	Outside and in-house instructors provide instruction in statistical approaches to quality control and oversee exercises in applying them to business task-specific problem-solving
Learning from Failure and Methods of Creation	1.5-day lecture, 4-day exercise, 1-day presentation session, total 6.5 days; total of 155 participants	Lecture and exercises that teach analysis and application skills useful for learning from failure Supplemental special lecture focused on common examples of organizational failure provided in order to facilitate reorientation in thinking among management
Prevention Training	1.5-day lecture; total of 16 participants	Develop an understanding of product liability laws, including how such laws have been applied in specific B2B cases Understand basic approaches to preventive action and recurrence prevention; understand risk elimination procedures
	Issue examination and discussion: 0.5 days × 4 groups; total of 20 participants	Operational systems improvement training based on participants' work challenges and aimed at stimulating prevention activities
QMS Training	Lecture on ISO/IATF standards: 1 day for each; total of 340 participants	Develop an understanding of the intent and key requirements of standards
	Lecture on ISO/IATF standards: 2 days for each; total of 122 participants	Cultivate and certify internal quality auditors
	Strengthening internal auditing capability: 1 day; 38 participants	Building up process auditing ability for improved QMS effectiveness and greater quality compliance awareness
	VDA6.3 process auditing: 1 day; 33 participants	Develop an understanding of process auditing required by VDA standards

## Points of Strengthening Quality-Related Education

### QMS Training

We provide training aimed at helping personnel be able to more effectively capitalize on internal audits and, thereby, improve the effectiveness of quality management systems and increase awareness and knowledge of quality compliance. In fiscal 2019, we worked together with outside instructors to prepare skills enhancement courses tailored to internal auditors within the NGK Group, and, based on the positive response received from course participants, we will continue to develop them further.

### 77 Employees Pass Self-Maintenance Expert Test (Grade 1: 31 Employees, Grade 2: 46 Employees)

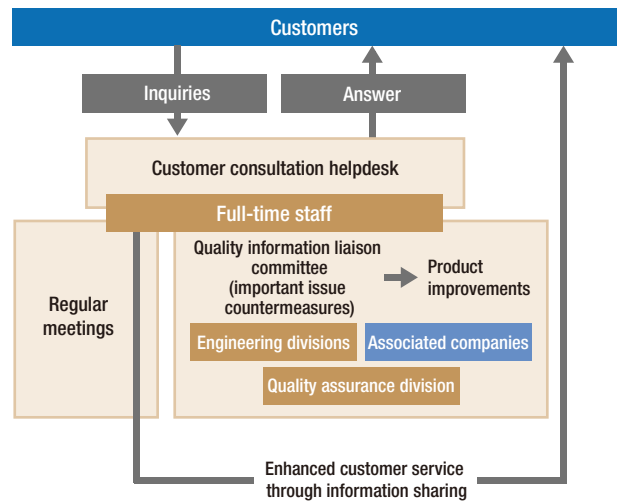
Seventy-seven manufacturing division and engineering center employees who are engaged in NGK's voluntary maintenance activities passed the Self-Maintenance Expert Test (Japan Institute of Plant Maintenance) conducted in October (Grade 1: 31 employees, Grade 2: 46 employees). This qualification is given to those who possess a broad range of knowledge and skills necessary concerning quality management, safety, and machinery maintenance, and are certified to have the ability of planning and implementing voluntary maintenance activities and giving instruction. NGK will continue to encourage employees to acquire such qualifications in order to improve quality management capabilities at manufacturing sites.

# System for Making Use of Customer Feedback in Management

## Establishment of a Customer Consultation Helpdesk

As the top industrial ceramics manufacturer in the industry, NGK makes use of its accumulated technologies to manufacture and sell C1 home-use water purifiers and has mechanisms for reflecting customer feedback.

We set up an C1 inquiry service for customers to reflect customer feedback in our products and services. During fiscal 2019, we received around 6,000 inquiries via phone and e-mail on various issues, including product performance, installation methods, and requests for brochures, repair, and installation.



## Customer Cards

We also respond to various customer feedback provided on customer cards sent from the customers who purchased the C1.

Information on the customer card is added to a list and then used to improve the service we provide for our customers, such as notifying them when it is time to replace the cartridge.





## Employees

The NGK Group implements a human resource system which enables every employee to perform at their full potential under fair treatment.

### Basic Approach

In the NGK Group Code of Conduct revised in January 2019, our relationship with employees is based on the idea of “Respect for Human Rights” and “Provide a Safe and Enjoyable Work Environment” and defined as follows.

#### Respect for Human Rights



- **We will strictly comply with international standards of human rights and respect the diversity of all people.**

- We will respect human rights and undertake business activities without the use of forced labor or child labor.
- We will respect the individuality and independence of each employee and not engage in discrimination on the basis of race, citizenship, gender, age, religion, belief, existence of handicaps, sexual diversity or any other aspect.
- We will prevent the occurrence of harassment in the workplace and take prompt and appropriate action in the case where it occurs.

#### Provide a Safe and Enjoyable Work Environment



- **We will provide a safe and enjoyable work environment that is comfortable for everyone to work in for all.**

- We will strictly comply with laws and regulations of each country and region relating to labor, safety and sanitation.
- We will aim to harmonize work and life, and support a variety of working styles.
- We will build up a relationship of trust through sincere debate and discussion with employees.
- We will give educational opportunities to employees and provide opportunities to stretch their motivation and abilities.

## Basic Information on Employees

### Number of Employees

Item	Scope	Category	FY2015	FY2016	FY2017	FY2018	FY2019
Number of employees*1	NGK		3,700	3,937	4,142	4,119	4,224
	NGK Group		16,667	17,517	18,783	20,115	20,000
Number of employees by gender	NGK*2	Total	3,717	3,939	4,136	4,355	4,529
		Men	3,247	3,440	3,621	3,807	3,951
		Women	470	499	515	548	578
		Ratio of women (%)	12.6	12.7	12.5	12.6	12.8
	NGK Group	Total	16,805	17,824	19,406	20,578	20,409
		Men	12,855	13,620	15,013	16,167	16,010
		Women	3,950	4,204	4,393	4,411	4,399
		Ratio of women (%)	23.5	23.6	22.6	21.4	21.6
Number of employees by employment type	NGK	Full-time employee	3,717	3,939	4,136	4,355	4,529
		Contract employee	150	131	398	507	464
		Temporary employee	299	322	392	389	395

\*1: Includes employees from outside companies who have been temporarily assigned to the NGK Group, but excludes employees from the NGK Group who have been temporarily assigned to outside companies.

\*2: Excludes employees from NGK Group companies or outside companies who have been temporarily assigned to NGK, but includes employees from NGK who have been temporarily assigned to NGK Group companies or outside companies.

### Employee Composition by Region

Item	Scope	Category	FY2015	FY2016	FY2017	FY2018	FY2019
Employee composition by region (%)	NGK Group	Japan	39	39	38	37	39
		Asia	29	29	27	25	23
		Europe	14	15	18	21	21
		North and Central America	17	17	16	16	15
		Other	1	1	1	1	1

### Employee Status

Item	Scope	Category	FY2015	FY2016	FY2017	FY2018	FY2019
Average age (year)	NGK	Total	38.6	39.0	38.7	39.0	38.8
		Men	38.6	39.1	38.7	38.1	39.0
		Women	39.2	38.9	38.6	39.1	38.6
Average length of service (year)	NGK	Total	15.0	14.1	13.7	14.1	13.7
		Men	14.8	14.0	13.6	14.1	14.4
		Women	16.3	15.1	14.6	15.1	14.9
Average salary (yen)	NGK		7,746,664	7,861,726	7,852,010	7,888,094	7,770,318

### Turnover Ratio

Item	Scope	Category	FY2015	FY2016	FY2017	FY2018	FY2019
Turnover ratio (%) (Only full-time employees, excludes mandatory retirees)	NGK	Total	1.2	1.1	0.8	1.4	1.5
		Men	1.2	0.9	0.7	1.2	1.3
		Women	1.6	2.0	1.9	2.9	2.8

### Voluntary Turnover Ratio

Item	Scope	Category	FY2015	FY2016	FY2017	FY2018	FY2019
Voluntary turnover ratio (%)* (Only full-time employees, excludes mandatory retirees)	NGK	Total	0.7	0.8	0.8	1.2	1.5
		Men	0.6	0.7	0.6	1.0	1.3
		Women	0.8	1.7	1.7	2.5	2.6

\*Voluntary turnover ratio is calculated by dividing the annual number of employees retiring of their own will by the total number of annual retirees.

**Retention Rate of New Hires after 3 Years**

Item	Scope	Category	FY2015	FY2016	FY2017	FY2018	FY2019
Retention rate of new hires after 3 years (%)	NGK	Total	95.1	94.3	94.6	92.6	93.5
		Men	94.8	89.2	94.8	97.6	95.2
		Women	90.0	100.0	80.0	83.9	85.1

**Revision of the Human Resource System for Group S/M/J Employees**

In April 2017, NGK revised its human resource system for Group S/M/J employees to enable all employees, from the young to the experienced, to work with enjoyment and fulfillment. As NGK develops its businesses globally and promotes the creation of new products and businesses, it is essential to motivate young and mid-level employees who will take on future key roles and encourage them to demonstrate their full potential. The revised system aims to build the environment that makes these possible.

**Key Points of the Revised System****Qualifications**

- Developing a mechanism whereby all employees can challenge to qualify for a higher job grade.
- Clarifying the definition of each qualification.

**Evaluation**

- Shifting from age-based evaluation to effort- and result-based evaluation.

**Retirement at age 65**

- Maintaining the same level of salary after age 60.

**NGK Definition of Employees**

Key personnel: Employees in managerial positions

Group S: Key personnel candidates and advanced specialists

Group M: Operational and on-site leaders

Group J: Personnel who seek to actualize, and be utilized to, their full potential

# Occupational Safety and Health

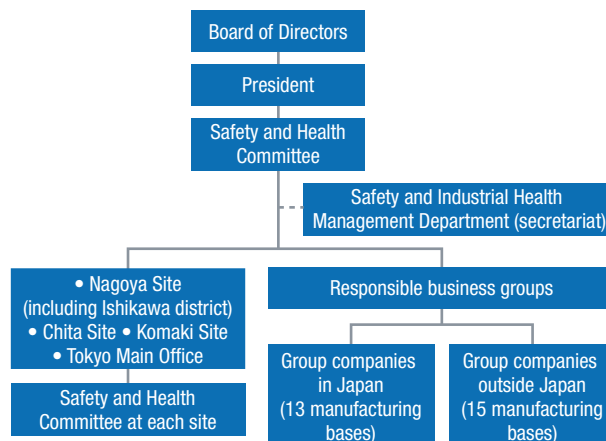
The NGK Group operates an Occupational Safety and Health Management System (OSHMS) in line with its Safety and Health Policy. The OSHMS serves as a mechanism for the ongoing, systematic achievement of employee safety and health initiatives. By strictly implementing this system and conducting risk assessment-based safety measures, we strive to raise the level of occupational safety and health throughout the entire Group.

## Safety and Health Policy

**Maintaining the safety and health of each employee constitutes the basis for a company's operation and existence**

1. Comply with occupational safety and health laws and company regulations.
2. Engage in activities in line with the OSHMS to continuously raise the safety and health standards.
3. Promote safety and health activities under enough education and training and good communication with employees.
4. Reduce the risks of hazards and toxicity and prevent accidents to provide a comfortable work environment.
5. Prevent employees' health hazards and enhance health promoting activities.

## Structure to Promote Safety and Health Management



## Enhancing Safety and Health Activities

NGK views the enhancement of safety and health activities as one of its top priorities. As such, we developed a three-year action plan in fiscal 2016 built around the key themes of compliance, risk reduction, and enhanced governance and have undertaken activities based upon it. These activities have resulted in us achieving overall targets for compliance and enhanced governance. However, for risk reduction, we found that for the Group as a whole risk assessment for jobs other than routine work was insufficient. In particular, we determined it necessary to step up risk response to prevent electrocution, explosions, and employees getting caught in rotating machinery—the cause of critical disasters and major accidents.

In fiscal 2019, towards preventing critical disasters and major accidents or minimizing their damage, we formulated the second three-year action plan prioritizing the strengthening of risk management and governance systems.

In addition, we have promoted the acquisition of international occupational safety and health management system certification by all NGK sites, factories, and manufacturing-related Group companies in and outside Japan.

These safety and health efforts have earned NGK certification from the Japan Industrial Safety and Health Association (JISHA) for ISO 45001 and for JIS Q 45100, a first for Japan,. This was one of the reasons NGK received the Chairperson Prize in JISHA's 2019 Occupational Health and Safety Activity Awards.

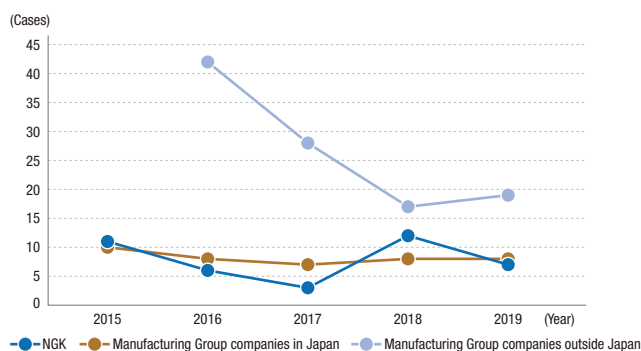
### Activities in FY2019

Medium-term action plan	Action items	Priority activities
Strengthen risk management	Identify critical disaster risks and serious hazard risks and strengthen preventative measures	<ul style="list-style-type: none"> <li>• Reassess all equipment and jobs throughout the entire Group where there is the possibility of getting caught in rotating machinery, being electrocuted, or causing explosions</li> <li>• Review risk assessment and conduct emergency measures for equipment and jobs where critical disaster risks and explosion risks exist</li> </ul>
Develop a more fully integrated governance structure	Set in place governance systems at Group companies	<ul style="list-style-type: none"> <li>• Confirm the completion status of remaining issues at each Group company through audits</li> <li>• Promote the acquisition of international certification for safety and health management systems at all manufacturing Group companies</li> <li>• Strengthen the comprehensiveness of policy communication and information sharing in each Business Group</li> </ul>

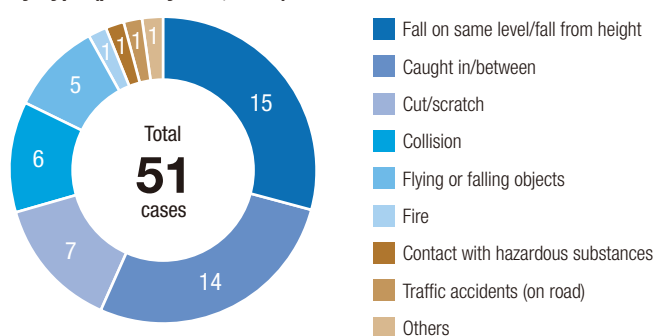
## Work-Related Accidents

Item	Scope	Category	2015	2016	2017	2018	2019
Number of work-related accidents	NGK	Lost worktime accidents	2	3	1	4	0
		Non-lost worktime accidents	9	3	2	8	7
		Total	11	6	3	12	7
	Manufacturing Group companies in Japan	Lost worktime accidents	4	3	0	1	1
		Non-lost worktime accidents	6	5	7	7	7
		Total	10	8	7	8	8
	Manufacturing Group companies outside Japan	Lost worktime accidents	–	30	20	8	13
		Non-lost worktime accidents	–	12	8	9	6
		Total	–	42	28	17	19

## Work-Related Accidents



## Lost Worktime Accidents and Non-Lost Worktime Accidents by Type (past 7 years; NGK)



## Severity Rate (number of lost workdays per 1,000 hours worked)

Item	Scope	2015	2016	2017	2018	2019
Severity rate (%) (Number of lost workdays per 1,000 hours worked)	Entire NGK Group	–	0.026	0.013	0.193	0.012
	NGK	0.007	0.004	0.000	0.743	0.000
	Manufacturing Group companies in Japan	–	0.009	0.000	0.000	0.005
	Manufacturing Group companies outside Japan	–	0.040	0.022	0.015	0.020
	All industries (Japan, sites with 100 or more employees)*	0.070	0.100	0.090	0.090	0.090
	Manufacturing industry (Japan, sites with 100 or more employees)*	0.060	0.070	0.008	0.100	0.100

\*Statistics on work-related accidents from Japan's Ministry of Health, Labor, and Welfare.

## Rate of Lost-Worktime Injuries (number of lost-worktime accidents per a million hours worked)

Item	Scope	2015	2016	2017	2018	2019
Rate of lost-worktime injuries (Number of lost-worktime accidents per a million hours worked)	Entire NGK Group	–	1.00	0.55	0.32	0.34
	NGK	0.29	0.34	0.11	0.40	0.00
	Manufacturing Group companies in Japan	–	0.50	0.00	0.14	0.13
	Manufacturing Group companies outside Japan	–	1.42	0.91	0.34	0.56
	All industries (Japan, sites with 100 or more employees)*	1.61	1.63	1.66	1.83	1.80
	Manufacturing industry (Japan, sites with 100 or more employees)*	1.06	1.15	1.02	1.20	1.20

\*Statistics on work-related accidents from Japan's Ministry of Health, Labor, and Welfare.

## Rate of Occupational Disease

Item	Scope	FY2015	FY2016	FY2017	FY2018	FY2019
Rate of occupational disease (%)	NGK	0.00	0.11	0.11	0.10	0.00

### Number of Deaths from Work-Related Accidents

Item	Scope	2015	2016	2017	2018	2019
Number of deaths from work-related accidents (persons)	NGK	0	0	0	1*	0
	Manufacturing Group companies in Japan	0	0	0	0	0
	Manufacturing Group companies outside Japan	0	0	0	0	0

\*In 2018 there was one work-related fatality. This fatality was the result of a traffic accident involving the truck of another company, which struck an NGK employee in a crosswalk.

### External Certification on Occupational Safety and Health Management System

To continuously raise the level of occupational safety and health in workplaces, we encourage companies in the NGK Group to acquire certification for international occupational safety and health management systems.

In 2017, our Nagoya Site received the first ISO 45001 private certification in Japan. In 2018, all other NGK sites and factories in Japan received ISO 45001 certification and JIS Q 45100 2018 DRAFT certification.

In addition, 23 of the 27 manufacturing-related Group companies in Japan and overseas have ISO 45001 or OHSAS 18001 certification.

### Acquisition of Management System Certification

Item	Scope	Category	FY2018	FY2019
Acquisition of occupational safety and health management system certification	NGK	ISO 45001 and JIS Q 45100	100%	100%
	Manufacturing Group companies in Japan (12)	ISO 45001	58%	100%
	Manufacturing Group companies outside Japan (15)	ISO 45001 or OHSAS 18001	40%	73%

Note: NGK/Nagoya Site, Chita Site, Komaki Site, Ishikawa Plant, Mitake Plant



## Danger-Prediction Training Center Established

In order to reduce occupational accidents caused by young workers or inexperienced workers, we have replaced our conventional training center with a 450 m<sup>2</sup> Danger-Prediction Training Center at the Chita site, where we provide safety education led by employees who have accumulated experience outside the company.

In the training center, cranes, equipment for experiencing dangers such as being caught in rotating machinery, and mannequins are arranged to simulate occupational accidents that have occurred in the company. In addition to training regarding general hazards, the program is designed to enhance sensitivity to danger through practical simulated situations.

In 2020, we introduced hazard simulation VR (virtual reality) and CG (computer graphics) equipment, thus enabling a new training program combining existing hazard simulation equipment and lectures that will boost workers' sensitivity to danger.



# 1,700

Number of participants in safety training at Danger-Prediction Training Center in FY2019

## High-Visibility Vests

Although the Danger-Prediction Training Center was established to provide training that lowers the incidence of work-related accidents caused by younger or less experienced employees, this group still accounts for 40% of all accidents at NGK. In response, we made it mandatory starting in 2020 for these less experienced employees to wear high-visibility vests. This helps create a work environment conducive to accident prevention in two ways: by making the vest wearers conscious of their own inexperience, and by making it easy for other workers to see exactly who the inexperienced workers are.



## Hosting a Safety Process Expert Meeting (PEM)

NGK's Ceramic Products Business Group brings together overseas production site safety and health managers to its yearly Safety Process Expert Meeting (PEM) with the aim of improving safety levels across the NGK Group. In fiscal 2019, a total of over 30 employees from HONEYCERAM® production bases in and outside Japan gathered at the NGK Nagoya Site to share Group-wide activity policies and plans related to safety and health, and to exchange information about their respective companies. And with the aim of boosting risk assessment skills, all participants toured the plant to observe work processes and discuss things like potential sources of danger, successful measures, and possible improvements to be made.

## Health Management

The NGK Group strives to promote employees' health through the NGK Group Health Declaration: "Developing dynamic, people-friendly work environments and a health-conscious corporate culture."

### Health Declaration of the NGK Group

At NGK, we consider employee health and safety to be of fundamental importance to the company's operation and are, therefore, proactive about developing dynamic, people-friendly work environments and a health-conscious corporate culture, which contribute to better health for each and every employee.

- Provide a workspace that is both people-friendly and work-friendly
- Cultivate a health-conscious corporate culture for executives, employees, and their families
- Promote early detection and early intervention for health concerns
- Offer support for mental health and wellbeing

April 2018

President, NGK Insulators, Ltd.



### Reducing Long Work Hours

In July 2016, we lowered the maximum amount of overtime work to 70 hours per month (with an upper limit of 300 hours per half-year). To this end, employees are, as a rule, not allowed to work for more than seven days straight and are not allowed to do overtime on their twice-a-week refresh days. If either of these are necessary, they must get permission from their bosses beforehand. To prevent employees from working excessively long hours, there must be an interval period of at least 10 hours between shifts of late night work.

#### Overtime Work Hour Trends

Item	Scope	Category	FY2015	FY2016	FY2017	FY2018	FY2019
Hours worked/ overtime work (Annual fixed working hours: 1,919 hours)	NGK general employees	Annual actual working hours	2,087	2,069	2,072	2,081	2,059
		Average overtime work per month	24.9	23.7	24.3	25.2	23.7
	NGK including key personnel (managers)	Annual actual working hours	2,079	2,067	2,089	2,087	2,056
		Average overtime work per month	23.7	22.9	23.4	25.2	23.6
	NGK production divisions	Annual actual working hours	2,140	2,102	2,129	2,129	2,067
		Average overtime work per month	26.7	24.7	25.7	27.3	24.4
	NGK non-production divisions	Annual actual working hours	2,053	2,051	2,077	2,050	2,052
		Average overtime work per month	22.4	22.3	22.4	24.0	23.2

### Following Up on Employees Working Long Hours

NGK provides employees working long hours, including non-regular and part-time employees, with ongoing opportunities to meet with industrial physicians for health consultations and exams. The results are reported at monthly Safety and Health Committee meetings at each worksite to thoroughly promote the reduction of overtime work.

In fiscal 2019, because certain managers were often putting in long hours, Business Groups ordered this to be reduced.

#### Consultations by Employees Working Long Hours

Item	Scope	Category	FY2015	FY2016	FY2017	FY2018	FY2019
Number of employees having consultations	NGK	All	226	108	85	243	78

Note: Numbers of people shown are cumulative totals.

## Promotion of Activities Supporting Mental and Physical Health

### Four Types of Care for Mental Health

We facilitate the widespread implementation of ongoing mental and physical health promotion activities, centering on the four types of care for mental health promoted by the Ministry of Health, Labor, and Welfare (MHLW).

In fiscal 2019, we carried out stress checks for all employees and had test results analyzed by group. Based on the results of this analysis, we have a six-month program that involves training the managers of workplaces with comparatively high stress levels in improving interpersonal relations within the workplace and improving the work environment.

#### Four Types of Care



#### Percentage of Employees Taking Stress Checks

Unit: %

Item	Scope	FY2016	FY2017	FY2018	FY2019	Target
Percentage of employees taking stress checks	NGK	91.4	93.4	94.9	95.9	100
Percentage with high stress levels		9.0	9.7	11.7	10.7	

### Position-Based Mental Care Education

With an emphasis on self-care for new employees and young employees, we strive to deepen understanding of mental health by combining self-care and line care for new supervisors and managers.

In fiscal 2019, we provided training for managers in areas with high occurrences of employee mental health problems with the goal of detecting and treating problems early on and putting these employees on the road to early recovery.

#### Position-Based Mental Care Education

Item	Scope	Category	FY2015	FY2016	FY2017	FY2018	FY2019
Number of employees taking position-based mental care education	NGK	All	558	1,009	402	567	614
		New hires	199	234	158	192	143
		General employees	272	325	181	306	339
		Managers	87	450	63	69	132

#### Anti-Harassment Training

Item	FY2015	FY2016	FY2017	FY2018	FY2019
Sessions held	11	6	5	5	5
Number of participants	277	326	350	464	419

### Promoting Better Health and Wellbeing among Employees

In addition to annual health exams, NGK holds collaborative health promotion activities\* with the health insurance association in efforts to promote better health and physical strength among employees. These activities include health lectures, health declaration challenges, the use of health apps for smartphones, physical strength measuring events, walking-age assessment events and related lectures, and recreational walks.

\*An initiative in which health insurance associations work closely with companies and use their respective strengths to create a positive work environment by efficiently and effectively promoting the health and wellbeing of employees and their families.

### Percentage of Employees Taking Health Exams

Item	Scope	Category	FY2015	FY2016	FY2017	FY2018	FY2019	Target
Periodic health exam	NGK	Total employees	3,846	4,035	4,266	4,683	4,936	100
		Number taking health exam	3,794	3,946	4,230	4,601	4,855	
		Number of exceptions*	52	89	36	82	81	
		Health exam ratio (%)	100	100	100	100	100	

\*Employees on maternity leave, temporary retirement, etc.

### Percentage of Smokers

Item	Scope	FY2017	FY2018	FY2019
Smoking ratio (%)	NGK	24.6	25.0	26.0

### Percentage of Employees Taking Metabolic Syndrome Checkup

Unit: %

Item	Scope	FY2015	FY2016	FY2017	FY2018	FY2019
Percentage of employees taking metabolic syndrome checkups	NGK	84.5	84.8	86.3	86.3	Compilation results in about November 2020
Percentage with metabolic syndrome	NGK	15.7	13.2	13.1	14.3	
Percentage under medical guidance	NGK	42.1	59.1	58.6	56.7	

### Number of Participants in Health Promotion Initiatives

Unit: Persons

Item	Participants	FY2017	FY2018	FY2019
Health lectures	NGK managers	200	270	300
Health declaration challenges	NGK employees	1,306	1,590	1,199
Smartphone health apps	NGK employees and families	522	742	1,127
Physical dynamism checkups	NGK employees	192	191	—
Walking-age assessments and lectures	NGK employees	—	—	64
Recreational walks	NGK employees and families	223	163	223

## Response to Infectious Diseases and Other Global Health Problems

There are approximately 450 NGK employees and family members posted overseas, and our employees in Japan take more than 3,000 overseas business trips a year, thus creating substantial risk of contracting infectious diseases. To reduce this risk, those posted overseas and taking business trips, as well as their families, are provided with health management training by industrial physicians.

Participants learn the fundamentals of infectious diseases, are advised to take immunization shots, and are taught ways to avoid contracting things like HIV and malaria.

During the influenza season from autumn to winter, employees going on overseas business trips can get influenza shots at the in-company clinic.

## Outstanding Health and Productivity Management Company

Since 2019, we have been included in the 2019 “White 500” list under the Health and Productivity Management Organization Recognition Program, run by the Ministry of Economy, Trade and Industry and Nippon Kenko Kaigi.



## Aichi Prefecture Advanced Health Management Company

NGK and the NGK Health Insurance Association have earned a designation as an Advanced Health Management Company by the Aichi prefectural government. The aim of this program is to recognize companies and organizations that aggressively pursue health management, in the process increasing the number of companies taking action towards a healthy workforce and increasing the healthy life expectancy of the prefecture's citizens.



## Diversity

It is NGK Group's basic policy to recruit human resources and offer stable employment and equal opportunities regardless of race, nationality, gender, age, religion, belief, disability, or gender identity/sexual orientation. Also, in an aim to promote autonomy and independence, NGK maintains the human resource systems necessary to provide employees with fair compensation commensurate with their degree of contribution to the company.

**New Graduate Hires** Note: Excluding new graduates planned to transfer from temporary to regular positions.

Item	Scope	Category	FY2015	FY2016	FY2017	FY2018	FY2019
Number of new graduate hires	NGK	Total	68	154	111	155	143
		Men	58	127	96	122	115
		Women	10	27	15	33	28

### Ratio of Women among New Graduate Hires

Item	Scope	Category	FY2015	FY2016	FY2017	FY2018	FY2019
Ratio of women (%)	NGK	Total*	29	23	31	28	23
		Administrative-related; target 30%	42	27	42	44	52
		Engineering-related; target 20%	13	20	22	24	27

\*Covers regular-position employees

### Mid-Career Hires

Item	Scope	Category	FY2015	FY2016	FY2017	FY2018	FY2019
Number of mid-career hires	NGK	Total	200	158	135	115	105
		Men	185	139	121	101	87
		Women	15	19	14	14	18

## System to Promote Diversity

At NGK, the Human Resources Department plays a central role in promoting diversity, including through nursing care support and promotion of women's active participation.

Regarding human rights issues, NGK strives to educate employees by distributing booklets on human rights on occasions such as training for the recently promoted employees. A helpline is also available for consultation on these issues.

### Seminars Promote Understanding of LGBT Issues

NGK held its first seminar for executives on LGBT issues. The aim of the seminar was to learn about how the company can create workplaces friendly to LGBT and other minorities and to develop a greater understanding of diversity in gender identity/sexual orientation and respect for human rights.

Speaking at the seminar was Takeshi Ichikawa, the representative of the On the Ground Project, who, under the theme of creating company workplaces friendly to LGBT and sexual minorities, outlined basic LGBT issues and gave examples of how other companies are accommodating these workers' needs. Mr. Ichikawa said that companies that ignore LGBT issues do so at their own risk, and stressed that proper understanding of the issue, respect for employees' abilities and diversity, and the creation of workplaces accommodating all individuals will contribute to a company's growth. Similar seminars are planned for other companies throughout the NGK Group.



## Promoting the Success of Women

### Appointment of Female Key Personnel (Management Staff)

The NGK Group strives to increase opportunities for motivated and skilled people to enhance their skills regardless of gender. We are also engaged in creating comfortable working environment for women.

#### Ratio of Female Employees

Item	Scope	FY2015	FY2016	FY2017	FY2018	FY2019
Ratio of female employees* (%)	NGK	12.6	12.7	12.5	12.6	12.8

\*Ratio among all employees

#### Key Personnel (Managers)

Item	Scope	Category	FY2015	FY2016	FY2017	FY2018	FY2019
Number of key personnel (employees in managerial positions)	NGK	Total	803	824	865	890	900
		Men	789	808	848	870	874
		Women	14	16	17	20	26
		Dept. managers or higher	3	3	4	4	5
		Ratio of women (%)	1.7	1.9	2.0	2.2	2.9
	Group companies outside Japan	Ratio of women (%)	16.6	15.3	21.0	16.0	20.2

#### Female Directors

Item	Scope	Category	FY2015	FY2016	FY2017	FY2018	FY2019
Number of female directors	NGK	Total	—	—	12	12	13
		Women	—	—	1	1	1
		Ratio (%)	—	—	8.3	8.3	7.7

### Promoting Women's Active Participation through the Revised Human Resource System

NGK revised its human resource system in April 2017 with the aim of enabling employees in general employment positions who were engaged in routine tasks to take on a broader range and a higher level of work. The new human resource system helps career advancement by allowing individual employees to take on the challenge of moving up to a higher job grade.

In addition, for those in general employment positions in charge of doing clerical and routine work, we are striving to create an environment where both employees and their supervisors can achieve high performance by improving and consolidating their duties.

### Establishment of a Career Consultation Helpdesk

In 2016, we established a career consultation helpdesk for female employees to discuss career-related concerns. At the helpdesk, certified career consultants provide support and consultation services to employees, while strictly observing confidentiality. Since 2017, we have expanded the service to make it available not only to women but to all employees.

### Introduction of System to Support Early Return from Parental Leave

We have introduced a system to encourage and support employees so that they can return from maternity and childcare leave and resume their careers at an early stage.

#### ▶ P67 Work-Life Balance: Systems to Support Early Return from Parental Leave



## Training for Employees Returning from Childcare Leave

Training was provided for female employees returning after the end of their designated childcare leave period, as well as for their supervisors. During this training, participants were offered advice on how to orient their focus and coordinate their schedule in balancing work and family responsibilities, as well as how to go about developing a medium-to-long-term career plan. Despite being from different departments, all of the participants were alike in that they faced the challenges of balancing childrearing with work, and through their interactions with one another, they were able to share their stories, their struggles, and their advice.

## Group J Clerical Staff Career Design Training

In line with the revisions made to NGK's human resource system for general employees in April 2017 (job grade standardization and extension of the mandatory retirement age to 65), Group J clerical staff were provided with career design training intended to serve as an opportunity for them to think about their future career path and work style. Through this training, participants examined the expectations of those around them, their own skills and values, and then objectively considered their career goals from a medium-to-long term perspective and what they need to do to achieve them. Participants not only utilized information provided by their instructors but also engaged in solo and group work to facilitate a deeper level of self-awareness and discovery.

## Women's Active Participation Promotion Project: "Surprising Women"

In fiscal 2018, NGK launched its new Women's Active Participation Promotion Project. Taking women's empowerment efforts beyond just expanding support systems and providing training to supervisors, the project, called "Surprising Women," includes members from the Human Resources Department and other company departments in order to achieve a broader, company-wide perspective.

In fiscal 2019, in order to expand job opportunities for Group J clerical staff, these employees and their supervisors filled out questionnaires that yielded suggestions for future progress.

We also held career design workshops for female Group J staff, where participants interacted with their peers and their more experienced colleagues, in the process dispelling worries about the future and giving them the opportunity to take the initiative towards their desired career.

## Hamada Seminar

NGK Outside Director Emiko Hamada led a seminar for female Group S key personnel called the "Hamada Seminar." To help participants understand what constitutes good work and the creation of a satisfying company, Ms. Hamada interspersed talk of her own experiences with what makes work rewarding and worthwhile for company officers and key personnel, and exchanged opinions with participants on their future career ideals.

## Submitting Our Action Plan for Promoting Women's Active Workplace Participation to MHLW

In January 2019, in accordance with the Act on Promotion of Women's Participation and Advancement in the Workplace, NGK submitted a general employer action plan to the Aichi Labor Bureau, which is overseen by the Ministry of Health, Labor and Welfare (MHLW).

In this plan, NGK sets the goal of hiring more female employees. Accordingly, the proportion of women among new hires increased from 16% in fiscal 2012 to 28% in fiscal 2019.

We will keep working on the initiatives according to the action plan to accomplish our goals.

### Action Plan

#### Issues

- Although there is no gender gap in terms of criteria for promotion and service years, the number of women in management positions is small.

#### Goals

- Foster a corporate culture that promotes women's active participation.
- Increase the number of candidates for managers by 1.5 times.

#### Initiative 1

Create an environment that makes it easier for women to achieve a work-life balance.

#### Initiative 2

Increase the ratio of women among new graduate hires and diversify career opportunities.

## Third-Party Certifications

### Certified as an “L-Boshi” Company for Excellence in Promoting Women’s Active Participation

In March 2017, NGK was certified as an “L-Boshi” company by the Minister of Health, Labor and Welfare (MHLW). This certification is granted to companies that have done excellent jobs in accordance with the Act on Promotion of Women’s Participation and Advancement in the Workplace. Each applicant for the certification is evaluated on five criteria: recruitment, employment continuity, working hours, percentage of female managers, and diverse career paths. In September 2019, NGK satisfied all five criteria and received certification for level three, the highest certification level.



Ministry of Health, Labor and Welfare  
Next-generation support certification logo  
“Kurumin” (2012)



Ministry of Health, Labor and Welfare  
“L-boshi” certification of corporate excellence in the promotion of women’s active participation  
Certification level 3 (2019)

### Certified as a Company Promoting Women’s Active Participation by Nagoya City\*

In recognition of our efforts to create a workplace environment that encourages women’s active participation such as revising our system for transferring to career-track positions, we were certified as a Company Promoting Women’s Active Participation by Nagoya City in January 2012 and recertified in January 2018.



Nagoya City  
Certification of corporate promotion of women’s active participation  
(2011)



Aichi Prefecture  
Certification of Aichi  
“Shining Women” Companies  
(2016)

\*A system for certifying companies that conduct outstanding initiatives in the areas of (1) awareness improvement, (2) work-life balance, and (3) promotion of women’s active participation.

## Promoting Participation of Older Employees

As part of changes made to the NGK Insulators personnel system in April 2017, the mandatory retirement age has been raised to 65. Salary levels, bonuses, and benefits have all been kept at the same level as of age 60. Our goal is to ensure employees to work without worries even after they turn 60. More robust systems and support have been introduced for employees with illness or nursing care needs, such as more flexible work schedules offering shorter hours and three-day work weeks, or a lump sum nursing care support allowance for employees caring for their parents or spouse.

## Initiatives for Persons with Disabilities

NGK undertakes a variety of initiatives aimed at employing people with disabilities, such as accepting students from special-needs schools as trainees and attending employment seminars for people with disabilities.

In fiscal 2019, we hired one new employee with a disability. We have a subsidiary that provides cleaning services and whose employees are mainly intellectually disabled. In September 2019, this company was certified as a special subsidiary for the employment of the disabled by Japan’s Ministry of Health, Labor and Welfare (MHLW). This helped us meet the MHLW’s 2.2% employment quota for persons with disabilities. With this figure set to go up to 2.3% in fiscal 2020, we are stepping up our efforts to hire people with disabilities by continuing to accept students from special-needs schools as trainees, attending employment seminars for people with disabilities, and expanding the work of our special subsidiary.

### Number and Percentage of Employees with Disabilities

Item	Scope	Category	FY2015	FY2016	FY2017	FY2018	FY2019
Number of employees with disabilities	NGK	Number of people	56	55	57	62	135
		Employment rate (%)	2.18	2.03	1.90	1.92	2.20

## Various Systems to Make Use of Diverse Human Resources

The NGK Group implements systems promoting the utilization of human resources based on the idea that personnel diversity is linked to innovation in organizational culture.

### Human Resource Utilization Systems Aligned with Employee Individuality and Skills

To open the way for employees to take full advantage of their individuality and skills, NGK adopts an internal job application system, in which open positions are announced internally and eligible applicants are appointed. There is also an FA (free agent) system that allows employees to register their personal aspirations and preference of jobs to appeal themselves within the company.

#### Internal Job Application System

Item	Scope	Category	FY2015	FY2016	FY2017	FY2018	FY2019
Job application system	NGK	Number of applications	25	17	32	28	28
		Number of recruits	36	28	50	40	37
		Number of applicants	23	11	15	7	18
		Number of successful applications	9	4	5	2	7

### Promoting the Regular Employment of Fixed-Term Manufacturing Contract Employees

NGK established a system for appointing fixed-term manufacturing contract employees to become regular employees, and 41 employees were appointed in fiscal 2019. Excellent employees are identified through biannual personnel assessments and recommended by division heads to sit for the regular employee promotion exam. Those who pass the exam become regular employees.

#### Transfers from Fixed-Term Contract Manufacturing Worker to Regular Employee

Item	Scope	Category	FY2015	FY2016	FY2017	FY2018	FY2019
Number of contract-to-regular employees	NGK	Number of people	25	15	20	37	41

### Management of Follow-up System to Fit Young Employees in the Workplace

To prevent career mismatches, there is a follow-up system for younger employees in NGK. For career-track employees, we conduct surveys and interviews about their jobs and work environment in their second year; and for manufacturing technology staff, we do this in their second or third year of employment. If they desire, feedback is provided to their superiors, leading to younger employees' job stability. A job rotation system is also provided mainly to young career-track employees. After working with us for four to six years, they are transferred to a different job—potentially overseas or outside their current department.

### Come-Back System

Since fiscal 2016, NGK has had its Come-Back System to rehire people who had left our company for various reasons (e.g., job change, studying abroad, job transfer of a spouse, etc.) as mid-career employees.

Reference  
URL

#### Come-Back System

<https://www.ngk.co.jp/recruit/comeback/>

# Work-Life Balance

NGK strives to promote a work-life balance and reduce long working hours.

We keep track of social changes, such as changing attitudes toward work as well as legislative amendments, and strive to respond to these changes flexibly and properly by improving systems and revising operations.

## 10 rules for promoting a work-life balance

- No more than 70 hours of overtime work per month
- Overtime work exceeding 45 hours per month limited to six months each year
- The target for annual paid leave is 10 days, and employees are obligated to take at least six days a year
- No more than 300 hours of overtime work per six months
- In principle, there will be no overtime work on refresh days (Wednesdays and Fridays)
- If overtime is necessary, a prior permit application must be submitted
- In principle, work must not be performed for more than seven days straight
- If work in excess of seven days straight is necessary, a prior permit application must be submitted
- Written applications must be submitted when requesting employees to work on holidays or late at night
- There must be an interval period of at least 10 hours between shifts of late night work

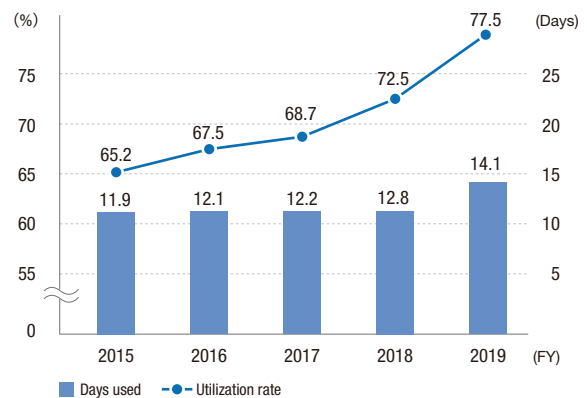
## Initiatives to Limit Overtime Work

If, for any reason, overtime work in excess of 45 hours per month appears likely, the reason for the increase in overtime work must be confirmed through prior labor-management consultations to level out the time periods and workloads or increase the number of employees.

## Countermeasures for Mitigating Increased Overtime Working Hours

Each year, NGK discloses statistics on hours worked and paid leave utilization to its Labor Union for discussion and countermeasure deliberation purposes. When cases of long working hours are found, Labor Union meets with each workplace to devise countermeasures. When long working hours are found for employees who have been temporarily assigned overseas, they must submit in writing the reason for the long working hours and undergo a health check. These measures are taken to maintain their health, and the written report is used to identify the reasons for long working hours and to develop countermeasures.

**Paid Leave: Number of Days Used, Utilization Rate**  
(NGK Union Members; Excluding Outside Employees Temporarily Assigned to NGK)



## Enhancing Systems for Supporting Work-Life Balance

NGK offers flexible systems to help employees maintain a balance between work and family life. To support childcare and nursing care, we are enhancing financial support by providing a babysitter expense subsidy system, and a lump-sum payment system for nursing care support. And in consideration of the working environment, we offer support via a shortened working hour system.

Further, we continue to enhance the soft infrastructure NGK has in place to support these employees. For employees seeking to balance their career with childcare, we offer pre-maternity leave interviews, pre-reinstatement interviews during the childcare leave period, career consultations, and other consultation resources. For employees undertaking nursing care, we offer nursing care-related information sessions and distribute nursing care handbooks, as well as facilitate consultation services which make use of outside resources.

## Enhancement of Work-Life Balance Systems

In 2010, NGK made a major revision to its human resource system, and we have since been continuously enhancing our support measures by identifying employees' needs.

In fiscal 2017, we established an early reinstatement lump-sum system for employees who return to work early from their childcare leave (within 11 months of the start of their childcare leave). We also established a non-registered daycare subsidy system to help subsidize employees who put their children in non-registered daycares. These systems are part of the initiatives we undertake to support employees' careers after they have returned to work. Also, in addition to childcare and nursing care, we launched a system for flexible work arrangements to help employees who need to attend to a health condition of their own that requires repeated and ongoing treatment, thereby finding a balance between work and medical care.

In fiscal 2018, we investigated how to improve the efficiency and productivity of workplaces by offering employees greater flexibility in terms of work style and environment, so that they can work to their potential while maintaining a healthy work-life balance, regardless of when or where they work. It was in this context that we introduced a telecommuting system intended to help address the needs of employees with children or family members who require care, or who have a serious illness themselves.

In fiscal 2019, we made it possible for male employees to accumulate more vacation days to be used for post-maternity support. They can also take childcare leave for shorter periods. This has resulted in a more-than-60% increase in male employees taking childcare leave.

## System to Support Employees to Balance Work and Childcare at Each Stage

		Interview (employee, supervisor, and HR)		Interview (employee, supervisor, and HR)	
		During pregnancy	Before/after birth	During childcare leave	Balancing work and care
Work systems		Measures on health management Overtime work exemption Late-night working hours exemption Flex time system	Time off before/after birth Special paid leave when a spouse gives birth Childcare leave (using accumulated vacation days)	Childcare leave Continuing the childcare leave Post-maternity support leave (for male employees)	Shortened working hours Flex time system Unscheduled work exemption Limitation on overtime work Late-night working hours exemption Half-day paid leave Caring for a family member (using accumulated vacation days) Caring for a child Lump-sum payment for early return
	Other systems			Childcare Concierge (for those living in the Tokyo metropolitan area)	Priority use of a commuter parking lot (in Nagoya) Non-registered daycare expense subsidy
Financial support systems	Family Fund		Maternity gift		Babysitter expense subsidy Elementary school enrollment gift
	Insurance benefits	Health insurance	Lump-sum birth allowance		
		Employment insurance			Childcare leave benefits
Salary			During the time off before/after birth, pay 2/3 of the standard daily wage	Unpaid	Lump-sum payment made six months after returning to work (330,000 yen)
Bonus			During the time off before/after birth, pay a bonus calculated with a 2/3 attendance rate	Unpaid	

## Systems to Support Early Return from Parental Leave

NGK has systems to encourage and support employees who have taken maternity and childcare leave so that they can return to their careers at an early stage.

These systems are aimed at developing workplaces that support female employees in particular, with the expectation of promoting their active participation.

## Systems to Support Early Return from Parental Leave

- A lump-sum payment for early return
- Licensed daycare center expense subsidy
- Childcare Concierge

## Overview of Childrearing Support Measures and Users

### Systems That Exceed Legal Requirements

Item	Details	Category	FY2015	FY2016	FY2017	FY2018	FY2019
Number of childcare leave takers	Until the last day of the month when the child turns 1 year old. When there are certain circumstances, such as not being able to find a daycare center, leave is available until the last day of the month in which the child turns 18 months old or the end of March after the child turns one, whichever is longer. (Legal requirement: until the child turns 18 months old)	Total	60	51	53	54	94
		Men	11	7	17	27	37
		Women	49	44	36	27	57
Shortened working hours during childrearing	6 or 7 hours per day for employees until the fiscal year when their children start 4th grade in elementary school (Legal requirement: For children under the age of 3)	Number of leave takers	53	57	51	63	64

### Systems Operated Independently by NGK

Unit: Persons

System name	Details	FY2015	FY2016	FY2017	FY2018	FY2019
Lump-sum payment made 6 months after returning to work	Lump-sum payment is paid 6 months after returning to work	16	26	19	31	25
System for taking annual paid leave in hourly increments for employees working shortened hours	Paid leave (day's worth) can be taken in hourly increments by employees working shortened hours	35	36	36	59	62
Childcare leave for fathers using accumulated vacation days	Unused annual paid holidays can be used for childcare leave	11	7	17	19	31
Pre-maternity leave interview	Interview is attended by employee, HR, and supervisor to provide the employee with peace of mind while on maternity leave and ensures both sides have proper understanding of procedures related to systems supporting childcare and work	22	20	27	30	26
Interview before returning to work	Supports smooth transition back to work through consultation on work details and work style	27	18	30	29	27
System for accompanying a spouse's overseas assignment*	Enables employees to take a leave of up to 2 years and 6 months while accompanying a spouse (including a non-NGK employee) posted overseas for work, and allows employees to continue their career path, which was difficult to do prior to the establishment of this system	3	6	9	10	9
Maternity gift	¥50,000 gift when a child is born	175	208	225	241	218
Babysitter expense subsidy	Provides up to ¥100,000 per year for employees who must pay for a babysitter or daycare due to working hours	16	19	9	8	11
Childcare Concierge	Support to facilitate the process of putting a child in daycare and returning to work	Unintroduced	2	1	1	1
Priority parking spaces to support childcare	Priority parking spaces available at a commuter parking lot	17	19	29	32	40
Non-registered daycare subsidy system		Unintroduced	Unintroduced	1	0	0
Lump-sum payment for early return		Unintroduced	Unintroduced	3	7	5

\* The definition of the system for accompanying a spouse's overseas assignment has been revised and the data for past years has been revised.



## Systems to Support Nursing Care

Working hours	Time off	Financial support
<ul style="list-style-type: none"> <li>① Shortened working hours</li> <li>② Working 3 days a week</li> <li>③ Flex time system (for employees at departments to which the regular flex time system does not apply)</li> <li>④ Limitation on overtime work</li> <li>⑤ Unscheduled work exemption</li> <li>⑥ Late-night working hours exemption</li> </ul>	<ul style="list-style-type: none"> <li>⑦ Caring for a family member using accumulated vacation days</li> <li>⑧ Unpaid days off to provide care</li> </ul>	<ul style="list-style-type: none"> <li>⑩ Care leave benefits</li> <li>⑪ Care leave support fund</li> <li>⑫ Lump-sum care allowance</li> </ul>
	<p style="text-align: center;"><b>Leave of absence</b></p> <ul style="list-style-type: none"> <li>⑨ Care leave</li> </ul>	

### Nursing Care Leave Usage (NGK)

Category	FY2015	FY2016	FY2017	FY2018	FY2019
Total	0	0	1	1	1
Men	0	0	1	0	1
Women	0	0	0	1	0

Note: Includes contract employees.

### Revision of the Care Leave System

In line with revisions made in January 2017 to the Child Care and Family Care Leave Act, we made revisions to our own system, such as enabling employees to divide their one-year nursing care leave into three blocks.

Moreover, we have signed a corporate contract with SeaCare, an NPO that supports care-giving, to further enhance services helpful to caregivers. This service makes care-giving consultations available free of charge, regardless of whether Certification of Needed Long-Term Care has been obtained, and enables employees to receive support in care-giving when they are unable to do so.

### Company Intranet

We have launched a site on diverse work styles on the company intranet to widely announce our measures to support a work-life balance. The new site is a redesigned and more user-friendly version of the previous Work and Family Life Support Site. Its new features include, for example, an online handbook on childcare and nursing care.



# Human Resource Development

The NGK Group puts its Group Philosophy into action by ensuring that people remain our top priority as we pursue a mission of “Enriching Human Life by Adding New Value to Society.” We do this not only through the educational programs that we offer but also by cultivating work environments and supportive supervisors capable of ensuring that each employee is able to contribute and independently grow through the work that they undertake within the environment in which they are placed.



NGK undertakes systematic human resource development, which encompasses every job category in Group companies in Japan, from employment to every promotion milestone in their career.

The education and training that we provide employees across the NGK Group, in conjunction with their departments and with the aim of putting the Group Philosophy into practice, is divided into three areas: “Personal Character” needed to tenaciously pursue results through teamwork, “Professional Competence” needed to cultivate a distinctive skill set and a proactive approach to problems, and “Compliance Requirements in Job Performance” needed to recognize and act upon responsibilities as a member of society.

## Key Personnel Competencies

In order to improve the managerial skills of key personnel and, thereby, contribute to greater organizational vitality, we have defined the “key personnel competencies (behavioral traits)” that are expected of key personnel in NGK.

As the diversity of our human resources continues to increase, we want to put in place a structure that promotes a shared awareness across our company to enable key personnel to effectively contribute to business performance.

We have established key personnel competencies for the sake of achieving the following aims.

- Ensure key personnel have a correct understanding of their expected roles so that their performance meets the expected contributions of those roles to company development.
- Ensure key personnel candidates have a clear vision for themselves, and promote their growth towards recruitment as key personnel. The creation of key personnel competencies was used as an opportunity to conduct a 360° survey (multifaceted evaluation) of all key personnel.

### Training Participant Summary (total participants)

	FY2015	FY2016	FY2017	FY2018	FY2019
Total participants	3,988	4,002	3,889	4,661	4,685
Key personnel	892	933	1,132	991	813
General employees	3,096	3,069	2,757	3,670	3,873

### Average Time Spent in Training Annually per Employee (hours)

	FY2015	FY2016	FY2017	FY2018	FY2019
Total participants	21.0	24.8	21.7	21.3	21.4
Key personnel	15.3	13.1	15.6	12.8	12.3
General employees	22.5	28.8	23.3	25.0	23.7

### Average Annual Cost of Training per Full-Time Employee (¥10 thousand)

	FY2015	FY2016	FY2017	FY2018	FY2019
Average expenses	7.8	7.0	6.6	6.3	5.3

Note: Calculated based on actual achievements from FY2015.

Fiscal 2020 Company-Wide Education Scheme

		NGK employees										Group companies in Japan		Group companies outside Japan																															
		Group J					Group M					Employees		Executives																															
		New 1st-year hires		Group J		Group M		Group S		Key personnel		Employees		Executives																															
Values	Training for new hires and promoted employees	NGK philosophy	Code of Conduct	Entrance ceremony	Understanding	Philosophy sharing activities	Promoted to IT technical and clerical	Code of Conduct	Understanding	Code of Conduct	New key personnel	New key personnel	Code of Conduct	Code of Conduct	Training for new managers																														
	Message from the President	Company history	Management concept	Creativity	Logical thinking	Organizational operation	Guiding and training subordinates	Your own role and business communication	Support for autonomous career design	Support for life events	Quality assurance	Production control	Ceramics	Emergent technology	Worksite capability	Staff	How to proceed with workplace improvements	Office work	Finance	Legal	Intellectual property	Information, IT	Work execution	Language	Awareness	Business/financial conditions	Systems and regulations	Compliance	Competition Law	Anti-corruption	Contract compliance	Security export control	Companies Act	Subcontract Act	Construction Business Act	Harassment	Safety and health	Quality	Environment	CSR	Safety and health legal training, license acquisition, health occupational MS*, ISO 45001-related	Quality MS*	ISO 9001	IATF 16949	ISO 14001-related environmental MS*
Conceptual skills	Organizational operation	Guiding and training subordinates	Your own role and business communication	Support for autonomous career design	Support for life events	Quality assurance	Production control	Ceramics	Emergent technology	Worksite capability	Staff	How to proceed with workplace improvements	Office work	Finance	Legal	Intellectual property	Information, IT	Work execution	Language	Awareness	Business/financial conditions	Systems and regulations	Compliance	Competition Law	Anti-corruption	Contract compliance	Security export control	Companies Act	Subcontract Act	Construction Business Act	Harassment	Safety and health	Quality	Environment	CSR	Safety and health legal training, license acquisition, health occupational MS*, ISO 45001-related	Quality MS*	ISO 9001	IATF 16949	ISO 14001-related environmental MS*	*MS: Management system				
	Human skills	Organizational operation	Guiding and training subordinates	Your own role and business communication	Support for autonomous career design	Support for life events	Quality assurance	Production control	Ceramics	Emergent technology	Worksite capability	Staff	How to proceed with workplace improvements	Office work	Finance	Legal	Intellectual property	Information, IT	Work execution	Language	Awareness	Business/financial conditions	Systems and regulations	Compliance	Competition Law	Anti-corruption	Contract compliance	Security export control	Companies Act	Subcontract Act	Construction Business Act	Harassment	Safety and health	Quality	Environment	CSR	Safety and health legal training, license acquisition, health occupational MS*, ISO 45001-related	Quality MS*	ISO 9001	IATF 16949	ISO 14001-related environmental MS*	*MS: Management system			
Career Support	Support for autonomous career design	Support for life events	Quality assurance	Production control	Ceramics	Emergent technology	Worksite capability	Staff	How to proceed with workplace improvements	Office work	Finance	Legal	Intellectual property	Information, IT	Work execution	Language	Awareness	Business/financial conditions	Systems and regulations	Compliance	Competition Law	Anti-corruption	Contract compliance	Security export control	Companies Act	Subcontract Act	Construction Business Act	Harassment	Safety and health	Quality	Environment	CSR	Safety and health legal training, license acquisition, health occupational MS*, ISO 45001-related	Quality MS*	ISO 9001	IATF 16949	ISO 14001-related environmental MS*	*MS: Management system							
	Manufacturing	Operations	Global	Company understanding	Basics	Business/financial conditions	Systems and regulations	Compliance	Competition Law	Anti-corruption	Contract compliance	Security export control	Companies Act	Subcontract Act	Construction Business Act	Harassment	Safety and health	Quality	Environment	CSR	Safety and health legal training, license acquisition, health occupational MS*, ISO 45001-related	Quality MS*	ISO 9001	IATF 16949	ISO 14001-related environmental MS*	*MS: Management system																			
Personal Character	Manufacturing	Operations	Global	Company understanding	Basics	Business/financial conditions	Systems and regulations	Compliance	Competition Law	Anti-corruption	Contract compliance	Security export control	Companies Act	Subcontract Act	Construction Business Act	Harassment	Safety and health	Quality	Environment	CSR	Safety and health legal training, license acquisition, health occupational MS*, ISO 45001-related	Quality MS*	ISO 9001	IATF 16949	ISO 14001-related environmental MS*	*MS: Management system																			
	Professional Competence	Job Performance Compliance Requirements	Laws and regulations, standards																																										
Personal Character	Manufacturing	Operations	Global	Company understanding	Basics	Business/financial conditions	Systems and regulations	Compliance	Competition Law	Anti-corruption	Contract compliance	Security export control	Companies Act	Subcontract Act	Construction Business Act	Harassment	Safety and health	Quality	Environment	CSR	Safety and health legal training, license acquisition, health occupational MS*, ISO 45001-related	Quality MS*	ISO 9001	IATF 16949	ISO 14001-related environmental MS*	*MS: Management system																			
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	Professional Competence	Job Performance Compliance Requirements	Laws and regulations, standards																																										

**Legend**  
 Training conducted by Human Resources Department  
 Training for new hires and promoted employees  
 Annual compulsory qualifications training  
 Training for selected persons  
 Training for those who need it  
 Training for those who want it  
 Training conducted by other departments  
 Directly run by Head Office departments  
 Run individually by each department

## Values

NGK training and education seeks to foster an understanding of the NGK Group Philosophy and Code of Conduct such that employees will not simply work for the sake of meeting their individual job targets but, rather, will think about the significance of the work they perform and the basis for their decision-making, leading to a sense of pride and shared identity as an NGK employee. It is not enough for employees to know what the NGK Group Philosophy and Code of Conduct are; we want employees to incorporate them into their behavior.

This approach is particularly evident in the corporate history training program that was launched full-scale in 2017 for every level of employee, from new hires to those promoted to managers. It is also incorporated into the educational programs of Group companies outside Japan in order to reach a variety of personnel. It will continue to be developed and expanded.

## Business Skills

We carry out training designed to equip employees with the mindset, knowledge, and skills they need to carry out their jobs. To ensure that the skills employees acquire are applicable and directly contribute to the work that they perform—i.e., practical skills instead of just knowledge—we provide coaching in cooperation with the participants’ supervisors and training programs for handling challenges directly relevant to their own departments.

## Career Support

In order to ensure that as many personnel as possible are able to actively participate in and contribute to the functioning of NGK, we provide employees with career development support in the form of a variety of effective HR initiatives, such as initiatives to promote the active participation of women and extending the mandatory retirement age. This support is focused on cultivating personnel capable of thinking outside the limits of predetermined career models to chart their own career path.

Career design training programs for women, employees in their 50s, and others serve as opportunities for employees to think about who they want to be and how they can challenge themselves in their work to grow to become that person.

When it comes to diversity promotion, our focus is on ensuring that every employee is able to work to their full potential within the context of the many and varied environments that comprise the NGK Group.

## Job Performance Compliance Requirements

We provide employees with training that communicates to them the responsibilities, which NGK bears as a corporate citizen, as well as what this requires of them as employees of NGK. This training seeks to instill a strong sense of ethics and a commitment to doing what is right.

The fundamentals of NGK business—safety, quality, environment, and CSR—are inculcated from the time an employee joins the company to every time they receive a promotion so that knowledge ends up being reliably translated into action.

## Manufacturing Training

We pursue training aimed at conveying the central importance of safety, the environment, quality, timely delivery, and cost in manufacturing while passing on the traditions and spirit of NGK manufacturing. This training also aims to grow employees into individuals who can support the creation of new value.

Towards this end, we provide training in specific technologies that will deepen employees’ understanding of NGK products and technologies, as well as provide training in administrative and improvement techniques that will equip employees with the mindset and means to improve their workplaces.

Manufacturing basic training is centered on practical training tied to the actual manufacturing process. It involves teaching participants about ceramic technology and manufacturing in general at NGK so that they will have a broad perspective, which they can apply in their work.

Worksite capability enhancement training cultivates human resources capable of making managerial contributions as manufacturing worksite leaders who independently pursue worksite capability improvements together with others both in and outside of their plant’s organizational framework.



## Innovation Training

The aim of innovation training is the cultivation of leaders suited to an era of transformation and speed. This is achieved by fostering outside-the-box thinking coupled with an ability to think and act to bring an idea to fruition.

In the program for young employees with leadership potential, participants learn about the essential innovation processes involved in generating new business. The program is held jointly with other companies. This allows interaction with employees from other companies who have different experiences and values, thus helping NGK employees develop a more multifaceted perspective.

## Corporate History Training

This training program looks at the history of NGK in order to reexamine the origins of our corporate activities, to reinforce our shared values, and then to prompt participants to think about how this impacts the way they go about their jobs. The program for newly appointed managerial personnel incorporates corporate history materials related to topics, such as globalization or diversity, which are assigned to each participant group, along with a worksheet, that they discuss in depth in relation to the distinctive character of NGK.

Education programs for other job grades are being steadily introduced, as well as programs geared towards Group companies outside Japan.

## English Instruction for New Employees

Since fiscal 2011, we have been providing English language courses for all new staff members with the goal of rapidly cultivating globally capable human resources.

The one-year course is divided into classes based on student level. Besides studying the classroom materials, participants also take the initiative in their learning through activities such as creating their own class slogans.

Time spent learning English per new career-track hire  
(fiscal 2019 results)

**120** hours per year

## Practical Overseas Training

NGK conducts practical training over a period of six months at Group companies outside Japan with the aim of developing globally minded human resources. The training focuses on developing practical business and communication skills in a cross-cultural environment targeting young employees who are future candidates for overseas postings.

## Labor-Management Initiatives

### Labor Union

NGK respects workers' rights, including the right to collective bargaining, and strives to build healthy labor-management relations. As of March 31, 2020, 3,995 employees belonged to the Labor Union.

### Protecting the Right to Collective Bargaining

NGK and the Labor Union have signed a labor agreement as equal partners. The agreement specifies that both parties shall respect each other's rights and take responsibility for the exercising of their own rights.

The two sides regularly hold Labor-Management Advisory Board meetings to exchange information and promote mutual understanding. They also maintain healthy labor-management relations by exchanging opinions on issues such as management policies, financial conditions, and activities of the Labor Union.

Collective bargaining sessions are held in an orderly manner, with both parties striving in good faith to resolve issues peacefully and promptly.

### Guaranteeing the Minimum Wage

NGK and the Labor Union have signed an agreement that sets out original in-house minimum wages, which are fixed at a rate above the minimum wages by region and industry stipulated by the Minimum Wage Act. Through this agreement, we strive to improve employees' working conditions and avoid violation of relevant laws.

### Communication between Labor and Management

NGK makes an effort to build labor-management relations founded on mutual trust through communication with various consultative bodies, such as the Labor-Management Advisory Board, the Worksite Advisory Board, and the Regular Labor-Management Council.

NGK and the Labor Union hold Labor-Management Advisory Board meetings to talk about business conditions and performance, and Worksite Advisory Board meetings to share issues pertaining to manufacturing, work systems, and workplace environments from each worksite. In addition, at Regular Labor-Management Council meetings, labor and management also proactively exchange opinions.

### Survey on Workplace Vitality

Once every two years NGK carries out a survey aimed at gauging and visualizing workplace vitality.

In the fiscal 2018 survey, responses from 4,370 employees on a range of matters, such as how satisfied they are with their jobs and how important they consider their jobs, were compared with the average responses for other companies and were shown to rank relatively high.

The results of the survey serve as basic data, which facilitate discussion about personnel-related initiatives to create a more work-friendly organizational environment that offers employees a sense of challenge. In addition, the results from each workplace are provided as feedback to the respective manager, and each department considers and works on measures to help improve the daily work environment.

### Labor Union Membership Rate

(%)

March 31, 2017	March 31, 2018	March 31, 2019	March 31, 2020
89	94	96	97

Note: Number of union employees / Number of NGK employees (excluding managers)  
(Both figures include contract manufacturing employees)

### Labor-Management Consultations in FY2019

Regular Labor-Management Council meeting: held twice

Labor-Management Advisory Board meeting: held twice

Other bargaining and consultations

- Consultation on overtime work and work on days off
- Consultation on revision of the agreement
- Consultation on measures to rectify long working hours

Response collection rate **89%** Satisfaction **3.28** (out of maximum of 5)



## Implementation of Fair, Free, and Transparent Transactions

With a basic policy centered on the three principles of openness and fairness, partnership, and relationship with society, the NGK Group is engaged in fair and honest business transactions with the procurement partners in our supply chain.

### Basic Approach

The NGK Group has established the Basic Purchasing Policy in an attempt to conduct fair and honest business transactions and to prosper together with all our procurement partners.

### Supply Chain Management System

At NGK, the Purchasing Department is responsible for managing tier 1 suppliers. It also manages tier 2 and beyond suppliers that provide critical items such as raw materials. All supplier management is done in line with NGK's Supplier Management Regulations.

#### ▶ P78 Communication Activities with Procurement Partners

#### Basic Purchasing Policy

##### Open and Fair

- Open, fair, and honest procurement
- Pursuit of competition principles and profitability

##### Partnership

- Mutual prosperity based on mutual trust with suppliers

##### Relationship with Society

- Compliance with laws
- Preservation of the global environment

### Familiarization of the Purchasing Handbook

Purchasing operations are directly related to various important aspects of corporate management, such as assets, production, development, and business performance, and also involve external and financial activities, major areas prone to compliance issues. In light of this, we created the Purchasing Handbook to summarize internal rules for purchasing engagement and issued the first edition of it in fiscal 2007. The Handbook has since been reviewed every year.

Efforts have also been made to better familiarize personnel with the tool: it has been made available on the company intranet and its significant objectives are discussed in company training programs, particularly for new managers.



## Fair and Honest Procurement Partner Evaluations and Extensive Resource Diversification

In accordance with the Basic Purchasing Policy, NGK selects procurement partners based on fair and honest evaluations. We also attempt to ensure procurement when disasters occur through the extensive diversification of procurement resources.

### Selection of Suppliers Based on Fair and Honest Evaluations

NGK opens its doors to a wide range of procurement sources, including companies with which it has had no previous transactions.

In terms of selecting new suppliers, we choose from multiple companies through fair and honest evaluation of their CSR initiatives, environmental conservation efforts, and financial condition as well as QCD (quality, cost, and delivery). In addition to the procurement department being involved in the selection of suppliers, multiple departments are also involved in this process, which requires multi-stage approval before selection occurs in an effort to ensure fair and honest evaluation and decision-making.

### Promoting Business Continuity Plan (BCP) through the Diversification of Procurement Resources

In the event of unforeseen circumstances such as a major natural disaster, NGK promotes the sourcing of raw materials, equipment, secondary materials, and other critical purchased parts from multiple suppliers as part of its BCP efforts to ensure procurement is uninterrupted. For items which are available from only one supplier, we ensure that we have sufficient inventory and that their storage facilities are located in a safe place that cannot be damaged by disasters like a tsunami. In addition, when selecting a new procurement partner, we take into consideration the existence or absence of multiple locations and efforts to ensure inventory.

## Promotion of CSR Procurement

In response to the rising social expectation for CSR-oriented supply chain management, the NGK Group promotes CSR procurement. We preferentially select CSR-conscious companies and purchase CSR-sensitive raw-materials and services.

### CSR Procurement Guidelines

The NGK Group created the CSR Procurement Guidelines in fiscal 2010 as a guide to promote CSR procurement across the Group. The Guidelines specifically describe our obligations as a socially responsible buyer as well as our requirements for socially responsible suppliers, such as specifying environmental obligations like greenhouse gas emissions reductions.

In fiscal 2013, the Guidelines were expanded by being integrated with the previous Green Procurement Guidelines, which set forth rules for preferential purchase of environmentally friendly products and services, and adding provisions of conflict minerals, anti-corruption, human rights, and labor issues.

The expanded CSR Procurement Guidelines are publicly available on our website in multiple languages (Japanese, English, and Chinese).

Reference  
URL

**CSR Procurement Guidelines and  
Supplemental Materials**

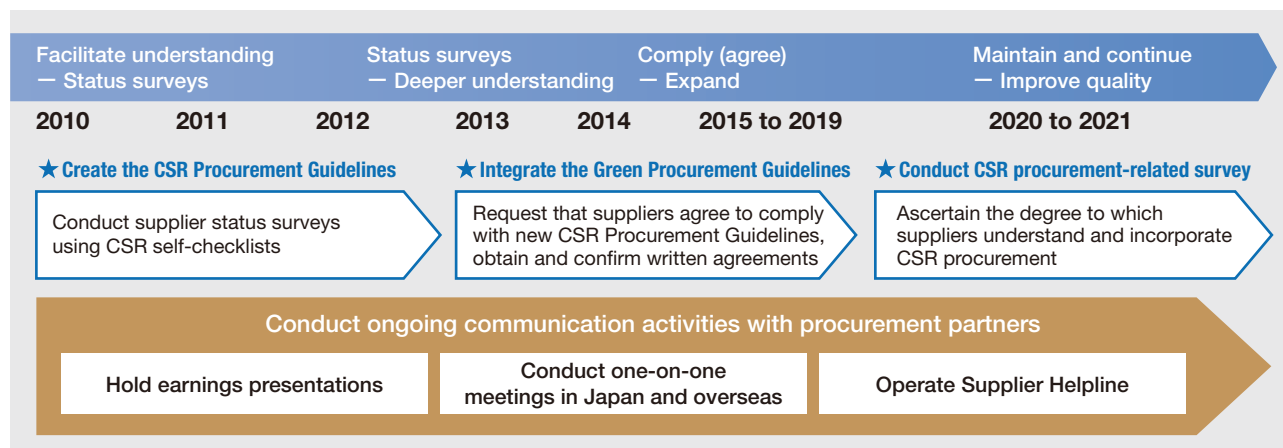
<https://www.ngk-insulators.com/en/info/procure/>

## Improving CSR Procurement

At the NGK Group, we develop activities to promote CSR procurement, such as visiting individual suppliers and conducting on-site inspections. We also request our suppliers, particularly new companies, to sign an agreement to comply with the CSR Procurement Guidelines.

Looking ahead, we will conduct a survey over the course of 2020 to 2021 in order to ascertain the degree to which suppliers understand and incorporate CSR procurement. We will follow this up with information sessions and other communications aimed at improving the level of understanding and incorporation among all suppliers.

## Ongoing Implementation of CSR Procurement



## Procuring Resources and Raw Materials Responsibly

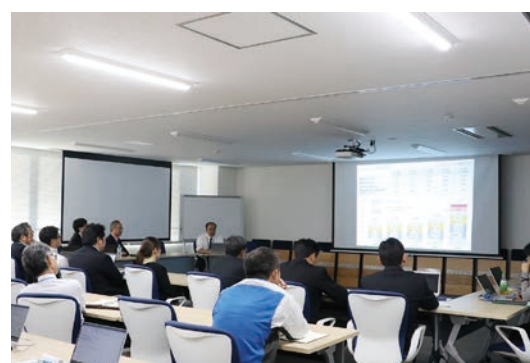
The NGK Group conducts procurement activities that consider impacts on regional communities stemming from the use of raw materials (e.g. conflict minerals\*) with the potential to cause social issues such as human rights violations and poverty, and takes steps to avoid using such materials. Additionally, in response to requests from customers, we investigate suppliers regarding their responsible procurement of resources and raw materials.

\*Minerals including tin, tantalum, tungsten, and gold produced in the Democratic Republic of the Congo and surrounding countries, and used as a source of funding for armed conflict in the area.

## Enhancement of Procurement Capabilities of Group Companies

In fiscal 2019, we held our first NGK Group Purchasing Liaison Meeting for personnel within each Group company who are responsible for materials procurement. The meeting was attended by 11 people from three companies of similar size and in similar business sectors (Soshin Electric, NGK Ceramic Device, and NGK Electronics Devices). Presentations were delivered about the structure of each company's materials procurement department, their purchasing and cost reduction activities, the challenges they face, and more. This was accompanied by information sharing among the attendees.

We will continue to foster stronger collaboration among Group companies as a means of improving the procurement operations within the Group as a whole.



At the NGK Group Purchasing Liaison Meeting

## Collaboration with Group Companies outside Japan

As part of our efforts to strengthen collaboration with Group companies outside Japan, we dispatched personnel to a Malaysian subsidiary of NGK Electronics Devices to assist the staff there during an RBA\* audit. We also assist Group companies outside Japan with client management, cost reduction, and other matters when requested.

Furthermore, in order to obtain a clear understanding of the actual situation at Group companies outside Japan with regard to logistics, we conduct on-site hearings at around 10 companies every year.

\*Responsible Business Alliance: Focusing primarily on the electronic equipment industry, the RBA establishes standards and conducts audits with the aim of promoting safe working environments, worker protection, and environmental responsibility.

## Supply Chain Risk Assessment

In order to identify sustainability-related risks in the supply chain, the NGK Group relies upon the CSR Procurement Guidelines in selecting procurement partners as well as visits suppliers in order to identify high-risk procurement partners.

## Communication Activities with Procurement Partners

### Earnings Presentations for Suppliers

NGK held an earnings presentation meeting for major suppliers in June, which was attended by 236 participants from 130 companies.

In the meeting, the director in charge of purchasing first expressed gratitude for the daily transactions. This was followed by the Finance & Accounting Department's briefing on NGK's business results and an explanation by the Purchasing Department about efforts to tackle issues such as continuous communication.



Suppliers invited to the earnings presentation

### Ongoing Operation of the Supplier Helpline

In 2008, NGK established the supplier helpline system. Receiving consultation via e-mail, fax, and telephone, we make an effort to respond with solutions quickly.

Reference  
URL

**Supplier Helpline**

<https://www.ngk-insulators.com/en/info/procure/>

### Visiting Individual Suppliers in Japan and Overseas

In order to ensure procurement from the most appropriate suppliers, NGK visits individual suppliers in Japan and overseas to conduct on-site audits, evaluating their QCD (quality, cost, and delivery) performance in a fair and equitable manner. In fiscal 2019, we visited a total of 90 suppliers: 11 new suppliers and 79 existing suppliers.

Following the visit, we explained audit results to each company, and asked them to conduct improvement measures in underperforming areas. Through these activities, we strive to strengthen our QCD management system as well as to communicate with our suppliers to forge a relationship of mutual trust.

### Supplier Training-driven Support Efforts

The NGK Safety Cooperation Conference hosts meetings for facilities and equipment construction-related supplier members. These meetings are used as opportunities to share accident and disaster case studies, as well as to provide safety-related lectures.

The fiscal 2019 meeting was attended by around 15 people from NGK and 130 people from 85 conference member companies. The keynote address was on the topic of communications focused on on-site accident prevention.

### Monitoring Activities Aimed at Suppliers outside Japan

We systematically undertake quality audits of our suppliers outside Japan.

## Local Communities

The NGK Group is concerned about social issues in all nations and regions. We engage in social contribution activities in response to needs in each region in an aim to become a corporate citizen trusted by local communities.

## Basic Approach

The NGK Group promotes social contribution activities based on the following concepts.

### Focus of Activities

Centered on people and education, the environment, and community involvement.

### Company Activities and Employee Involvement

- NGK provides employees with opportunities to experience activities.
- NGK proactively encourages individual activities to engender employee satisfaction and a sense of confidence in the company.

### Information Disclosure

NGK promotes an understanding of activities and provides activity information to inculcate a social contribution mindset among employees.

## Social Contribution Activity Promotion System

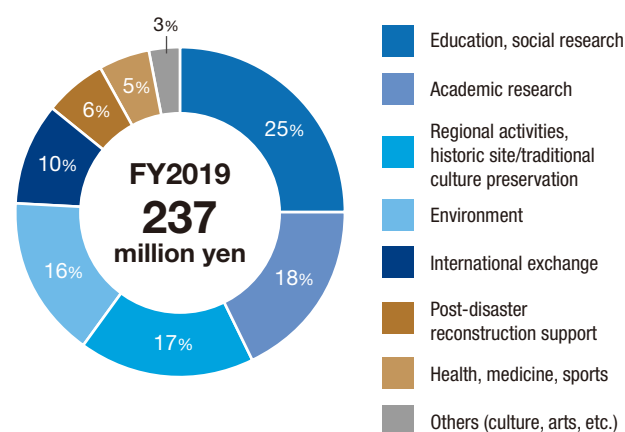
At the NGK Group, social contribution activities are promoted under the leadership of the Social Contribution Subcommittee, which is chaired by the general manager of the General Affairs Department and reports to the CSR Committee.

NGK collects reports from Group companies in and outside of Japan on their activities. In fiscal 2019, a total of 76 reports were received.

### Social Contribution Activity Promotion Status

	FY2015	FY2016	FY2017	FY2018	FY2019
Social contribution expenditures	346 million yen	315 million yen	300 million yen	302 million yen	237 million yen
Number of social contribution programs	9	10	10	10	13
Number of collaborations with NPOs/NGOs	4	4	4	4	4

### Breakdown of Activities

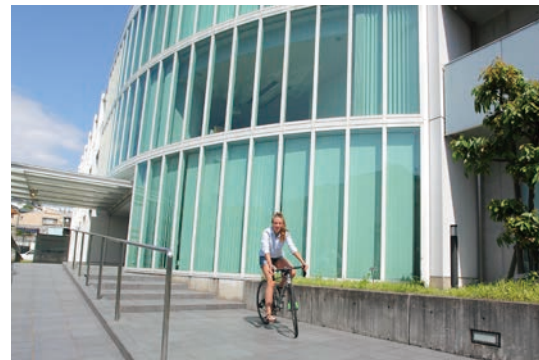


## Providing Scholarships and Assistance to International Students

NGK established the NGK Foundation for International Students in order to facilitate the cultivation of individuals who will contribute to the development of the international community. It is through the Foundation that NGK is helping to provide housing and scholarships to overseas students visiting Japan.

The impetus for the Foundation's establishment stems from gratitude for the warm community support and hospitality shown to NGK's first employees and families posted overseas at the time of its initial overseas expansion back in the 1930s. Our activities are conducted in the hope that the students will feel glad that they came to Japan and develop a fondness for the country.

In fiscal 2019, we provided housing to 40 students from six countries, and scholarships (non-repayable) to 20 students from 14 countries.



Reference  
URL

**The NGK Foundation for  
International Students**

<https://www.ngk-insulators.com/en/sustainability/philanthropy/>

### Exchange between Supported Students, Communities, and Employees

NGK organizes a variety of events and programs to provide opportunities for grassroots international relations between supported students, regional communities, and employees. Language classes taught by international students have been held annually since 2000, and cross-cultural exchange meetings where international students introduce their native countries have been held annually since 2006.

In fiscal 2019, there were six cross-cultural exchange meetings alternately hosted by different exchange students to introduce their different home countries. Through these events, participating students and local residents were able to enjoy meaningful exchange. As of fiscal 2019, a cumulative total of 1,000 people have participated.

#### Number of Participants in Cross-cultural Exchange Meetings (people)

	FY2016	FY2017	FY2018	FY2019
International students	20	12	12	11
Local residents	23	20	20	20

### Communication after Support Ends

To maintain relationships with international students after support ends, each year, we send out a New Year's greeting card that includes a company status report to former and current students.

We also distribute NGK International Friendship Club Members Cards that include our contact information to international students after support ends.

In fiscal 2019, we sent New Year's cards with updates on the Foundation and NGK to around 300 students who have received support in the past.



## Social Contribution Activities in Collaboration with Local Communities and NPOs

Aiming to be a corporate citizen trusted by local communities, NGK collaborates with communities and NPOs to engage in social contribution activities in response to regional needs. In addition, employee volunteers from NGK Group companies in Japan and around the world conduct a variety of social contribution activities rooted in their local communities.

Reference  
URL

Read more about NGK's social contribution activities at:  
<https://www.ngk.co.jp/sustainability/social/>

### Social Contribution Activities by NGK

#### Offering Workplace Experience to Junior High School Students from Rikuzentakata City

NGK took part in the workplace experience program offered to junior high school students from Rikuzentakata City, sponsored by the Nagoya City Board of Education.

Rikuzentakata junior high school students visited the AC Plant and observed factory operations, such as HONEYCERAM® measurement. They spoke with Executive Vice President Hiroshi Kanie about their impressions of the workplace and about their future aspirations.

This program is implemented in line with the “total support” initiatives undertaken by Nagoya City on behalf of Rikuzentakata City, which suffered immense damage as a result of the Great East Japan Earthquake. NGK has taken part in this program each year since 2016.



### Social Contribution Activities by Group Companies in Japan

#### NGK Okhotsk Takes Part in Cleanup Activities by Lake Abashiri

NGK Okhotsk (NOK) took part in the 2019 Lake Abashiri Cleanup Campaign organized by the Abashiri Tourism Association.

This event is the largest volunteer effort undertaken in the city and is carried out as part of its tourism promotion activities with the aim of ensuring visitors to the city are met with beautiful scenery.

Around 450 local volunteers worked together to beautify the area, including 21 NOK employees who helped pick up trash around Lake Abashiri for about an hour.



#### Energy Support Takes Part in Evacuation Drill in Inuyama City

Energy Support took part in a landslide disaster evacuation drill organized by Inuyama City.

During this landslide disaster simulation drill, participants familiarized themselves with evacuation routes to Energys and the company's emergency facilities. After the drill, a variety of disaster safety-related information was provided, including a talk about what to do in an evacuation.

In January 2018, Energys signed an agreement with the city of Inuyama on the use of its facilities in the event of a disaster. According to the agreement, Energys agrees to open its facilities to the public to use as an emergency shelter in the event of a disaster.



### NGK and NGK Ceramic Device Ishikawa Plants Participate in Coastal Cleanup

The Ishikawa plants of NGK and NGK Ceramic Device (NCDK) joined together with local residents to clean up the Neagari coastline in Nomi City, Ishikawa Prefecture.

In light of the fact that the impact of marine pollution on ecosystems has become a serious global problem, Ishikawa Prefecture undertakes the Clean Beach Ishikawa campaign as a prefecture-wide environmental volunteer initiative intended to help keep the prefecture's 583 km coastline clean. The NGK Ishikawa Plant has participated every year since 2012, and the NCDK Ishikawa Plant every year since 2017.

This year, a total of 109 employees from both plants joined with local neighborhood associations and partner companies to pick up trash along the Neagari coast in order to help maintain its natural beauty.



### Soshin Electric Donates 10 Million Yen to Typhoon Hagibis Relief Efforts

Soshin Electric donated 10 million yen to help with relief efforts in Nagano Prefecture (which is one of its bases of operation) in the aftermath of Typhoon Hagibis, which struck in October 2019. The donation was presented by Soshin Electric President Takashi Kamioka to Nagano Governor Shuichi Abe at the Nagano Prefectural Office. Mr. Kamioka conveyed to the governor his hope that the donation would serve, in at least some small way, to expedite recovery efforts in the wake of the typhoon. The governor provided Mr. Kamioka with a description of the current state of damage in the prefecture and what the government was doing to facilitate recovery.



### NGK Electronics Devices (NGKED) Volunteers in Ekiden Road Relay Race

NGKED took part in as a volunteer the 12th Mine Ekiden Road Relay Race held at Mazda's Mine Proving Grounds.

This race is held every year by the city of Mine. This year's event featured a total of 420 participants (men and women) divided among 69 teams.

NGKED employees assisted both runners and spectators by performing such tasks as checking off runners prior to the start of the race, providing them with course guidance and monitoring, and issuing and selling meal tickets for the bazaar.



### Soshin Powertech Donates Christmas Presents to Local Childcare Facilities

Volunteers from Soshin Electric Group companies Soshin Powertech (Miyakonojo City, Miyazaki Prefecture) and Soshin Device (Miyazaki City, Miyazaki Prefecture) visited childcare facilities in their respective communities to deliver Christmas presents to the children there.

These visits are undertaken each year as part of the companies' larger community contribution activities.





## Social Contribution Activities by Group Companies Outside Japan

### NGK Ceramics Indonesia Hosts Dinner Party for Children Living in Child Welfare Facilities

NGK Ceramics Indonesia (ACIn) invited children living in child welfare homes to a Ramadan dinner hosted at a mosque on plant grounds.

Ramadan is a month of fasting observed by Muslims, including those in Indonesia, where the majority of residents are Muslim. During the month of Ramadan, Muslims abstain from eating and drinking between sunrise and sunset. Once the sun goes down they gather together to feast and give thanks for the blessings they have received.

ACIn invited children living in child welfare homes to partake in such a feast. In addition to enjoying a meal with employees, the children were also provided with school notebooks, bags, and other gifts.



### NGK Metals Takes Part in Tree Planting

Thirteen employees from NGK Metals took part in the United States' largest tree planting event, Tennessee Tree Day 2020, organized by the Tennessee Environmental Council, a not-for-profit organization.

Participants in this event, which began in 2007, plant tree saplings native to the state of Tennessee as a way of contributing to their environment and local community and to foster a culture of sustainability. Thousands of Tennessee residents participate each year, and, since its inception, a total of 6,371,000 saplings have been planted in 95 different counties throughout the state.

NGK Metals has been a supporter of this event since last year. This year, as well, employee volunteers donated money to purchase saplings and helped plant those trees in their respective areas.



### NGK Electronics Devices Malaysia Takes Part in Blood Drive

NGK Electronics Devices Malaysia (NGKMY; located in Penang) held an in-house blood drive.

NGKMY is a supporter of Penang General Hospital's blood drive campaign, which seeks to ensure a stable supply of blood is maintained and to raise awareness of, and participation in, blood donation. Every year, NGKMY contributes to this campaign by holding its own blood drive.

NGKMY will continue its blood drive initiative, encouraging employees to participate with the motto: "Donors are heroes. You can be one too."

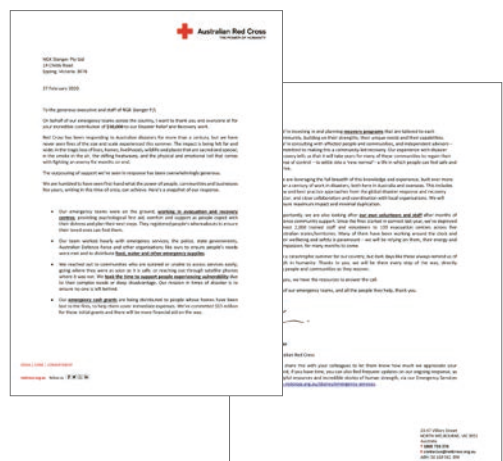


### NGK Stanger Donates to Forest Fire Relief

NGK Stanger (Stanger) made a donation of 30,000 Australian dollars (roughly 2 million yen) to the Australian Red Cross to help with relief efforts in the wake of the large-scale forest fires between December 2019 and February 2020.

The donations collected by the Australian Red Cross are used to assist victims of the wildfires, as well as to help with the provision of a number of different essential services for communities.

Stanger has built up—and continues to build—its business thanks to its longstanding customers in Australia. The decision to provide this donation comes from a desire to repay the generosity that Australia has shown to Stanger.



## Support for Volunteer Activities by Employees

The NGK Group proactively supports activities and provides information to create opportunities for employees to participate in volunteering outside the company.

### NGK Science Site Offers Special Content for Kids to Try at Home

The “NGK Science Site: Experiments at Home Series” featured on the NGK website piques children’s interest in science by presenting them with simple experiments, which they can perform using everyday items. This approach has attracted many to the site since its launch in 1997.

In April 2020, a special page was added to the NGK Science Site, which features simple experiments and craft projects that children can create using items from around their house. While at home during efforts to stop the spread of COVID-19, these experiments and crafts help children to enjoyably pass the time, as there is no need to go shopping for any of these projects.

As a company whose business involves manufacturing, NGK will continue to use opportunities such as this to share information that conveys the excitement of science to children.



Reference URL **NGK Science Site**  
<https://site.ngk.co.jp/>

### Christmas Lectures Convey the Wonders of Science

Since 2011, NGK has been involved in the Royal Institution Christmas Lecture (sponsored by the Yomiuri Shimbun news corporation and the Tokyo Institute of Technology), which is an annual event aimed at conveying the wonders of science to children. This popular series of lectures began in the U.K. around 200 years ago and serves as a “Christmas present” from scientists to young people. This format has been replicated in Japan, and each year NGK employees take part as guest lecturers who provide an easy-to-understand explanation to children and students about NGK products that fit that year’s theme.



### Using the Employee Cafeteria for the Table for Two Program

NGK has participated in the Table for Two program since September 2010, using it as a casual, daily volunteer activity, which employees can easily be a part of. Under this program, whenever an employee eats something off of the cafeteria’s healthy menu, an amount equivalent to one school lunch (20 yen) goes to children in Africa. All employee cafeterias at our Nagoya, Chita, and Komaki sites, as well as at our Ishikawa Plant (eight cafeterias in total), participate.

In fiscal 2019, we provided 40,000 school lunches (800,000 yen from employee lunches and matching funds from NGK) and received the Platinum Supporter Award from the Table for Two organizers. Our total contributions up to this point are 390,000 school lunches (approximately 7.8 million yen), which is roughly equivalent to one year’s worth of school lunches for around 1,770 African children.



## Interacting with Local Communities

The NGK Group engages in dynamic interactions with local residents through opportunities such as plant tours and regional events, as well as through opportunities for direct dialogue, making an effort to incorporate the ideas and opinions received in Group business activities and CSR activities.

### Plant Tours

#### Plant Tours in FY2019 (NGK)

	Participants	Details
Nagoya Site	36	NGK Foundation for International Students
	3	Rikuzentakata City Takada Daiichi Junior High School
Chita Site	55	Local resident plant tour group
Ishikawa Plant	41	Ishikawa Technical Senior High School
	80	Nomi City Confederation of Neighborhood Associations
Total	215	

### Events for the Local Community at the Komaki Site and Ishikawa Plant

The Komaki Site's annual Komaki Summer Festival was moved to autumn. This was accompanied by a change in the name to NGK Autumn Festival, as well as a change of venue from company grounds to the Komaki Kinrou Center. The event attracted around 1,350 employees, their families, and other local residents. The venue was full of excitement, with different booths set up featuring fun science experiments, NGK mascot\* coloring sheets, and other activities. There was also a special stage showcasing taiko drumming performances, comedians, and other live entertainment.

The NGK Ishikawa Plant and the NGK Ceramic Device (NCDK) Ishikawa Plant held the joint NGK Ishikawa Plant Summer Festival 2019, which drew around 750 employees, their families, and other local residents. To mark the 100-year anniversary of NGK's founding, children at the event were presented with special Pokémon character goods from the 100-year anniversary campaign. The special stage featured live entertainment, including performances by local pop groups and singers, as well as a "strikeout" game that visitors could compete in.

\* Kuroko-kun is the NGK mascot. Kuroko-kun appeared at events at the Komaki Site and the Ishikawa Plant



NGK Autumn Festival, Komaki Site



NGK Ishikawa Plant Summer Festival 2019



# Governance

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## Corporate Governance

The NGK is conducting a variety of measures to expand and strengthen its corporate governance to increase corporate value with the intent of becoming a company trusted by all its stakeholders.

Reference  
URL

**Corporate Governance Report**

[https://www.ngk-insulators.com/en/resource/pdf/sustainability/governance\\_en.pdf](https://www.ngk-insulators.com/en/resource/pdf/sustainability/governance_en.pdf)

## Basic Policies

### Basic Corporate Governance System-related Policies

To ensure appropriate operations and transparent management, the NGK has set its sights on establishing and maintaining an organization capable of swiftly responding to changes in the business environment, and a fair and open management system emphasizing the interests of shareholders. These components make up NGK's basic approach to corporate governance.

To put this approach into practice, NGK has chosen a corporate governance system anchored by an Audit & Supervisory Board. In addition to the General Meeting of Shareholders, the Board of Directors, and the Audit & Supervisory Board, NGK corporate governance includes the Executive Committee and several other committees established to assist the president in management decision-making. These bodies help to enhance governance efficacy by deliberating and reviewing important matters.

In recognition of needs to execute swift and optimal decision-making and respond promptly to changes in the operating environment, NGK introduced an executive officer system, thus separating the management decision-making and supervision functions from business execution functions, and clearly defining the responsibilities of both.

Furthermore, to strengthen the supervision and monitoring functions of the Board of Directors, major committees among those tasked with mitigating the various risks surrounding NGK are obligated to report to the Board of Directors. NGK has also established a committee scheme, including a Nomination and Compensation Advisory Committee, a Corporate Council, a Conference of Outside Directors and Outside Audit & Supervisory Board Members, and a Business Ethics Committee to ensure the effectiveness of the Corporate Governance Code.

In addition, we have formulated the NGK Group Code of Conduct to stipulate how everyone working for the NGK Group should execute their jobs so that they abide by society's laws and the company's articles of incorporation and comply with corporate ethics. All executives and employees are well versed in the code and are obligated to abide by it. To reflect changes in society since the previous revision, in January 2019 the NGK Group Code of Conduct was revised with an emphasis on respect for human rights, thorough compliance, and the realization of a sustainable society through business activities.

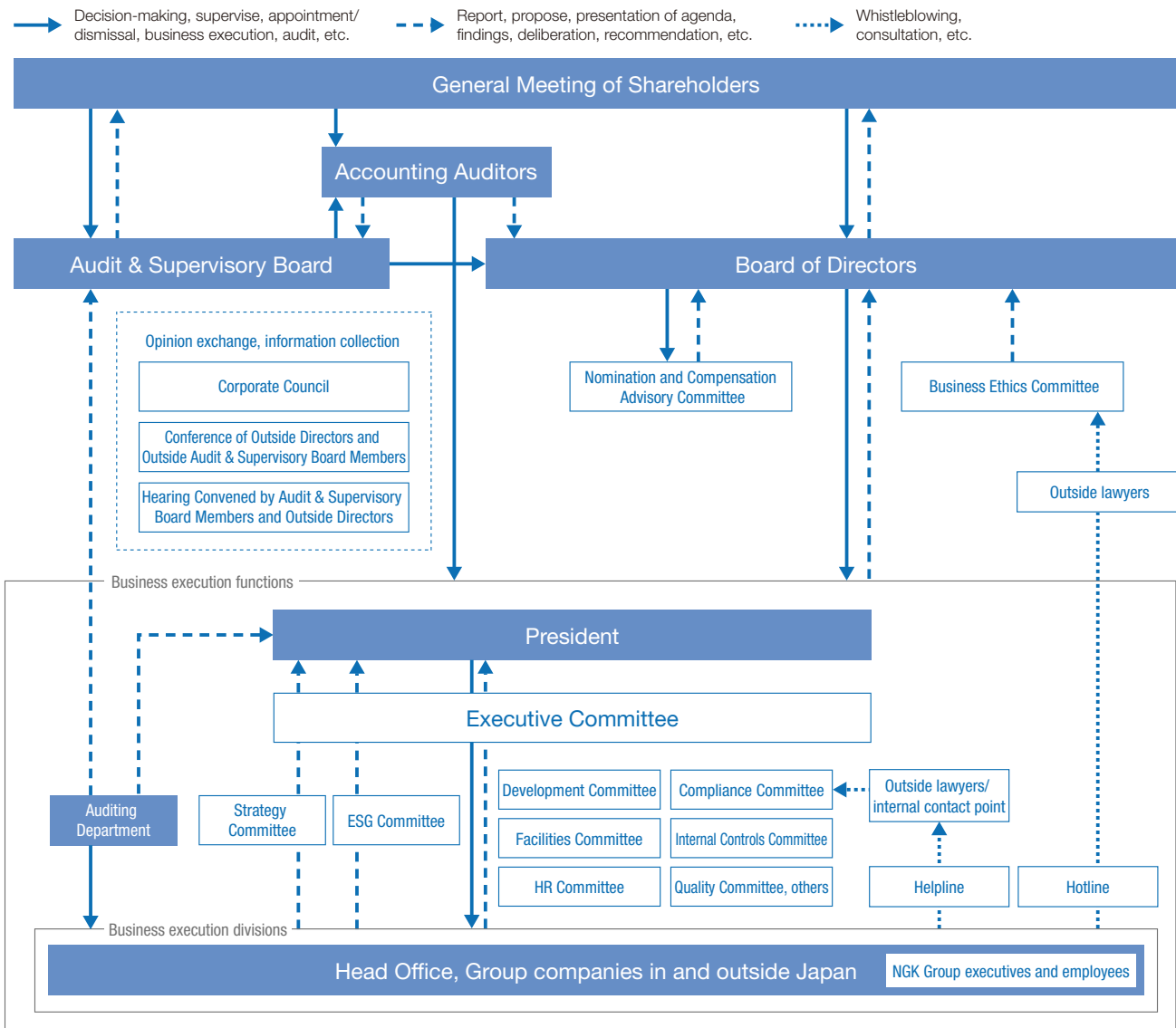
### Corporate Governance Enhancement

Ongoing structural enhancements aimed at strengthening corporate governance include the introduction of an executive officer system and an outside director system to improve the management supervision and monitoring functions and facilitate recommendations with respect to overall management.

April 1999	Formulated the NGK Code of Conduct	April 2015	Signed on to the UN Global Compact
April 2003	Revised guidelines into the NGK Group Code of Conduct	June 2015	Established the Global Compliance Office
June 2005	Introduced an executive officer system	December 2015	Established the Nomination and Compensation Advisory Committee, Corporate Council, Conference of Outside Directors and Outside Audit & Supervisory Board Members, and Business Ethics Committee
	Introduced a stock option		
	Introduced an outside director system		
July 2005	Established the CSR Committee	June 2017	Appointed one additional outside director
April 2007	Established the CSR Office	October 2018	Appointed a chief compliance officer
June 2010	Appointed independent directors	January 2019	Revised the NGK Group Code of Conduct
July 2011	Revised the NGK Group Code of Conduct	April 2019	Established the ESG Committee
		April 2020	Established the Compliance Committee Established the HR Committee

# Corporate Governance System

To ensure lawful business activities and management transparency, respond quickly to changes in the management environment, and create and maintain a fair management system from the shareholder's perspective, NGK has created the following systems. In April 2019, we established the ESG Committee, chaired by the president, to promote comprehensive discussion on key issues, strategies, and action plans related to the environment, society, and governance. In fiscal 2019, the ESG Committee met five times during which it examined a variety of important matters, including long-term environmental response-related planning; the state of environmental, quality, safety and health-related committee activity; ascertainment of serious risks and handling of disclosure; and the status of social contribution activities.



## Committees on Corporate Governance

NGK has further strengthened and enhanced its corporate governance system by establishing committees to bolster the supervision and monitoring functions of the Board of Directors.

### Board of Directors

The Board of Directors is comprised of 13 directors who deliberate matters prescribed in the Companies Act, which primarily include company-wide unified budgeting; strategic planning such as dissolution, mergers, and alliances of the company; appointing and removing representative directors; approval of financial statements, business reports, etc.; the disposal and acceptance of transfer of important assets; and the appointment and dismissal of an important employee. The Board also monitors the job performance of all company directors. The Board of Directors includes three outside directors to create a system enabling management monitoring based on professional knowledge and decision-making from a wider perspective. In addition, both the full-time and outside members of the Audit & Supervisory Board attend meetings of the Board of Directors and provide their input and opinions when necessary. As of June 29, 2020 the current Board of Directors comprises 13 members (12 men and one woman).

Times held: 14

### Audit & Supervisory Board

The Audit & Supervisory Board is comprised of two full-time members and two outside members, each of whom attends meetings of the Board of Directors and other important meetings. At those meetings they monitor the decision-making process and job execution of directors by receiving reports from directors, employees and others, as well as receiving explanations from them as needed. They also check how the company's internal control systems are being maintained and operated and confirm the appropriateness of the auditing methods and results of the accounting auditors.

Times held: 14

### Executive Committee

The Executive Committee is a body that deliberates necessary matters to assist the President in decision making, and consists of the President, directors, Audit & Supervisory Board members, senior fellows, as well as corporate officers, chairpersons, general managers, and division heads designated by the President. As of June 29, 2020 the current Executive Committee comprises 18 members (17 men and one woman).

Times held: 21

### Nomination and Compensation Advisory Committee

This committee was established in order to ensure fairness and enhance transparency in officers' personnel matters, the determination of remuneration, and other matters. Comprising five outside directors and three representative directors, it deliberates on matters related to the appointment of directors and Audit & Supervisory Board members, remuneration of directors, executive officers, and Audit & Supervisory Board members, and Chief Executive Officer succession planning. The results of these deliberations are reported to the Board of Directors.

Times held: 2

### Business Ethics Committee

Comprised of outside directors and one inside director in charge of compliance, the committee conducts investigations as necessary into fraudulent acts or violations of laws and regulations in which the officers and others of NGK were involved, and it makes recommendations, such as measures to prevent reoccurrence, to the Board of Directors. In addition, the committee considers the creation of compliance systems and compliance activities aimed at compliance with competition laws and the Foreign Corrupt Practices Act, and reports the results thereof to the Board of Directors. The committee strives to strengthen the compliance system by establishing, in addition to the current Helpline system, a whistle-blowing system (Hotline) which is directly linked to the Business Ethics Committee, as a mechanism to prevent any such fraudulent act or violation of laws and regulations.

Times held: 5

► [P113 Whistleblowing System \(Hotline\)](#)

## Corporate Council

This council is comprised of five outside directors and three representative directors. It exists as a place for outside directors, representative directors, and other participants to exchange opinions and to provide management with an opportunity to seek advice from the outside directors concerning various management-related issues.

Times held: 3

## Conference of Outside Directors and Outside Audit & Supervisory Board Members

This conference is comprised of five outside directors who exchange opinions concerning managerial issues and other matters, aiming to actively contribute to discussions at the Board of Directors' meetings.

Times held: 2

## Hearing Convened by Audit & Supervisory Board Members and Outside Directors

This hearing is comprised of four Audit & Supervisory Board members and three outside directors. Information is collected from the personnel in charge within each division regarding the business environment and issues of NGK.

Times held: 7

Note: Times held is the number of meetings between April 2019 and March 31, 2020.

## Other Bodies

Quality Committee Times held: 5	Aiming to increase customer satisfaction and trust by realizing even higher-quality products and services, this body deliberates the matters necessary to help the president and the Quality Committee chair with decision-making regarding the following items. <ol style="list-style-type: none"> <li>1. Determination, revision, or abolition of Quality Policy and Objectives</li> <li>2. Items pertaining to the prevention of serious quality defects in the market and technological responses after occurrence</li> <li>3. Other quality-related matters determined to be important</li> </ol>
Environmental Protection Committee Times held: 2	This body formulates and deliberates the planning of matters necessary to help the president and the Environmental Protection Committee chair with decision-making regarding the realization of our Core Policy on the Environment to promote business activities in harmony with the environment.
Safety and Health Committee Times held: 2	This body deliberates important issues on safety and health to assist the decision-making of the president and Safety and Health Committee chair regarding the establishment of basic policies and priority targets pertaining to safety and health and the confirmation of labor accidents and priority activities.
Compliance Committee Times held: 3 (CSR Committee until fiscal 2019)	This body assists the president and Compliance Committee chair with decision-making by deliberating essential matters pertaining to the following. <ol style="list-style-type: none"> <li>(1) Observance of laws, regulations, and corporate ethics               <ol style="list-style-type: none"> <li>1. Determination, revision, or abolition of basic policies related to the observance of laws, regulations, and corporate ethics, including the Code of Conduct</li> <li>Note: Deliberation items for Board of Directors meetings</li> <li>2. Determination of systems, structures, and strict observance of important activities pertaining to laws, regulations, and corporate ethics company-wide</li> <li>3. Handling of Helpline matters</li> <li>4. Determination, revision, or abolition of risk management structures pertaining to laws, regulations, and corporate ethics</li> </ol> </li> <li>(2) Response to the matters, incidents, or accidents related to laws, regulations, or corporate ethics that are special crisis management matters</li> <li>(3) Other compliance-related issues deemed important by the committee chair</li> </ol>
Internal Controls Committee Times held: 3	This body deliberates matters necessary to help the president and Internal Controls Committee chair with decision-making regarding internal controls system assessment and reporting related to financial reporting based on the Financial Instruments and Exchange Act. <ol style="list-style-type: none"> <li>1. Determines the scope of reporting for each fiscal year, assessment and reporting schedules, standards to assess internal controls, and other basic matters</li> <li>2. Summarizes internal controls assessment and drafts internal controls report</li> </ol>
Development Committee Times held: 3	This body deliberates items necessary to assist the decision-making of the president and Development Committee chair regarding policies, evaluations, budgets, major individual planning, and commercialization projects related to development.
Facilities Committee Times held: 2	This body deliberates items necessary to assist the decision-making of the president and Facilities Committee chair regarding the examination and evaluation of policies, budgets, performance, and major individual planning related to capital expenditure and information systems.

<p>HR Committee (established in April 2020)</p>	<p>This body assists the president with decision-making by examining issue presentation, research reporting, solution development, and other essential matters related to corporate obligations in respecting human rights (issue handling) and the important personnel policies within the NGK Group.</p> <ol style="list-style-type: none"> <li>1. Matters related to the determination, revision, or abolition of basic human rights policies</li> <li>2. Matters related to raising human rights awareness among all Group companies and implementing human rights due diligence</li> <li>3. Matters related to important personnel policies whose impact may potentially extend to Group companies</li> <li>4. Other human rights and personnel policy-related matters deemed serious by the committee chair</li> </ol>
<p>ESG Committee Times held: 5</p>	<p>This body facilitates information sharing, opinion exchange, and policy deliberation between the president and other relevant directors and personnel about important environmental, social, and governance-related issues.</p>
<p>BCP Countermeasures Headquarters Times held: 1</p>	<p>Aimed at ensuring business continuity in times of emergency, this body executes the operation and maintenance of business continuity plans (BCP) in normal times as well as gives instructions on and support to restoration systems, and prioritizes restoration orders when BCP is in effect.</p>
<p>Central Disaster Prevention and Control Headquarters Times held: 1</p>	<p>This body executes requisite duties under commands from the Head and deliberates items necessary to assist the decision-making of the president and Head of this body regarding items related to earthquakes, storm and flood damage, fires, and explosions that threaten or significantly impact the company.</p>
<p>Security Export Control/ Specified Export and Customs Clearance Control Committee Times held: 1</p>	<p>This body deliberates and determines items necessary for guidance for subsidiaries and affiliates, legal compliance and the improvement of other internal systems with respect to security export controls, specified export declaration systems, and the management of customs clearance operations.</p>

## Auditing Status

### Audit & Supervisory Board Auditing Status

Each Audit & Supervisory Board member is responsible for providing an independent perspective on the job performance of directors and accounting auditors, as well as for sharing information with the other Audit & Supervisory Board members in order to help ensure auditing is both efficient and highly effective. In addition to meeting before and after the Board of Directors meeting each month, the Audit & Supervisory Board convenes meetings on an as-needed basis. In fiscal 2019, the Audit & Supervisory Board met 14 times for an average of 1.5 hours each time.

The following three items were addressed as auditing priorities in fiscal 2019.

- (1) The status of compliance-related initiative adoption
- (2) The launch/progress status of new business, products, etc.
- (3) Business-specific risk awareness and reasonableness of the management decision-making process

Audit & Supervisory Board members attend Board of Director meetings where they observe meeting management, resolution content, and other aspects, and provide opinions and input as necessary. In addition, hearings convened by Audit & Supervisory Board members and outside directors are held with each general manager and Head Office division director to learn and exchange opinions about various matters, including budgetary content, the status of business, the status of risk management, and legal and regulatory compliance systems. Also, on-site auditing visits and other methods are used when necessary to hold hearings with directors and other managers, as well as directors and personnel at subsidiaries, to learn and exchange opinions about such matters as the status of business, risk management, and legal and regulatory compliance systems. For corporate group auditing, the targets of on-site auditing and inspection were chosen from among NGK subsidiaries in and outside of Japan and based upon importance and risk approach.

In addition to the above, full-time Audit & Supervisory Board members also attend meetings of the Executive Committee, CSR Committee\*, Internal Controls Committee, and other important meetings and committees within NGK in order to assess the business execution decision-making process. They also meet every half-term with the representative directors to report on the results of their audits and to exchange opinions. In fiscal 2019, as part of the corporate group audit process, the full-time Audit & Supervisory Board members also met twice with auditors at major NGK Group subsidiaries in Japan, and they held two audit report meetings with auditors, inspectors, and other auditing-related personnel from NGK Group subsidiaries in Japan, China, and South Korea.

Other activities undertaken by the board members included reviewing important approval documents and the results of internal reviews conducted by the Auditing Department; soliciting comments and critiques about financial report-related internal reporting audits conducted by accounting auditors; and reviewing the Group's asset status by accompanying accounting auditors on in-person, physical inventory inspections of inventory assets. The details of the auditing activities undertaken by the full-time Audit & Supervisory Board members are shared in a timely manner with the board's outside members via board meetings and other means.

\*The CSR Committee was reorganized on April 1, 2020 into the Compliance Committee.

## Internal Audits

The Auditing Department (17 members) has been established as NGK's internal auditing division and is responsible for checking the status of business execution in each division and then providing management with information, which contributes to their decision-making. The general manager of the Auditing Department is a member of the Internal Controls Committee.

As the NGK's internal auditing division, the Auditing Department performs approval application and expense settlement monitoring and auditing, as well as compliance auditing related to competition laws, the Subcontract Act, security export control, and other regulations. It also does internal control auditing and business process auditing related to the financial reporting of NGK and NGK Group companies. Every half-term, all of the above audits are used by the Auditing Department to compile business audit results for NGK overall, as well as individual audit results when appropriate. These results are then reported to the president, the directors responsible for these departments, the members of the Audit & Supervisory Board, and others.

Audits by Audit & Supervisory Board members, accounting audits, and internal audits are conducted independently. However, to increase the effectiveness and efficiency of audits, Audit & Supervisory Board members (the Audit & Supervisory Board), accounting auditors, and the Auditing Department regularly exchange information regarding the policy, plan, and results of audits.

Additionally, with regard to quality, environmental, and safety and health audits, these require specialized expertise to conduct and are thus performed on an as-needed basis within the Group by the specialist departments, which serve as the committee secretariats for their respective areas. The results are then reported to the committee responsible for the area audited, and a summary is provided by the committee to the Board of Directors.

## Accounting Audit Status

Accounting audits are performed by an auditing firm and includes financial statement and internal control auditing carried out in line with the Financial Instruments and Exchange Act and auditing carried out in line with the Companies Act.

Selection of the auditing firm to perform accounting audits was carried out by the Audit & Supervisory Board according to a variety of criteria. Among the key criteria were whether the firm maintained systems and structures in line with the Regulation on Corporate Accounting ("Matters Related to the Performance of Duties of Financial Auditor(s)"); whether it possessed professional expertise and could carry out appropriate auditing while maintaining a position of independence; and whether there was any grounds for dismissal of financial auditors, as per the Companies Act. Based on a determination of suitability made in light of these criteria, Deloitte Touche Tohmatsu LLC ("Deloitte") has been selected as the accounting auditor for NGK.

The decision of the Audit & Supervisory Board and its members to utilize Deloitte as the accounting auditor for NGK was made based not only on the company's suitability in terms of the mentioned selection criteria but also in light of such criteria as its communication with management, Audit & Supervisory Board members, finance and accounting divisions, internal auditing divisions, and others during the course of daily auditing and other activities, and its suitability for handling Group-wide auditing and improper and illegal risks.

## Election of Board Members, Executive Officers, and Audit & Supervisory Board Members

With respect to the nomination of candidates for the Board of Directors and Audit & Supervisory Board, all representative directors discuss matters related to each candidate. The Nomination and Compensation Advisory Committee, of which external directors make up a majority, then deliberates matters related to each candidate, and reports the results to the Board of Directors. As for candidates for the Audit & Supervisory Board, approval is obtained from the Audit & Supervisory Board in order to secure the independence of Audit & Supervisory Board members. With consideration given to the report made by the Nomination and Compensation Advisory Committee, candidates for the Board of Directors and Audit & Supervisory Board are determined by resolution of the Board of Directors and their confirmation is set as an agenda item for the General Meeting of Shareholders. Members of the Board of Directors and Audit & Supervisory Board are then appointed by resolution of the General Meeting of Shareholders. Also, to further clarify the directors' mission and responsibilities, the term of office for directors is one year.



## Training Policies for Executives

Taking into account that directors and Audit & Supervisory Board members assume the duty of care of a good manager as a fiduciary of NGK, NGK has established training policies to provide the following opportunities to improve their skills and knowledge so that they can adequately fulfill their respective responsibilities as experts in management or as supervisors of business execution.

1. Training for internal officers relating to the Companies Act, Financial Instruments and Exchange Act, competition laws, and corporate governance and compliance.
2. The provision of individual explanations from the relevant divisions to outside directors/Audit & Supervisory Board members, mainly relating to the items brought up at the Board of Directors' meetings as well as the periodic provision of information to, and opportunities to exchange opinions with, outside directors/Audit & Supervisory Board members on the business environment and other issues.

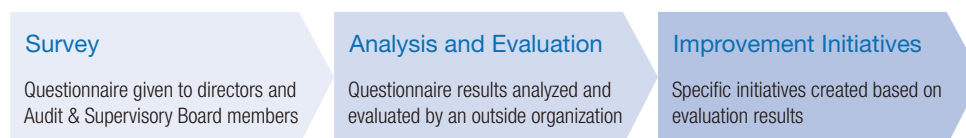
## Evaluation on the Effectiveness of the Board of Directors

With regard to its effectiveness, the Board of Directors issues a survey at the end of every fiscal year to directors and Audit & Supervisory Board members. The results are reported at the Board of Directors' meeting, after the analysis and evaluation by an external organization, and NGK implements specific initiatives to enhance the effectiveness of the Board of Directors based on issues identified in the results of this evaluation.

Regarding the evaluation of the Board of Directors conducted in fiscal 2019, a survey with a total of 50 questions and an open-ended section was conducted in April 2020, and the results thereof were reported at a meeting of the Board of Directors. Regarding the overall evaluation, we received the following comments from the external organization.

- The foundational elements required of the Board of Directors have been maintained, such as leadership, commitment, and its sound culture and operation. The Board of Directors also raised additional issues in order to make improvements.
- Owing to the above, the external organization considers that the Board of Director possesses sustained effectiveness.
- On top of issues previously identified, including the understanding of risks for important, large-scale projects, and the analysis of past management decisions, new issues were identified regarding the functions and composition of the Board of Directors, as well as the necessity of a medium- to long-term strategy.
- More in-depth discussions on the ideal functions and composition of the Board of Directors are expected to contribute to further improvements in the effectiveness of the Board of Directors. Based on the results of this evaluation, NGK will continue endeavoring to maintain and strengthen the effectiveness of the Board of Directors, including implementing specific measures suited to actual circumstances at the Company.

### Measures to Boost Effectiveness



## Policy on Cross-Shareholdings

NGK holds shares of listed companies that contribute to the NGK Group's long-term business development as cross-shareholdings, primarily in order to maintain and strengthen business relationships. In addition, NGK holds the shares of each company in the Morimura Group, which was established by the same founders of NGK, for the mutual benefit of enhancing management quality, as the Morimura Group brand forms a part of NGK's corporate value through its philosophy and heritage. As all cross-shareholdings are a part of the asset portfolio, they are positioned as assets to supplement the amount of liquidity considered necessary in the business plan. NGK constantly strives to reduce the scale of cross-shareholdings from the perspective of capital efficiency. Furthermore, the scale of cross-shareholdings may fluctuate due to factors including changes in overall business trends and risks, financial conditions, and the status of NGK's business relationship with each business partner. Regarding the specific stocks held, at its Board of Directors' meeting, NGK regularly reviews the appropriateness of the continuous holding of shares as cross-shareholdings along with the capital policy, by determining the significance of holding from the business relationship, the safety of ratings and so forth, and the efficiency of dividend yields and so forth. On the other hand, when comparing cross-shareholdings to NGK's cost of capital, evaluations based solely on shares are not conducted. Instead, ROIC management is conducted for each business with differing risks and expected returns, and cross-shareholdings are evaluated after being included in each business's balance sheet. After verification, in fiscal 2019, four specified equity securities held for investment purposes were sold for a total of 4.353 billion yen.

**Number of Stocks and Balance Sheet Amount**

	Number of stocks	Total balance sheet amount (millions of yen)
Unlisted shares	38	2,026
Shares other than unlisted shares	41	31,138

**Stocks for Which Number of Shares Increased in FY2019**

	Number of stocks	Share number increase total acquisition amount (millions of yen)	Reason for share number increase
Unlisted shares	1	483	Shares were increased in order to facilitate the establishment and financing of a joint venture with four Morimura Group companies, thereby allowing for the incorporation of their solid oxide fuel cell technology and expertise, which will expedite product commercialization.
Shares other than unlisted shares	—	—	—

**Stocks for Which Number of Shares Decreased in FY2019**

	Number of stocks	Share number decrease total sale amount (millions of yen)
Unlisted shares	1	11
Shares other than unlisted shares	4	4,353

**Management Succession Planning**

In December 2018, the Board of Directors approved the NGK Group Chief Executive Officer Succession Plan, which establishes the required qualities, development policies, selection procedures, and other items for chief executive officer successors. Based on this, the President provides the Nomination and Compensation Advisory Committee with a planning progress report each year, and its appropriateness is reviewed.

# Board of Directors, Audit & Supervisory Board, Executive Officers

## Board of Directors (as of June 30, 2020)



### Taku Oshima

President

Number of shares of the Company held  
10,000

Attendance at Board of Directors meetings  
100% (14/14)

March 1980 Joins NGK  
June 2007 Appointed as vice president  
June 2011 Appointed as senior vice president  
June 2014 Appointed as president (incumbent)

#### Reasons for Appointment

After joining the Company, Mr. Taku Oshima belonged to the Manufacturing Engineering Division, and experienced the start-up of manufacturing lines at overseas subsidiaries. In addition, he engaged in the development and mass-production of NAS<sup>®</sup> batteries from the beginning, working on design, manufacturing, and marketing as Head of the NAS battery business, the world's first large-scale energy storage system. He has been serving as Representative Director and President since 2014 and has abundant experience at the Company and insights into business operations. It is on this basis that he has been appointed.



### Hiroshi Kanie

Executive Vice President

Number of shares of the Company held  
10,000

Attendance at Board of Directors meetings  
100% (14/14)

March 1981 Joins NGK  
June 2010 Appointed as vice president  
June 2012 Appointed as senior vice president  
June 2014 Appointed as director and senior vice president  
June 2018 Appointed as executive vice president (incumbent)

Responsible for Corporate Planning Office, New Business Planning Dept., Secretarial Office, Corporate Communications Dept., Human Resources Dept., and General Affairs Dept.; Senior Officer in charge of Group Companies; HR Committee Chair; General Manager, Osaka Branch

#### Reasons for Appointment

Mr. Hiroshi Kanie has gained a variety of practical experience in business operations and department management, by working in the Industrial Process Division and serving as General Manager of the Secretarial Office, Head Office, and Group Executive of the Ceramic Products Business Group. He currently is responsible for the Human Resources Department, Corporate Planning Office, and New Business Planning Department at the Head Office, and has served as Representative Director and Executive Vice President since 2018. He has ample experience at the Company and knowledge in business operations, and it is on this basis that he has been appointed.



### Chiaki Niwa

Executive Vice President

Number of shares of the Company held  
10,000

Attendance at Board of Directors meetings  
100% (14/14)

March 1984 Joins NGK  
June 2013 Appointed as vice president  
June 2015 Appointed as director and executive officer  
June 2016 Appointed as director and senior vice president  
June 2020 Appointed as executive vice president (incumbent)

Responsible for Corporate R&D Group, Corporate Manufacturing Engineering Group, Quality Management Dept., Environmental Management Dept., Safety and Health Management Dept., and Information Systems Dept.; Chair of Quality Committee, Environmental Protection Committee, and Safety and Health Committee

#### Reasons for Appointment

After his long engagement in the engineering business division (currently, an independent company) and plant technology division in the Industrial Process Division, Mr. Chiaki Niwa currently controls the quality management, environmental management, and safety and health management departments at the Head Office, takes responsibility for the Corporate R&D Group and Corporate Manufacturing Engineering Group, and plays the role of promoting new/reformed manufacturing structures as a whole. He has ample experience at the Company, as well as deep knowledge in project management and manufacturing technology, and it is on this basis that he has been appointed.



### Susumu Sakabe

Director and Senior Vice President

Number of shares of the Company held  
12,000

Attendance at Board of Directors meetings  
100% (14/14)

March 1981 Joins NGK  
June 2007 Appointed as vice president  
June 2010 Appointed as director and executive officer  
June 2011 Appointed as director and senior vice president (incumbent)

Responsible for Finance & Accounting Dept. and Purchasing Dept.; General Manager, Tokyo Main Office

#### Reasons for Appointment

After joining the Company, Mr. Susumu Sakabe accumulated business experience mainly in finance divisions and served as General Manager of the Business Planning Department in operational divisions and the Finance & Accounting Department. He also gained experience in corporate management at the Company's subsidiaries in Japan and North America. Currently, he serves as Director and Senior Vice President, actively engaging in drawing up capital policies and setting strategies for procurement and logistics divisions. He has abundant knowledge and experience in business operations at the Company, and it is on this basis that he has been appointed.

Note: Number of shares of the Company held is current as of June 29, 2020.



**Ryohei Iwasaki**  
Director and Senior Vice President

Number of shares of the Company held  
10,000

Attendance at Board of Directors meetings  
100% (14/14)

March 1982 Joins NGK  
June 2008 Appointed as vice president  
June 2009 Appointed as director and executive officer  
June 2012 Appointed as director and senior vice president (incumbent)

**Group Executive, Process Technology Business Group**

**Reasons for Appointment**

Mr. Ryohei Iwasaki has accumulated a variety of practical experience in business operations including engagement in sales and marketing in the Ceramic Products Business Group followed by overseas subsidiaries' president, as well as such positions as General Manager of the Corporate Strategy Office and Group Executive of the Electronics Business Group and in management of the Head Office. He currently serves as Director and Senior Vice President, and Group Executive of the Process Technology Business Group, leading the operation thereof. He has ample experience at the Company and knowledge in business operations, and it is on this basis that he has been appointed.



**Shuhei Ishikawa**  
Director and Senior Vice President

Number of shares of the Company held  
14,000

Attendance at Board of Directors meetings  
100% (14/14)

March 1984 Joins NGK  
June 2010 Appointed as vice president  
June 2014 Appointed as senior vice president  
June 2015 Appointed as director and senior vice president (incumbent)

**Group Executive, Electronics Business Group**

**Reasons for Appointment**

After joining the Company, Mr. Shuhei Ishikawa has engaged in technology and development in the New Metals Division and fostered his knowledge in manufacturing technology and new product development in the said Division. Following having served as General Manager of the New Metals Division, he currently serves as Director and Senior Vice President, and Group Executive of the Electronics Business Group, leading the operation thereof. He has ample experience at the Company, as well as a wealth of knowledge and personal contacts gained in the Electronics Business Group. It is on this basis that he has been appointed.



**Nobumitsu Saji**  
Director and Senior Vice President

Number of shares of the Company held  
5,000

Attendance at Board of Directors meetings  
100% (14/14)

March 1984 Joins NGK  
June 2013 Appointed as vice president  
June 2014 Appointed as director and executive officer  
June 2015 Appointed as director and senior vice president (incumbent)

**Chief Compliance Officer; responsible for Auditing Dept., Group Compliance Dept., Legal Dept., and Intellectual Property Dept.; Chair of Compliance Committee and Internal Controls Committee**

**Reasons for Appointment**

Following a variety of experience in such areas as sales and marketing in the Energy Infrastructure Business Division, finance division, overseas subsidiaries, and secondment to external organizations, Mr. Nobumitsu Saji served as General Manager of the Business Planning Department in multiple business groups and assumed the position of General Manger of the Legal Department afterwards. He currently serves as Director and Senior Vice President, responsible for legal affairs and compliance-related divisions, as well as leading the Company's legal compliance system as a whole. He has ample experience at the Company and global insight into the legal field, and it is on this basis that he has been appointed.



**Atsushi Matsuda**  
Director and Senior Vice President

Number of shares of the Company held  
8,000

Attendance at Board of Directors meetings  
100% (14/14)

March 1985 Joins NGK  
June 2012 Appointed as vice president  
June 2017 Appointed as senior vice president  
June 2018 Appointed as director and senior vice president (incumbent)

**Group Executive, Ceramic Products Business Group; General Manager, Global Sales & Marketing Div., Ceramic Products Business Group; General Manager, Nagoya Site**

**Reasons for Appointment**

After joining the Company, Mr. Atsushi Matsuda has engaged in sales and marketing in the Industrial Process Division and Ceramic Products Business Group, and has gained management experience at overseas subsidiaries. Following having served as General Manager, Worldwide Sales & Marketing Div., Ceramics Products Business Group, he currently serves as Director and Senior Vice President, and Group Executive of the Ceramic Products Business Group, leading the operation thereof. He has ample experience and expertise in business operations at the Company, and it is on this basis that he has been appointed.



## Shigeru Kobayashi

Director and Senior Vice President

Number of shares of the Company held  
5,126

Attendance at Board of Directors meetings  
Newly appointed

March 1983 Joins NGK  
June 2016 Appointed as vice president  
June 2018 Appointed as senior vice president  
June 2020 Appointed as director and senior vice president (incumbent)

Group Executive, Energy Infrastructure Business Group; General Manager, Komaki Site

### Reasons for Appointment

Mr. Shigeru Kobayashi engaged in overseas sales and marketing in the Energy Infrastructure Business Division and assumed positions of president of an overseas subsidiary and manager of the overseas sales and marketing department in the Ceramic Products Business Group. He currently serves as Group Executive of the Energy Infrastructure Business Group, leading the operation thereof. He has ample experience at the Company, as well as a wealth of knowledge and personal contacts gained in the Energy Infrastructure Business Group, and it is on this basis that he has been appointed.



## Tsutomu Nanataki

Director and Senior Vice President

Number of shares of the Company held  
3,000

Attendance at Board of Directors meetings  
Newly appointed

March 1986 Joins NGK  
June 2016 Appointed as vice president  
June 2019 Appointed as senior vice president  
June 2020 Appointed as director and senior vice president (incumbent)

Group Executive, Corporate R&D; Development Committee Chair

### Reasons for Appointment

After joining the Company, Mr. Tsutomu Nanataki has accumulated a variety of experience by engaging in product development at different business groups, basic research of ceramics, and development of applied technologies at the research and development division and other operations. He currently serves as Senior Vice President and Group Executive of the Corporate R&D Group, leading the operation thereof. He has ample experience at the Company, as well as a wealth of knowledge in the research and development field, and it is on this basis that he has been appointed.



Independent Director

## Hiroyuki Kamano

Outside Director

Number of shares of the Company held  
1,000

Attendance at Board of Directors meetings  
100% (14/14)

April 1971 Joins Ministry of Foreign Affairs  
April 1979 Trains at Legal Training and Research Institute, Supreme Court of Japan  
April 1981 Becomes registered attorney  
Oct. 1988 Becomes representative attorney, Kamano Sogo Law Offices (incumbent)  
June 2007 Appointed as outside Audit & Supervisory Board member, Komatsu Ltd.  
July 2007 Appointed as outside director, Sumitomo Life Insurance Company  
April 2009 Appointed as vice president, Tokyo Bar Association  
June 2011 Appointed as director, NGK (incumbent)  
June 2015 Appointed as outside audit & supervisory board member, House Foods Group Inc. (incumbent)  
June 2020 Appointed as outside director, Spancrete Corporation (incumbent)

### Reasons for Appointment

Having long engaged in legal practice as an attorney-at-law, Mr. Hiroyuki Kamano possesses a wealth of experience and achievements in the legal community, including his service as the vice president of the Tokyo Bar Association. With his expertise and ample experience as well as broad insight, he has been appropriately fulfilling his duties as an Outside Director of the Company, by giving his opinion on instilling the Company's group principles, strengthening the compliance structure, and clarifying bases of business judgments, as well as offering suggestions to the Company's business operation and properly overseeing the management of the Company. It is on this basis that he has been appointed.



Independent Director

## Emiko Hamada

Outside Director

Number of shares of the Company held  
5,000

Attendance at Board of Directors meetings  
100% (14/14)

April 1984 Joins Taiyo Yuden Co., Ltd.  
Dec. 2001 Appointed as general manager, Quality Assurance Control R Technology Div., Engineering Group, Taiyo Yuden  
Sept. 2003 Appointed as chief engineer, Basic Research Div., General Research Laboratory, Engineering Group, Taiyo Yuden  
Nov. 2008 Appointed as associate professor, Center for Social Contribution and Collaboration, Nagoya Institute of Technology (NITech)  
April 2011 Appointed as professor, Center for Social Contribution and Collaboration, NITech, and professor for Master of Techno-Business Administration, NITech Graduate School  
April 2012 Appointed as professor, Center for Research on Assistive Technology for Building a New Community, NITech  
May 2015 Appointed as third-area program officer, A-STEP (Adaptable and Seamless Technology Transfer Program through Target-driven R&D), Japan Science and Technology Agency (incumbent)  
July 2016 Appointed as part-time lecturer, NITech (incumbent)  
Aug. 2016 Appointed as visiting professor, Nagoya University  
June 2017 Appointed as director, NGK (incumbent)  
June 2019 Appointed as outside director, Taiyo Yuden (incumbent)

### Reasons for Appointment

Ms. Emiko Hamada has made remarkable achievements such as leading the invention and the world's first commercialization of the CD-R (recordable CD) while working for Taiyo Yuden Co., Ltd. Since then, she has been engaged in research activities mainly through industry-academia-government collaborations as Professor at Nagoya Institute of Technology and Visiting Professor at Nagoya University. By utilizing the insights she has developed through her career, she has been appropriately fulfilling her duties as an Outside Director of the Company by giving her opinion in terms of strengthening technical capability and ways of quality control, as well as offering suggestions to the Company's business operation and overseeing the management of the Company. It is on this basis that she has been appointed.



Independent Director

**Kazuo Furukawa**

Outside Director

Number of shares of the Company held  
5,000Attendance at Board of Directors meetings  
100% (11/11)

Note: Attendance since assuming post on June 2019.

April 1971 Joins Hitachi, Ltd.

April 2005 Appointed as representative executive officer, executive vice president, and executive officer; general manager and CEO, Information &amp; Telecommunications Group; general manager, Export Control Div.; Hitachi

April 2006 Appointed as representative executive officer and president, Hitachi

June 2006 Appointed as director, representative executive officer, and president, Hitachi

May 2007 Appointed as vice chair, Keidanren (Japan Business Federation)

April 2009 Appointed as director, representative executive officer, and vice chair, Hitachi

June 2009 Appointed as special advisor, Hitachi

June 2011 Appointed as president, Information Processing Society of Japan

Oct. 2011 Appointed as chair, New Energy and Industrial Technology Development Organization

June 2019 Appointed as director, NGK (incumbent)

Aug. 2019 Appointed as outside director (Audit &amp; Supervisory Committee member), Pasona Group Inc. (incumbent)

**Reasons for Appointment**

Mr. Kazuo Furukawa has extensive knowledge of technical fields including information and telecommunications, as well as experience leading large organizations, through his work in important positions at Hitachi Ltd. such as General Manager & Chief Executive Officer of the Information & Telecommunications Group and subsequently President, as well as Chairman of the New Energy and Industrial Technology Development Organization. With his insights and experience, he has been appropriately fulfilling his duties as an Outside Director of the Company, by giving his wide range of opinions on overall business activities, as well as offering suggestions to the Company's business operation and properly overseeing the management of the Company. It is on this basis that he has been appointed.

**Committee Membership** (As of June 30, 2020)

	Board of Directors	Executive Committee	Nomination and Compensation Advisory Committee	Corporate Council	Conference of Outside Directors and Outside Audit & Supervisory Board Members	Hearing Convened by Audit & Supervisory Board Members and Outside Directors	Business Ethics Committee
Taku Oshima	●	●	●	●			
Hiroshi Kanie	●	●	●	●			
Chiaki Niwa	●	●	●	●			
Susumu Sakabe	●	●					
Ryohei Iwasaki	●	●					
Shuhei Ishikawa	●	●					
Nobumitsu Saji	●	●					●
Atsushi Matsuda	●	●					
Shigeru Kobayashi (assumed post in June 2020)	●	●					
Tsutomu Nanataki (assumed post in June 2020)	●	●					
Hiroyuki Kamano	●		●	●	●	●	●
Emiko Hamada	●		●	●	●	●	●
Kazuo Furukawa (assumed post in June 2019)	●		●	●	●	●	●

**Expertise of Directors** (As of June 30, 2020)

Name	Age	Business sector experience					Area of specialization					
		Energy infrastructure business	Ceramic products business	Electronics business		Process technology business		Finance	Law	HR/labor	Materials technology	Engineering
		Electricity/energy	Automobiles	ICT	Semiconductors	Chemical industry						
Taku Oshima	63	○								○	○	
Hiroshi Kanie	62	○	○						○			
Chiaki Niwa	60										○	
Susumu Sakabe	61			○			○	○	○			
Ryohei Iwasaki	60		○	○	○	○			○			
Shuhei Ishikawa	60			○	○					○		
Nobumitsu Saji	61	○		○	○		○	○	○			
Atsushi Matsuda	59		○			○						
Shigeru Kobayashi	59	○	○									
Tsutomu Nanataki	58		○	○	○					○		

Note: Managerial experience: At time of appointment (June 29, 2020), has experience running large organizations (business group, general manager, head of multiple divisions) or has served in upper management of Group companies in and outside Japan



## Audit &amp; Supervisory Board (as of June 30, 2020)

**Ken Sugiyama**

Audit &amp; Supervisory Board Member

Number of shares of the Company held  
2,544Attendance at Board of Directors meetings  
100% (14/14)  
Attendance at Audit & Supervisory Board meetings  
100% (14/14)

March 1980 Joins NGK  
July 2002 Appointed as general manager, Finance Dept.  
April 2007 Appointed as general manager, Auditing Dept.  
June 2015 Appointed as Audit & Supervisory Board member (incumbent)

**Reasons for Appointment**

After joining NGK, Mr. Ken Sugiyama worked for many years in finance and served as the general manager of the Finance & Accounting Department. He was also involved in the operations of overseas subsidiaries and has served as the general manager of the Auditing Department. All of this has equipped Mr. Sugiyama with a wealth of financial, accounting, and auditing knowledge and experience relating to the NGK Group and its overseas subsidiaries. He puts this to appropriate use in performing management-related audits as a member of NGK's Audit & Supervisory Board. It is on this basis that he has been appointed.

**Takeshi Shimazaki**

Audit &amp; Supervisory Board Member

Number of shares of the Company held  
817Attendance at Board of Directors meetings  
100% (11/11)  
Attendance at Audit & Supervisory Board meetings  
100% (10/10)  
Note: Attendance since assuming post on June 2019.

March 1982 Joins NGK  
April 2010 Appointed as manager, Finance Dept.  
June 2015 Appointed as general manager, Auditing Dept.  
June 2019 Appointed as Audit & Supervisory Board member (incumbent)

**Reasons for Appointment**

After joining NGK, Mr. Takashi Shimazaki spent many years handling finance-related duties and was appointed manager of the Finance & Accounting Department. He has also served as the general manager of the Auditing Department and has a thorough, practical understanding of finance, accounting, and auditing within the NGK Group, both in Japan and overseas. Mr. Shimazaki is recognized for his ability to apply this experience towards the performance of management-related auditing that contributes to increased corporate value for NGK, and it is on this basis that he has been appointed.



Independent Director

**Junichi Itoh**

Audit &amp; Supervisory Board Member, Outside

Number of shares of the Company held  
—Attendance at Board of Directors meetings  
100% (14/14)  
Attendance at Audit & Supervisory Board meetings  
100% (14/14)

April 1975 Joins The Mitsubishi Bank, Ltd. (now MUFG Bank, Ltd.)  
June 2002 Appointed as executive officer, The Bank of Tokyo-Mitsubishi, Ltd. (now MUFG Bank)  
May 2005 Appointed as managing executive officer, The Bank of Tokyo-Mitsubishi (now MUFG Bank)  
June 2005 Appointed as managing director, The Bank of Tokyo-Mitsubishi (now MUFG Bank)  
Jan. 2006 Appointed as managing director, The Bank of Tokyo-Mitsubishi UFJ, Ltd. (now MUFG Bank)  
May 2009 Appointed as senior managing executive officer, The Bank of Tokyo-Mitsubishi UFJ (now MUFG Bank)  
June 2011 Appointed as senior executive vice president, CFO and representative director, Nikon Corporation  
June 2016 Appointed as counselor, Nikon Corporation (incumbent)  
Appointed as outside Audit & Supervisory Board member, The Hyakujushi Bank, Ltd.  
June 2017 Appointed as outside director (Audit and Supervisory Committee member), The Hyakujushi Bank (incumbent)  
June 2018 Appointed as Audit & Supervisory Board member, NGK (incumbent)

**Reasons for Appointment**

Mr. Junichi Itoh has many years of corporate management-related experience, including serving as a senior managing executive officer of the Bank of Tokyo-Mitsubishi UFJ (now MUFG Bank) and as a representative director, senior executive vice president, and CFO of Nikon Corporation. All of this has equipped him with a wealth of experience and expertise as a corporate management specialist, making him well-suited to a role in which he will contribute to stronger corporate governance at NGK. It is on this basis that he has been appointed.



Independent Director

**Masayoshi Sakaguchi**

Audit &amp; Supervisory Board Member, Outside

Number of shares of the Company held  
—Attendance at Board of Directors meetings  
100% (11/11)  
Attendance at Audit & Supervisory Board meetings  
100% (10/10)  
Note: Attendance since assuming post on June 2019.

April 1980 Joins the National Police Agency  
Feb. 1999 Appointed as chief of First Area Headquarters, Metropolitan Police Department  
Sept. 2001 Appointed as chief of Akita Prefectural Police Headquarters  
Jan. 2003 Appointed as chief Criminal Investigations, Osaka Prefectural Police Headquarters  
Oct. 2011 Appointed as chief of Osaka Prefectural Police Headquarters  
Jan. 2013 Appointed as commissioner-general's secretariat, National Police Agency  
Jan. 2015 Appointed as deputy commissioner-general, National Police Agency  
Aug. 2016 Appointed as commissioner-general, National Police Agency  
May 2018 Appointed as senior advisor, Nippon Life Insurance Company  
June 2019 Appointed as Audit & Supervisory Board member, NGK (incumbent)  
Appointed as vice president, Japan Automobile Federation (incumbent)

**Reasons for Appointment**

Prior to his appointment as commissioner-general of the National Police Agency, Mr. Masayoshi Sakaguchi served in a variety of important law enforcement positions, including as commissioner of the Osaka Prefectural Police and as chief of the Commissioner-General's Secretariat in the National Police Agency. All of this has contributed to a wealth of experience in public administration and a solid track record of running large-scale organizations. Mr. Shimazaki is recognized for his ability to apply this experience towards management-related auditing for NGK as a whole, providing a legal compliance and risk management-focused perspective that contributes to increased corporate value for NGK. It is on this basis that he has been appointed.

## Executive Officers (as of June 30, 2020)

**Hiroshi Kurachi** Senior Vice President

General Manager, Sensor Div., Ceramic Products Business Group

**Akira Katoh** Senior Vice PresidentGroup Vice Executive, Electronics Business Group;  
General Manager, New Metals Div.; General Manager, Chita Site**Atsushi Miyajima** Vice PresidentGroup Executive, Corporate Manufacturing Engineering;  
Facilities Committee Chair**Hiroyuki Shinohara** Vice PresidentGeneral Manager, Corporate Planning Office; in charge of  
New Business Planning Dept.**Ryo Ishihara** Vice PresidentGeneral Manager, Secretariat Office; in charge of Corporate  
Communications Dept.**Hiroto Matsuda** Senior Vice PresidentGroup Vice Executive, Process Technology Business Group;  
General Manager, High Performance Ceramics Div.**Masanobu Inoue** Vice PresidentGeneral Manager, Industrial Process Div.,  
Process Technology Business Group**Hideaki Shindo** Vice President

General Manager, Finance &amp; Accounting Dept.

**Iwao Ohwada** Vice PresidentGeneral Manager, Advanced Device Components Div.,  
Electronics Business Group**Mayumi Inagaki** Vice President

General Manager, Legal Dept.

**Tadaaki Yamada** Senior Vice PresidentGeneral Manager, Human Resources Dept., Diversity &  
Inclusion Dept.; in charge of General Affairs Dept.**Hiroharu Kato** Vice President

President, NGK EUROPE GmbH

**Jun Mori** Vice PresidentGeneral Manager, Manufacturing Div., Ceramic Products  
Business Group**Tatsumi Ichioka** Vice PresidentGeneral Manager, Energy Storage Div., Energy Infrastructure  
Business Group**Hirofumi Sakamoto** Vice PresidentGeneral Manager, Engineering Div., Ceramic Products  
Business Group

Note: Number of shares of the Company held is current as of June 29, 2020.

# Remuneration of Directors and Audit & Supervisory Board Members

## Policies for Determining Remuneration of Officers

### Determining the Amount or Calculation Method of Remuneration, and Determining Details of Remuneration

The remuneration of directors (excluding outside directors) and corporate officers of NGK consists of the following three components: (1) basic remuneration as fixed annual remuneration according to respective positions; (2) a performance-linked bonus, which is based on the business performance each year; and (3) stock-related remuneration to enhance the motivation, etc. of directors to improve the medium- to long-term corporate value through appropriate corporate management by increasing sensitivity toward the NGK stock price and sharing with shareholders both advantages and risks generated by ups and downs of the stock price. NGK does not pay any performance-linked bonus or stock-related remuneration to outside directors and Audit & Supervisory Board Members and only pays basic remuneration since they assume roles in supervising and auditing management from an independent standpoint.

With regard to the remuneration of officers, NGK will endeavor to ensure fairness and enhance transparency by deliberating on basic policies and procedures for determination of remuneration, the overall remuneration range of directors/audit & supervisory board members, and the amount of remuneration for individual directors/audit & supervisory board members at the Nomination and Compensation Advisory Committee, comprised mainly of outside directors/audit & supervisory board members and reporting the results thereof to the Board of Directors. The Board of Directors will consider the findings of the committee and make a resolution for remuneration for directors and executive officers, and representative directors will take this decision and determine an annual salary that includes bonuses. The amount of remuneration, etc., of each audit & supervisory board member is determined through consultation between the audit & supervisory board members.

### Committee for Determining the Amount or Calculation Method of Remuneration, and Method of Determination, for Officers

The Nomination and Compensation Advisory Committee is comprised of five outside directors and three representative directors. This committee deliberates on matters related to the appointment of directors and Audit & Supervisory Board members, remuneration of directors, executive officers, and Audit & Supervisory Board members, and Chief Executive Officer succession planning. To arrive at a resolution, a majority of committee members must be in favor of the decision. In fiscal 2019, the Committee met two times. At one of these meetings, resolutions included the policy for deciding officers' compensation amount, compensation amounts and their breakdown for various levels of managers, and the calculation of amounts for performance-linked bonuses.

### Persons with Authority to Decide Things Like Amount of Officers' Remuneration

The Board of Directors accepts the report from the Nomination and Compensation Advisory Committee and, while sufficiently taking it into consideration, once again delegates the determination of officers' remuneration to consultation between representative directors.

Representative directors have the authority to determine basic remuneration, performance-linked bonuses, and stock-related remuneration in accordance with respective positions within the scope delegated to them by resolution of the Board of Directors, based on consultation between all representative directors, and the names of these representative directors are as follows:

Taku Oshima, Yukihisa Takeuchi, and Hiroshi Kanie

### Summary of Performance-linked Remuneration

In NGK's view, bonuses linked to short-term performance and stock compensation-type stock options, which are aimed at increasing the stock price by increasing directors' motivation and morale to improve medium- to long-term corporate value, are variable components of remuneration linked to business performance. With regard to the ratio between this variable remuneration and fixed annual remuneration, the ratio of basic remuneration, performance-linked bonuses, and stock-related remuneration is set from a perspective of putting priority on the stability and enhancement of medium- to long-term performance, based on the fact that NGK's businesses are in materials industries that provide many products contributing to industry and the social foundations of peoples' lives, and the fact that, when creating new products and businesses, NGK prioritizes technology developed proprietarily, including materials technology and production technology, and it requires a relatively long time to develop this technology and bring new products to market, and for these products to contribute to earnings. The total amount of remuneration, including basic remuneration, is determined in accordance with officers' positions, taking into consideration remuneration levels according to the size of companies and other factors, using data from reliable external research institutions.

### Indicators for Performance-linked Remuneration, Reasons for Selecting Said Indicators

For performance-linked bonuses paid as annual bonuses, 1. comparisons of net sales, operating income, and net income attributable to owner of parent company (Net income amounts, hereinafter, the same applies) announced at the start of the period and during the period with amounts at the end of the period, and 2. comparisons of net sales, operating income, and net income in the previous fiscal year with those in the fiscal year under review are used as short-term indicators, while 1. the level of achievement in each fiscal year in terms of important issues spanning multiple fiscal years established by NGK, and 2. operating income and net income, on which ROE is based, are used as medium-term indicators (these indicators are all based on the consolidated business performance of the NGK Group; hereinafter, the same applies). NGK prioritizes comparisons with business performance figures announced at the start of the period and during the period, and comparisons with business performance figures in the previous fiscal year, based on the perspective that the achievement of business performance targets announced by NGK and the achievement of steady growth each fiscal year are important to shareholders and investors. Among measures of business performance, NGK uses net sales, operating income, net income, and ROE as indicators, as these figures are a clear measure of actual capabilities.

## Method for Determining Amount of Performance-linked Remuneration

Calculation of performance-linked remuneration is determined by the following method.

- A basic bonus amount to be used as the basis of the calculation is established for each position.
- The basic bonus amount is distributed between each item in 1. comparisons of net sales, operating income, and net income amounts announced at the start of the period and during the period with amounts at the end of the period, and 2. comparisons of net sales, operating income, and net income in the previous fiscal year with those in the fiscal year under review, from a short-term perspective, and 1. the level of achievement in each fiscal year in terms of important issues spanning multiple fiscal years established by NGK, and 2. operating income and net income, on which ROE is based, from a medium-term perspective.
- The result for each item is calculated, within a range from 0% to 200%, and the amount allocated to each item is calculated.
- The allocated amounts are totaled and the amount of performance-linked bonus is calculated.
- For directors who are not representative directors, the amounts of performance-linked bonuses are adjusted based on representative directors' assessment of individual performance.
- As a result the actual amount of performance-linked bonus paid fluctuates within a range of 0% to 200% of the basic amount.

Targets for the main indicators related to performance linked bonuses and the actual results are as follows:

Business performance amounts announced at the beginning of the period	Net sales of ¥490.0 billion	Operating income of ¥70.0 billion	Net income of ¥47.0 billion	–
Business performance amounts announced during the period	Net sales of ¥450.0 billion	Operating income of ¥60.0 billion	Net income of ¥42.0 billion	–
Business performance amounts in the previous fiscal year	Net sales of ¥463.5 billion	Operating income of ¥64.7 billion	Net income of ¥35.5 billion	ROE 7.6%
Business performance amounts in the fiscal year under review	Net sales of ¥441.9 billion	Operating income of ¥55.0 billion	Net income of ¥27.1 billion	ROE 5.8%

With regard to stock-related remuneration, NGK grants stock compensation-type stock options as a long-term incentive. The exercise price of the stock option is ¥1 per share, and NGK determines the number of stock options according to the respective managerial positions. As terms and conditions of the exercises of rights, the director shall, in principal, exercise his/her rights within five years after the lapse of one year from the date of retirement from the office of officer.

## Resolutions at General Meetings of Shareholders on Remuneration for Officers and Other Matters

By the resolutions at the General Meetings of Shareholders held in June 2007 and June 2017, NGK has set the maximum amount of remuneration, etc., excluding stock options, or stock-related remuneration of directors at ¥800 million per year, which includes the amount of ¥60 million per year for outside directors. It was also resolved that the maximum amount of remuneration, etc., concerning stock options to be allocated to directors (excluding outside directors) to be set at ¥200 million per year, and the maximum amount of remuneration, etc. of Audit & Supervisory Board Members at ¥100 million per year. Furthermore, in terms of the number of officers that these resolutions apply to, Articles 20 and 31 of the Articles of Incorporation of NGK stipulate that the prescribed number of directors shall not exceed fifteen and the prescribed number of Audit & Supervisory Board Members shall not exceed five. In addition, NGK discontinued the retirement bonus system for officers at the conclusion of the 139th Annual General Meeting of Shareholders held in June 2005.

## Remuneration of Directors and Audit & Supervisory Board Members (Fiscal 2019)

Director category	Total remuneration (million yen)	Total remuneration by type (million yen)				Applicable directors (people)
		Fixed remuneration	Performance-linked remuneration	Stock options	Retirement benefits	
Directors (excluding Outside Directors)	535	377	113	44	–	9
Audit & Supervisory Board Members (excluding Outside Audit & Supervisory Board Members)	59	59	–	–	–	3
Outside Directors and Outside Audit & Supervisory Board Members	66	66	–	–	–	7

## Directors Receiving Total Remuneration of ¥100 Million or More (Fiscal 2019)

Name	Director category	Company category	Total remuneration by type (million yen)				Total remuneration (million yen)
			Fixed remuneration	Performance-linked remuneration	Stock options	Retirement benefits	
Taku Oshima	Director	Submitting companies	65	26	8	–	100

# Standard and Policy for Independence of Outside Directors and Outside Audit & Supervisory Board Members

## Outside Directors

In addition to the requirements for an outside director under the Companies Act and for an independent director specified by the Tokyo Stock Exchange, NGK may not designate a person who falls under any of the following items as an outside director with independence (hereinafter referred to as the "Independent Outside Director"); provided, however, that if NGK considers that such person, who falls under any of the items, is appropriate as the Independent Outside Director of NGK in light of such person's personality, insight, etc., NGK may designate said person as an Independent Outside Director on the condition that said person satisfies the requirements for an outside director under the Companies Act and for an independent director specified by the Tokyo Stock Exchange as well as on the condition that NGK externally explains the reason why such person is appropriate as the Independent Outside Director of NGK.

In these independence standards, a person who executes business refers to an executive director, executive officer, corporate officer, manager, or other employee, and NGK Group refers to NGK or NGK's subsidiaries or affiliated companies.

1. A major shareholder who holds 10% or more of the current voting rights of NGK. If such major shareholder is a corporation, a person who has executed the business of said corporation during the last three fiscal years including the most recent fiscal year.
2. A person who currently executes the business of a business partner where the amount of transactions between NGK Group in any of the last three fiscal years including the most recent fiscal year is 2% or more of the consolidated sales of either said business partner or NGK Group.
3. A person who has executed the business of a financial institution or other corporation that is a major creditor, which is indispensable for NGK Group's fundraising and on which NGK Group depends to the extent that it is irreplaceable, in the past three fiscal years including the most recent fiscal year.
4. An incumbent director or officer of an organization that receives a donation or grant from NGK Group in the amount exceeding ¥10 million per year or 30% of average annual total expenses of such organization, whichever the greater, in any of the last three fiscal years including the most recent fiscal year.
5. A certified public accountant, tax accountant or an incumbent employee of an auditing firm or tax accounting firm who served as an accounting auditor or accounting advisor of NGK Group in the past three fiscal years including the most recent fiscal year.
6. A person who is a lawyer, certified public accountant, tax accountant, or other consultant who does not correspond to any of the individuals mentioned in 5. above and who, in addition to his/her remuneration as an officer, has received cash and other property benefits of ¥10 million or more per year from the NGK Group in the past three fiscal years including the most recent fiscal year, or an incumbent employee, etc., of a law firm, auditing firm, tax accounting firm, consulting firm, or other advisory firm that does not correspond to any of the firms mentioned in 5. above, which received a payment of more than 2% of its annual consolidated gross sales from NGK Group in any of the last three fiscal years including the most recent fiscal year.
7. A person who has executed the business of a company, of which NGK is currently a major shareholder, in the last three fiscal years including the most recent fiscal year.
8. Relatives within the second degree of kinship to a person who falls under the items 1 to 7 above.

## Outside Audit & Supervisory Board Members

In order to ensure that outside Audit & Supervisory Board Members are impartial and that there is no conflict of interest with shareholders, NGK makes comprehensive decisions based on the Securities Listing Regulations of the Tokyo Stock Exchange.

# Reasons for Appointment of Outside Directors and Outside Audit & Supervisory Board Members

## Outside Directors

Name	Reasons for appointment
Hiroyuki Kamano	<p>Having long engaged in legal practice as an attorney-at-law, Mr. Kamano possesses a wealth of experience and achievements in the legal community, including his service as Vice President of the Tokyo Bar Association. He has been utilizing his expertise, abundant experience, and wide range of insights and appropriately fulfilling his duties as an outside director of NGK, by giving his opinion mainly on the level of permeation of the NGK Group Philosophy, strengthening the compliance structure, and defining the grounds for business judgments, as well as offering suggestions to NGK's business operation and properly overseeing the management of NGK. Therefore, NGK appointed him as outside director.</p> <p>Mr. Kamano holds 1,000 shares of NGK stock. However, apart from this, he has no personal, financial, or important business relationship with, nor other vested interest in, NGK.</p> <p>Concurrent with his work with NGK, Mr. Kamano serves in a variety of roles, including as an outside auditor of House Foods Group Inc. and as an outside director of Spancrete Corporation. However, no personal, financial, or important business relationship, nor other vested interest, exists between NGK and the organizations with which Mr. Kamano currently works.</p>
Emiko Hamada	<p>Ms. Hamada has made remarkable achievements such as leading the invention and the world's first commercialization of the CD-R (recordable CD) while working for Taiyo Yuden Co., Ltd. Since then, she has been engaged in research activities mainly through industry-academia-government collaborations as Professor at Nagoya Institute of Technology and Visiting Professor at Nagoya University. By utilizing the insights she has developed through her career, she has been appropriately fulfilling her duties as an outside director of NGK by giving her opinion mainly on strengthening technical capabilities and the current state of quality management, as well as offering suggestions to NGK's business operation and overseeing the management of NGK. Therefore, NGK appointed her as outside director.</p> <p>Ms. Hamada holds 5,000 shares of NGK stock. However, apart from this, she has no personal, financial, or important business relationship with, nor other vested interest in, NGK.</p> <p>Concurrent with her work with NGK, Ms. Hamada serves in a variety of roles, including as a third-area program officer for the Japan Science and Technology Agency's A-STEP program, as a part-time lecturer at NITech, and as an outside director for Taiyo Yuden. However, no personal, financial, or important business relationship, nor other vested interest, exists between NGK and the organizations with which Ms. Hamada currently works.</p>
Kazuo Furukawa	<p>Mr. Furukawa has extensive knowledge of technical fields including information and telecommunications, as well as experience leading large organizations, through his work in important positions at Hitachi Ltd. such as President &amp; Chief Executive Officer of the Information &amp; Telecommunication Systems Group and subsequently President, as well as Chairman of the New Energy and Industrial Technology Development Organization. He has been utilizing his knowledge and experience and appropriately fulfilling his duties as an outside director of NGK, by giving his opinion on a wide range of topics regarding all aspects of NGK's business activities, as well as offering suggestions to NGK's business operation and overseeing the management of NGK. Therefore, NGK appointed him as outside director.</p> <p>Mr. Furukawa holds 5,000 shares of NGK stock. However, apart from this, he has no personal, financial, or important business relationship with, nor other vested interest in, NGK.</p> <p>Concurrent with his work with NGK, Mr. Furukawa serves in a variety of roles, including as an outside director (Audit &amp; Supervisory Committee member) for the Pasona Group Inc. However, no personal, financial, or important business relationship, nor other vested interest, exists between NGK and the organizations with which Mr. Furukawa currently works.</p>

## Outside Audit & Supervisory Board Members

Name	Reasons for appointment
Junichi Ito	<p>Mr. Ito has been involved with corporate management for many years, including as Senior Management Executive Officer for the Bank of Tokyo-Mitsubishi UFJ, Ltd. (now MUFG Bank, Ltd.) and Representative Director, Senior Executive Vice President and CFO for Nikon Corporation. As an expert in corporate management, Mr. Ito is able to leverage the wealth of experience and the insights he has cultivated over his long career to provide appropriate advice and oversight aimed at strengthening NGK's corporate governance. Based upon this demonstrated competency and capability, he has been selected as an outside audit &amp; supervisory board member.</p> <p>Mr. Ito has no personal, financial or important business relationship with, nor other vested interest in, NGK.</p> <p>Mr. Ito comes from the Bank of Tokyo-Mitsubishi UFJ (now MUFG Bank), which is an NGK shareholder and with which NGK has financial transactions, including lending money to NGK at the end of the fiscal year under review. However, given such considerations as the significant amount of time that has passed since Mr. Ito stepped down as senior managing executive officer of the Bank of Tokyo-Mitsubishi UFJ (now MUFG Bank), we do not believe his decisions are affected by the wishes of MUFG Bank in any way that would constitute a conflict of interest with our general shareholders.</p> <p>Mr. Ito serves concurrently as an outside director (Audit &amp; Supervisory Committee member) of Hyakujushi Bank, from which NGK receives financing; however, NGK has business transactions with numerous financial institutions, and the nature of the financing secured from Hyakujushi Bank is not such that NGK is any way beholden to it. Therefore, we deem the financial borrowing relationship between NGK and Hyakujushi Bank to be one which would not impact NGK's management decision-making and, thus, does not create a conflict of interest with our general shareholders. Apart from this, no personal, financial, or important business relationship, nor other vested interest, exists between NGK and the organizations with which Mr. Ito currently works.</p>
Masayoshi Sakaguchi	<p>Mr. Sakaguchi has a wealth of experience in the administrative sector and a proven track record in managing large organizations. He was commissioner of the Osaka Prefectural Police, chief of the Commissioner-General's Secretariat (National Police Agency), and commissioner-general of the National Police Agency. Making use of this experience, he audits NGK's overall management from the viewpoint of the legality of business and risk management, thus helping raise NGK's corporate value. We have therefore elected him to the position of outside audit &amp; supervisory board members.</p> <p>Mr. Sakaguchi has no personal, financial, or important business relationship with, nor other vested interest in, NGK.</p> <p>Mr. Sakaguchi has served as special advisor to Nippon Life Insurance Company, which is both an NGK shareholder and a source of financing for NGK. However, as of the end of the fiscal year under review, Nippon Life Insurance Company's holdings did not exceed more than 1.36% of total NGK shares, and, with regard to the financing received, NGK has business transactions with numerous financial institutions, and the nature of the financing secured from Nippon Life Insurance Company is not such that NGK is any way beholden to it. Therefore, we deem the shareholder and financial borrowing relationship between NGK and Nippon Life Insurance Company to be one which would not impact NGK's management decision-making and, thus, does not create a conflict of interest with our general shareholders.</p> <p>Concurrent with his work with NGK, Mr. Sakaguchi serves in a variety of roles, including as vice president of the Japan Automobile Federation. However, no personal, financial, or important business relationship, nor other vested interest, exists between NGK and the organizations with which Mr. Sakaguchi currently works.</p>

We have submitted written notification to the Tokyo Stock Exchange and Nagoya Stock Exchange of the appointment as independent directors of the above five individuals.



## Comments from Outside Directors

Topic: Improving corporate value



**Hiroyuki Kamano**

Outside Director

### **Our role is to check managerial balance**

Given that companies exist as part of society, they cannot survive if they ignore the environmental and social impacts of their actions. Thus, I believe that the social value that a company provides, such as through hiring and contributing to the environment, is just as foundational to its existence as its economic value, such as profitability and growth potential.

Also, in the post-COVID-19 era and beyond, the importance of the relationship between companies and the environment looks to only grow stronger. An important issue facing society is humanity's coexistence with the environment, and this is an area where society is increasingly recognizing the lasting value of positively contributing companies.

In that sense, we can say that the NGK Group is extremely well-positioned. This is because the very business in which the NGK Group engages, such as developing environmentally beneficial products for automotive-related business, helps to reduce humanity's environmental footprint. If the NGK Group can capitalize on its expertise in ceramic technology to facilitate progress towards achieving the SDGs, it would be abundantly possible to turn the COVID-19 recession into a growth opportunity.

Company management cannot remain static in the face of tremendous societal upheaval. In order to achieve corporate growth, it must embrace significant innovation reflective of society's needs. Management tends to act conservatively out of a sense of obligation to responsibly handle the important assets of shareholders. However, the act of management entails a certain adventurousness that must be continually acted upon in order to grow.

The key, then, is balance: keeping management oriented in the direction of innovation while also keeping it within an acceptable range of risk. Management should not be being overly adventurous. Risk should be adequately calculated. A balance should be struck between risk and reward. Keeping check of all this is, I believe, the role that we must play as outside directors.

We will continue to provide the Board of Directors with recommendations so that the NGK Group can anticipate future values and head in the direction of change and innovation. Our wish is for young employees to look forward to realizing their dreams and that the NGK Group will continue to exist well into the future.





**Emiko Hamada**  
Outside Director

### Transformation and growth for the post-COVID-19 era

Improving corporate value all depends on how well a company is meeting the essential expectations of society. This will require companies to be providing society with new value. This is exactly expressed in the mission of the NGK Group, as stated in its Group Philosophy: “Enriching Human Life by Adding New Value to Society.”

And, given its history of product development derived from the application of cumulative expertise in the difficult area of ceramic technology, this is a strong suit of the NGK Group. However, the NGK Group must avoid simply continuing to create better versions of its already outstanding products and services; rather, it is important that it focus on delivering products and services tailored to the changing times.

Ceramic materials offer superior durability and versatility, which suits them to an extremely broad range of applications. I think this durability and versatility can also be capitalized upon to great effect as part of the infectious disease measures within the medical and healthcare fields. With its expertise in ceramic technology, the NGK Group is capable of providing the new technologies and products demanded by our times.

In a post-COVID-19 era, things that we thought were still a way off in the future are suddenly becoming reality, and it is the companies delivering new ideas to meet this reality who will be building the era to come. I would like to see the NGK Group being a pioneer in the coming era through its technological innovation in new areas. That, I believe, is the transformation and growth for which the NGK Group must aim.

And in order to achieve sustainable growth as a company, it is important to recognize the value, as well as draw out the full potential, of each and every employee. Specifically, this means listening to the input of Group employees throughout the world and engaging in discussion, which incorporates a multitude of viewpoints. In other words, it means embracing diversity. The NGK Group already has a foundation of diversity in place; so, the next stage is to find ways of capitalizing on all of the diverse input that this foundation provides.



**Kazuo Furukawa**  
Outside Director

### Improving corporate value by working as a group to speed up all operations

It has been a year since I was appointed as an outside director for the NGK Group. In that time, my impression of the NGK Group overall is that it is a well-functioning manufacturer, which is thorough in its operation of key committees and bodies, such as meetings of the Board of Directors, in its distribution of authority between Group companies, in its execution of global governance, and in much else. However, in order to further improve corporate value, it is important that the NGK Group be more proactive as a global company, working together as a group to speed up all operations.

Given the extremely rapid rate at which the market is changing, along with the ongoing spread of COVID-19, it is difficult to make any predictions in the current era. Moreover, with new technologies like AI, IoT, and quantum computers appearing one after another, the world is in the midst of significant and ongoing change. It is within this context that the NGK Group needs to capitalize on its expertise in ceramic technology by finding ways to combine it with cutting-edge technology to create unprecedentedly innovative products. NGK’s 100th anniversary slogan, “Surprising Ceramics.,” is finding concrete expression through the ongoing creation of next-generation products, such as the EnerCera® battery and zinc rechargeable batteries. I would like to not only see this trend accelerated by an increase in the speed of product development, I would also like to see the mass production system undergo a rapid reorganization from a global perspective. By enabling the NGK Group to plan, develop, and manufacture on a global basis, I think it will be possible to launch products and services simultaneously worldwide.

In addition, if all core ideas and expression adopt a global perspective, this will likewise affect not only products but also the way in which a business continuity plan (BCP) is performed. In the face of the COVID-19 pandemic, the smoothness with which measures such as transitioning to remote work arrangements has been handled is laudable. However, we are now in an era that requires readjusting supply chains and production bases, reforming the operations of indirect departments, and improving job satisfaction on a global basis and then quickly implementing ideas, quickly obtaining results, and providing feedback to each plant and office. It is my hope that the next 100 years will see the NGK Group achieve even greater growth as a global company.

## Open General Meeting of Shareholders

NGK endeavors to hold open General Meeting of Shareholders that its shareholders feel welcome to attend. Every year, we introduce NGK corporate activities at the General Meeting of Shareholders with booths displaying product exhibits explained by NGK staff.

We also make efforts toward expanding General Meeting of Shareholders-related information, including the following:

(1) Mailing a convocation notice well in advance	Sent 22 days prior to the meeting date.
(2) Disclosing information on the website well in advance	Announced four days before convocation notices are sent out (since fiscal 2018).
(3) Taking part in the Tokyo Stock Exchange (TSE) Electronic Voting Platform*	Online voting system made available.
(4) Posting General Meeting of Shareholders documents on the website	Documents such as convocation notices, the results of vote execution, notices of resolution, and extraordinary reports are disclosed on the website. English-language notices for the General Meeting of Shareholders are sent out.

General Meeting of Shareholders-related information  
<https://www.ngk-insulators.com/en/ir/meeting/>

\*TSE Electronic Voting Platform: An electronic voting system operated by TSE. It allows people to vote not only through the conventional printed materials but also via the Internet, making the process more convenient for shareholders in Japan and overseas.

### Two-Way Communication

In addition to regular presentations held in Japan and overseas, the NGK Group conducts one-on-one meetings and participates in interviews among other ongoing initiatives to expand dialogues with institutional investors. NGK senior management also visits and conducts one-on-one discussions with institutional investors in Japan and overseas.

#### Activities in Fiscal 2019

Activities	Details
Japan	Senior management conducted presentations for analysts and institutional investors twice this year. They also conducted one-on-one meetings and participated in interviews.
Overseas	Senior management conducted overseas IR meetings targeting analysts and institutional investors twice this year.
Online IR Library	Included financial reporting information, the timely disclosure of non-financial reporting information, securities reports, annual reports, General Meeting of Shareholder materials, and other information.

Reference  
URL

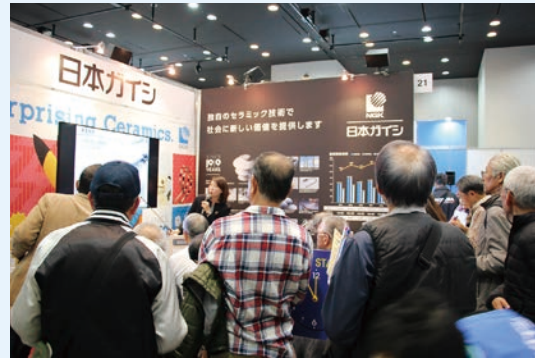
Investor Relations

<https://www.ngk-insulators.com/en/ir/>

## Participation in Nomura IR Asset Management Fair

To familiarize individual investors with the details of business and performance of NGK, our General Affairs Department and the Finance & Accounting Department took part in the Nomura IR Asset Management Fair 2019 (sponsored by Nomura Investor Relations Co., Ltd.), held at the Tokyo International Forum.

With participation by a total of 62 listed companies and investment firms, the event attracted approximately 12,200 visitors over two days. The NGK booth used panels and small briefings to explain what NGK does and how it is performing.



## Measures for Returning Profits to Shareholders

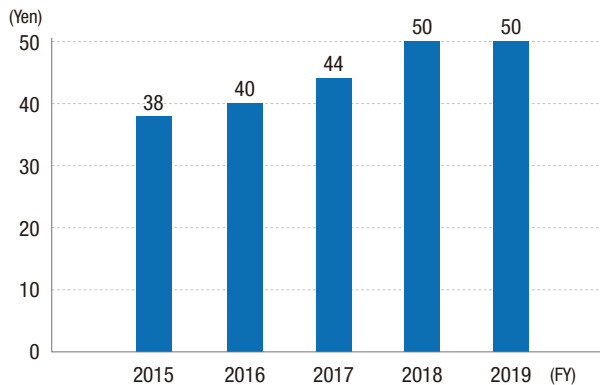
At NGK, returning profits to shareholders is considered one of the highest management priorities.

As a basic policy, we aim for management that focuses on shareholders and ROE. Based on this basic policy, we share profits while comprehensively taking account of our business performance, financial structure, and future business development. Our medium-term benchmark for the consolidated payout ratio is around 30%.

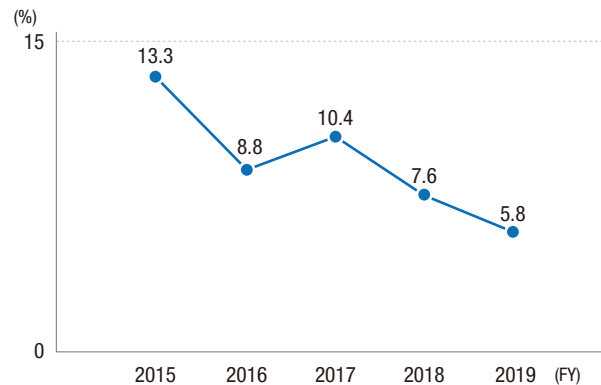
In fiscal 2019, we paid an annual dividend of 50 yen. The consolidated payout ratio stood at 59.0%.

We will keep striving to secure profitability above the capital cost and to maintain financial soundness. We opt to proactively return profits to our shareholders from the medium- to long-term perspective.

### Dividends per Share



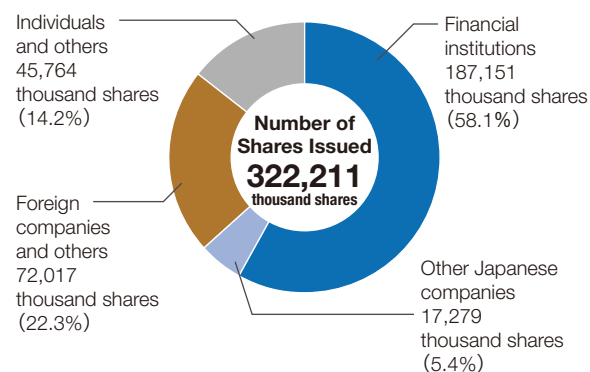
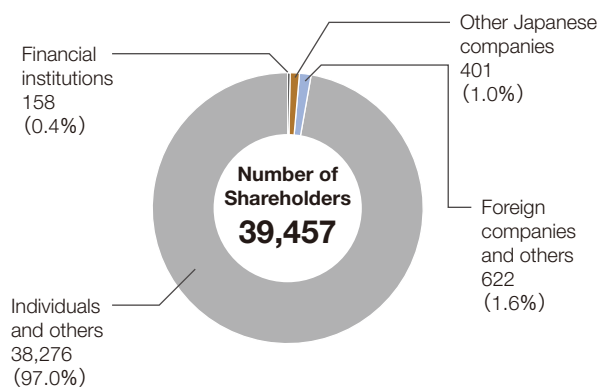
### Return on Equity (ROE)



## Shareholder Information

### Stock Information (as of March 31, 2020)

Total number of shares authorized	735,030,000
Total number of shares issued (including 5,668,060 treasury shares)	322,211,996
Number of shareholders	39,457



### Major Shareholders (as of March 31, 2020)

Name of shareholder	Number of shares held (1,000 shares)	Shareholding ratio (%)
The Master Trust Bank of Japan, Ltd. (Trust Account)	42,287	13.35
Japan Trustee Services Bank, Ltd. (Trust Account)	30,746	9.71
Meiji Yasuda Life Insurance Company	21,695	6.85
The Dai-ichi Life Insurance Company, Limited	21,457	6.77
MUFG Bank, Ltd.	7,204	2.27
National Mutual Insurance Federation of Agricultural Cooperatives	7,029	2.22
Japan Trustee Services Bank, Ltd. (Trust Account 5)	4,965	1.56
Japan Trustee Services Bank, Ltd. (Trust Account 7)	4,759	1.50
JP Morgan Chase Bank 385151	4,602	1.45
Aioi Nissay Dowa Insurance Co., Ltd.	4,387	1.38

Note: The above list of major shareholders does not include NGK, which holds a total of 5,668,060 treasury shares. Also, the shareholding ratios above are calculated based on the number of shares derived by deducting the number of treasury shares from the number of shares issued, and rounded down to two decimal places.

## Internal Control Systems

The Board of Directors and the executive bodies overseen by the president are responsible for establishing and operating NGK's internal control system. The Auditing Department, a specialized internal audit body, is responsible for assessing the status of business execution at each operating division. Moreover, NGK has established the Internal Controls Committee to manage its reporting system for internal controls pursuant to Japan's Financial Instruments and Exchange Act.

The NGK Group Code of Conduct (revised in January 2019) was formulated as a policy embodying the Group's corporate philosophy. These guidelines specify the Group's fundamental stance with respect to business activities and corporate behavior to ensure it remains a company that is beneficial to society, even in the pursuit of its economic goals. The task of ensuring Group-wide compliance with the NGK Group Code of Conduct, along with laws, regulations and corporate ethics, is the responsibility of the Compliance Committee Secretariat Council, which was established by the Compliance Committee and comprises managers from NGK divisions. The Business Ethics Committee handles matters of improper acts and legal violations involving NGK executives, and the ensuring of compliance with competition laws and overseas anti-corruption laws.

Please note that at a Board of Directors meeting in April 2020, members adopted an amendment to the "Resolution for the Development of Systems to Ensure the Appropriateness of Operations."

## Thorough Enforcement of Compliance

For the NGK Group, compliance is seen as the most important means of improving trustworthiness, and concrete systems are in place within the Group to inculcate this view among employees and ensure our business activities are conducted in an ethical, honest, and responsible manner.

## NGK Group Code of Conduct

The NGK Group Code of Conduct has been compiled as a guideline for everyone who works within the NGK Group so that they are aware of what is expected of them in terms of work-related compliance in order to ensure honesty and reliability in our business activities. All NGK Group employees will act according to this code as they fulfill their social responsibilities and build trust in NGK.

In fiscal 2019, a guidebook was created and distributed to all NGK executives and employees within Japan to help them better understand and implement the Code of Conduct. Another way in which awareness has been promoted has been with educational posters put up in workplaces.

Awareness and understanding of the Code of Conduct is also facilitated with training given to all recent graduate and mid-career hires upon their joining the company, as well as with refresher training given to employees upon their promotion.



NGK Group Code of Conduct awareness-raising poster

### Realization of a Sustainable Society



#### 1. We will create new value through the provision of products and services that contribute to society, protect the world environment, and strive to realize a sustainable society.

- By providing high quality products and services in which safety is properly considered and which comply with environmental rules, we can respond to the trust of customers and society.
- We will sincerely consider new needs and the desire for improvements from customers and society and undertake product and service development and upgrades.

### Respect for Human Rights



#### 2. We will strictly comply with international standards of human rights and respect the diversity of all people.

- We will respect human rights and undertake business activities without the use of forced labor or child labor.
- We will respect the individuality and independence of each employee and not engage in discrimination on the basis of race, citizenship, gender, age, religion, belief, existence of handicaps, sexual diversity, or any other aspect.
- We will prevent the occurrence of harassment in the workplace and take prompt and appropriate action in the case where it occurs.

### Provide a Safe and Enjoyable Work Environment



#### 3. We will provide a safe and enjoyable work environment that is comfortable for everyone to work in for all.

- We will strictly comply with laws and regulations of each country and region relating to labor, safety, and sanitation.
- We will aim to harmonize work and life, and support a variety of working styles.
- We will build up a relationship of trust through sincere debate and discussion with employees.
- We will give educational opportunities to employees and provide opportunities to stretch their motivation and abilities.



## Honest Business Activities



### 4. We will undertake fair and transparent business activities with integrity and strictly comply to international standards, laws and regulations of each country and region.

- We will undertake business activities with common sense and based on strict compliance and ethics.
- We will ensure performance of contracts and agreements with customers and counterparties.
- We will strictly comply with competition laws.
- We will never in any manner undertake bribery
- We will strictly manage personal data and confidential information.
- We will respect the intellectual property rights of other persons.
- We will set up and actively manage our import/export system.
- We will not have any involvement with organized crime and other anti-social forces.
- We will manage business risks and make efforts to prevent the occurrence of problems and promptly respond when they arise.
- In order to deter and correct improper acts, we will appropriately prepare and put into practice a whistleblowing system.

## Disclosure of Company Information and Accountability



### 5. We will increase healthy and transparent management by active disclosure of information and discussion with stakeholders.

- We will accurately and promptly disclose information required by society.
- We will take seriously the voices of our stakeholders and fulfill our obligation of accountability.

## Permeate Social Responsibility into Our Supply Chain



### 6. We will promote a structure that fulfills societal responsibilities to our trade counterparts and the supply chain overall.

- We will respect our trade counterparts as equal partners and work to build a trusting relationship for mutual development.
- Through realization of green procurement and CSR, we will contribute to the growth of the region and society.
- We will demand respect for human rights and compliance with laws and regulations from our supply chain.

## Preservation of Environment



### 7. We will work to preserve and resolve the problems of the world environment.

- We will provide products and services that contribute to preservation of the world environment.
- We will directly address the burden of business activities on the environment.
- We will work for preservation of biological diversity and sustainability.
- We will strictly comply with laws and regulations relating to the environment of each country and region.

## Cooperation with the Region and Society



### 8. We will contribute to the expansion of the region and society as a good corporate citizen.

- As one member of the region and society we will actively undertake activities that contribute to society.
- We will actively support activities that contribute to society in which employees voluntarily participate.

# Compliance Promotion Structure

In order to ensure strict observance of laws, regulations, and corporate ethics within the Group, we have established the Compliance Committee, and under this we have established the Compliance Committee Secretariat Council to serve as the committee body that ensures the proper implementation of the Compliance Committee's decisions.

## Establishment of the Global Compliance System

With the aim of building a group-wide foundation for an effective compliance scheme, the Group Compliance Department conducts education on compliance at each NGK base.

### Compliance Promotion Structure



### Mission of the Group Compliance Department

Works to establish and develop compliance as a corporate culture of the entire NGK Group

Supports Group companies in and outside Japan in strengthening and operating their compliance systems, and actively provides compliance training

As for Group companies outside Japan in particular, ensures effective compliance for our globalized operations by obtaining the most up-to-date information regarding applicable laws and social demands in each region

### Mission Achievement-focused Initiatives of Fiscal 2019



# Whistleblowing System

## Helpline

We have established a helpline to receive inquiries and reports from employees aimed at curtailing and preventing activities contrary to the spirit of the NGK Group Code of Conduct and to facilitate the quick resolution when issues occur. Each Group company outside Japan has its own helpline.

Number of Helpline Consultation Cases (at NGK)

FY2016	FY2017	FY2018	FY2019
17	43	75	55

## Hotline

We have established a hotline as a whistleblowing system for responding to fraud and legal infractions committed by senior management of NGK, and competition law and anti-corruption law-related violations. The hotline is operated by outside lawyers, with issues handled by the Business Ethics Committee, composed mainly of outside directors, who report directly to the Board of Directors.

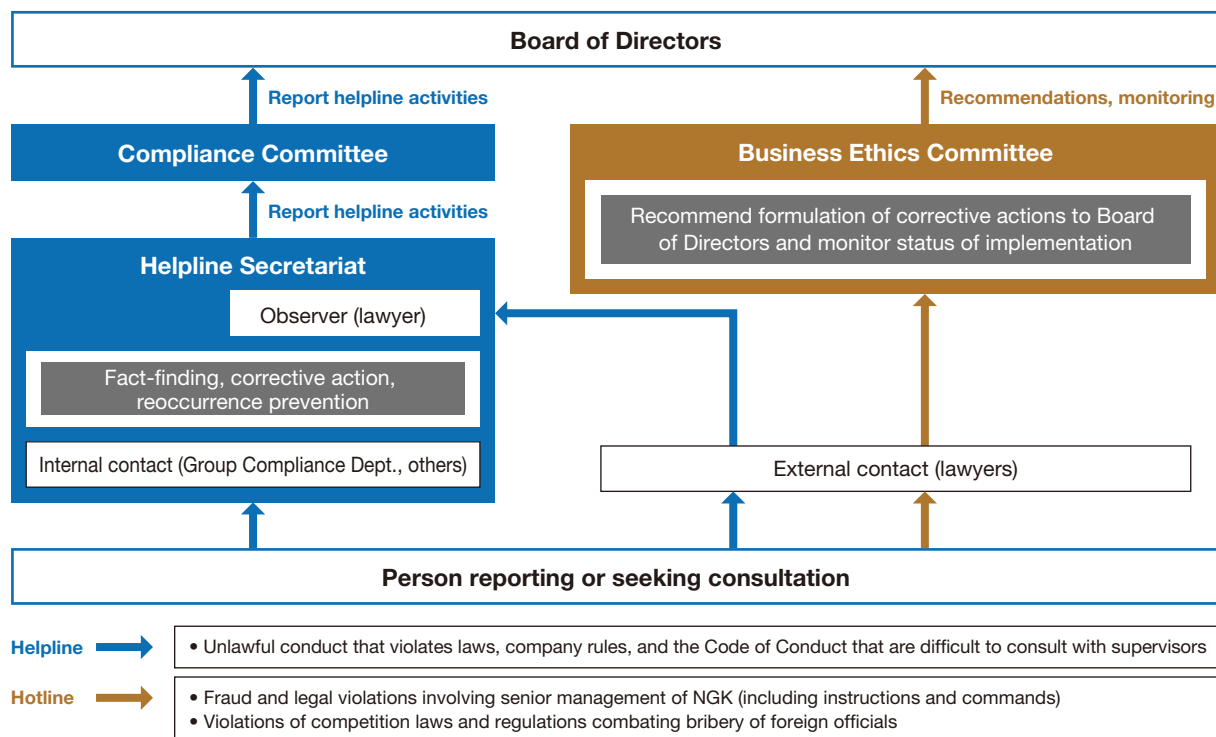
We have been pushing forward with the establishment of the hotline at Group companies outside Japan in light of the circumstances in each country. We have, however, established contact points at all Group companies outside Japan for reporting competition law and anti-corruption law-related violations.

## Whistleblowing System

A whistleblowing system is in place, which everyone who works for NGK and its Group companies (including executives, employees, employees temporarily assigned to outside companies, advisors, contract employees, temporary employees hired on a worker dispatch agreement, and subcontractor local employees) can utilize.

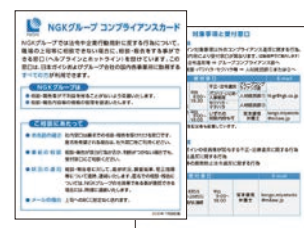
As a rule, actual names are used for consultations and reports, but outside contact points can be utilized for anonymous consultations. Those seeking advice or reporting issues are promised protection under corporate rules.

### Organization of Whistleblowing System



## Compliance Card

For thorough awareness of the whistleblowing system, we created a carry-size Compliance Card and distributed it to all employees at NGK and all Group companies in Japan.



## Promoting Compliance Education

### Compliance Education for Employees

Compliance training and awareness among corporate officers and employees is driven primarily by the Group Compliance Department and the Legal Department. In addition to career training and training for employees to be posted overseas, we provide Laws and Compliance Seminars to explain laws and regulations and to introduce case studies.

Since fiscal 2018, we have included quality compliance and contract observance as part of our career education courses.

### Compliance Education Conducted in Fiscal 2019 (Overall)

Name	Target	Content	Number of sessions
Career education	New hires	Compliance basics, competition laws, anti-bribery regulations	2
	Promoted or career-changed employees	Compliance basics	3
	Mid-career hires	Compliance basics, competition laws, anti-bribery regulations	1
	Newly appointed supervisors	General compliance, competition laws, anti-bribery regulations, quality compliance, contract observance, security export control	1
	Newly appointed managers	General compliance, competition laws, anti-bribery regulations, quality compliance, contract observance, security export control	1
	Managers promoted second grade	Compliance (including quality compliance)	1
Training for employees scheduled for postings abroad (global training)	Employees scheduled for postings abroad	Competition laws, anti-bribery regulations, security export control	2
Compliance education	Managers and sales staff of Group companies outside Japan	Lectures provided by attorneys and paper materials-based in-house training	22
	General employees of NGK and Group companies in Japan	Compliance, harassment prevention, whistleblowing system	31
Laws and compliance seminars	Managers and other targets depending on content	Corporate structure, centered on the General Meeting of Shareholders and Board of Directors Internal lecturer; 409 participants in total Suspicious email awareness training results Outside lecturer; 582 participants in total Latest trends in insider trading regulations Internal lecturer; 497 participants in total Adapting to the amended Civil Code Internal lecturer; 331 participants in total International trends in anti-corruption practices Outside lecturer; 536 participants in total	5
Other training	All directors and managers, and others connected to training content	Quality compliance seminar Outside attorney, internal lecturer	2
	Divisions and Group companies in Japan	Subcontract Act explanatory meeting	3
	Training to support new presidents of Group companies in Japan	Compliance, harassment prevention, whistleblowing system, etc.	1

### Competition Law Education Conducted in Fiscal 2019

Name	Target	Content	Number of sessions
Training for newly appointed directors	Newly appointed directors and executive officers	Outside attorney-led seminar	1
Competition law compliance lectures	All directors and managers, and sales staff of NGK and its Group companies in Japan	Streamed video of outside attorney-led seminar	1
Compliance training for Group companies outside Japan	Managers and sales staff of Group companies outside Japan	Attorney-led, live seminar; seminar conducted via video conferencing; conducted by an internal lecturer; conducted using paper-based resources	22
On-demand training on competition laws by internal lecturer	Targets depending on content	On-demand training upon divisions' request	1

### Anti-Bribery Training Conducted in Fiscal 2019

Name	Target	Content	Number of sessions
Training for sales staff	Sales staff in Japan Heads of Group companies outside Japan (some)	Outside attorney-led seminar; small-group case study discussion	5
Training on anti-bribery regulations for Group companies outside Japan	Managers and sales staff at Group companies outside Japan	Attorney-led, live seminar; seminar conducted via video conferencing; conducted by an internal lecturer; conducted using paper-based resources	22

### Other Dissemination Activities

We post the Compliance Newsletter on the company's intranet once a month. The Newsletter features a four-frame cartoon that explores familiar themes followed by detailed explanations of what we can learn from these examples.

In fiscal 2017, we began making October the annual compliance strengthening month, during which we do things such as put up educational posters and through employees of whistleblowing system.

#### Themes Covered in the Compliance Newsletter in FY2019

April	Being a good citizen	October	Corporate ethics month
May	Human rights	November	Harassment
June	Reliably executing agreements with customers	December	Human rights week
July	Sexual harassment	January	Contract compliance
August	Unlawful conduct	February	Compliance first
September	Preventing falling accidents	March	Unpaid overtime

### Compliance Newsletter



Note: Provided by "Compro Custom" compliance training tools service

### Compliance Awareness Surveys

We conduct a compliance awareness and business risk-related Corporate Risk Survey (CRS)\* within the NGK Group once every two years.

The compliance awareness-related portion of the CRS conducted in October 2019 focused on the degree and scope of awareness among Group personnel, whether they were aware of compliance violations, and what the atmosphere in their workplace was like. There was an increase in the number of responses indicative of compliance awareness among divisions compared with the previous CRS conducted in 2017. Among those responses stating that a compliance violation had occurred or was suspected, harassment was the violation most commonly given. Also, 70% of respondents stated that their workplace atmosphere was conducive or mostly conducive to openly exposing violations.

Based on the responses we have received, we will continue to work towards greater and more widespread compliance awareness, violation prevention, and improvement in workplace atmosphere.

\*CRS target respondents

- 1) Compliance awareness survey – Japan: All directors and employees (including temporary employees) / Overseas: Employees dispatched overseas
- 2) Business risks – Japan: Group S\* and higher

\*Assistant manager and supervisor class

## Corruption Prevention Structure

The NGK Group implements anti-bribery measures in order to ensure fair and transparent transactions. In fiscal 2015, we instituted anti-bribery rules for dealing with foreign public officials in order to ensure compliance with anti-bribery laws as well as ethical standards for business conduct. Further, in fiscal 2017 our Auditing Department began a review of overseas money transfers and entertainment expenses.

### Conducting Anti-Bribery Training

In fiscal 2019, we not only had our in-house lecturers provide job grade-specific training to NGK employees, we also invited outside lawyers to run small-group, interactive training sessions. In addition, we also arranged for attorney-led seminars and other training at all Group companies.

### Political Contributions

The NGK Group conforms to all applicable laws with regard to political contributions; this includes abiding by legal prohibitions against political contributions to individual politicians and ensuring that contributions to specific political organizations and parties do not exceed legally stipulated limits.

In fiscal 2019, the NGK Group had no political contribution expenditures.

## Observing Competition Laws and Other Laws and Regulations Pertaining to Business Transactions

In addition to mandating compliance with competition laws in the NGK Group Code of Conduct, we have established the Competition Laws Compliance Rules, set forth to comply with international standards, which are strictly enforced by the NGK Group both in Japan and its overseas locations. We have established these policies and procedures in order to eradicate unfair business practices and maintain fair and equitable business relationships with our business partners.

We also provide education and training aimed at ensuring widespread awareness and thorough compliance with the Competition Laws Compliance Rules and the Competition Laws Compliance Handbook. Furthermore, since fiscal 2015, we have contracted PwC Advisory LLC (hereinafter, "PwC") as our independent compliance professional. PwC is engaged to annually review the implementation status of the NGK Group's competition law compliance program per the Competition Laws Compliance Rules as well as assessing the overall oversight and reporting structures in place for NGK Group companies, both in Japan and overseas locations. On top of this, starting in fiscal 2017, PwC has also conducted interviews with the directors overseeing NGK's various business groups in order to: 1) assess the tone of each director's approach toward competition law compliance; and 2) to further enhance their awareness of these efforts. The results of these reviews are being leveraged for a variety of purposes, such as operating and improving the competition law compliance program.

Reference  
URL

**Plea Agreement with U.S. Department of Justice concerning ceramic substrates for catalytic converters**

[https://www.ngk-insulators.com/en/news/20150904\\_9235.html](https://www.ngk-insulators.com/en/news/20150904_9235.html)

### Strengthening Our Compliance System Related to Competition Laws

Year conducted	Regulation development	Creation of internal systems	Training
FY1997	<ul style="list-style-type: none"> <li>Formulated guidebook and briefing document for the Anti-Monopoly Act</li> </ul>	<ul style="list-style-type: none"> <li>Required each business group to submit a Compliance Status Report on the Anti-Monopoly Act</li> </ul>	<ul style="list-style-type: none"> <li>Lectures on the Anti-Monopoly Act by outside instructors (attorneys) (subsequently held annually)</li> </ul>
FY2011	<ul style="list-style-type: none"> <li>Formulated Competition Laws Compliance Rules</li> </ul>		
FY2012	<ul style="list-style-type: none"> <li>Created and distributed the Competition Laws Compliance Handbook</li> <li>Created and distributed an Appendix to the Competition Laws Compliance Handbook</li> </ul>	<ul style="list-style-type: none"> <li>Established an independent committee</li> </ul>	<ul style="list-style-type: none"> <li>In-house training led by legal department staff</li> <li>Lectures by local attorneys held at Group companies outside Japan</li> </ul>
FY2013			<ul style="list-style-type: none"> <li>Conducted briefing on the Competition Laws Compliance Handbook</li> <li>Invited U.S. attorneys to lecture on competition laws</li> </ul>
FY2014	<ul style="list-style-type: none"> <li>Revised Competition Laws Compliance Rules</li> <li>Launched operation of a database for advanced notifications and participation reports pertaining to meetings</li> <li>Launched operation of an e-mail monitoring system</li> <li>Revised Competition Laws Compliance Rules at North American sales subsidiaries</li> </ul>	<ul style="list-style-type: none"> <li>Introduced company-wide centralized supervision and reporting structures led by the Board of Directors (independent of the President)</li> <li>Appointed company-wide competition laws supervisory managers</li> <li>Enhanced the helpline</li> </ul>	<ul style="list-style-type: none"> <li>Conducted study meetings for newly appointed directors on competition laws and the Companies Act by Japanese and U.S. attorneys (subsequently held annually)</li> <li>Conducted study meetings on competition laws at Group companies outside Japan (corresponding to laws and regulations in each country)</li> </ul>
FY2015	<ul style="list-style-type: none"> <li>Competition Laws Compliance Rules of all NGK Group companies in and outside Japan were revised to ensure that the NGK Group's compliance system meets global standards</li> <li>Revised the Competition Laws Compliance Handbook</li> </ul>	<ul style="list-style-type: none"> <li>The Competition Laws Compliance Program was resolved by the Board of Directors</li> <li>Established the Global Compliance Office</li> <li>Contracted Pricewaterhouse Coopers to review the implementation status of the NGK Group's competition law compliance program and assess the overall oversight and reporting structures in place for NGK Group companies</li> </ul>	<ul style="list-style-type: none"> <li>Conducted study meetings on competition laws for new employees</li> <li>Distributed a DVD on competition laws to Group companies in Japan</li> <li>Upgraded training on compliance with competition laws provided in and outside Japan</li> </ul>
FY2016	<ul style="list-style-type: none"> <li>The U.S. version and Chinese version of the Competition Laws Compliance Handbook were created and distributed to Group companies in the U.S. and China, respectively</li> </ul>	<ul style="list-style-type: none"> <li>Progress status of the competition law compliance program was quarterly reported to the Business Ethics Committee, which is composed mainly of external directors. The program was promoted based on suggestions received from the Committee.</li> <li>Retained PwC Advisory to assess the status of competition law compliance</li> </ul>	<ul style="list-style-type: none"> <li>Expanded seminars led by attorneys in Asia</li> <li>Held seminars on the Companies Act and competition laws for newly appointed executive officers</li> <li>Prepared online-based training aimed at realizing broader training programs (Implemented in fiscal 2017 in Japan)</li> </ul>
FY2017	<ul style="list-style-type: none"> <li>Operating manual for database used to document competition law compliance underwent maintenance and updating</li> </ul>	<ul style="list-style-type: none"> <li>Top management of headquarters, business groups, and Group companies provided notifications about compliance with competition laws at beginning of term</li> </ul>	<ul style="list-style-type: none"> <li>Online seminars provided to 861 employees in Japan</li> </ul>
FY2018	<ul style="list-style-type: none"> <li>Clarified items that should be reported to the hotline when there were violations or fear of violation of competition laws, and revised Competition Laws Compliance Rules</li> <li>Created a working manual for compliance with competition laws</li> </ul>	<ul style="list-style-type: none"> <li>Top management of headquarters, business groups, and Group companies provided notifications about compliance with competition laws at beginning of term</li> </ul>	<ul style="list-style-type: none"> <li>Held seminars on the Companies Act and competition laws for newly appointed directors and executive officers</li> <li>Held competition law compliance lectures. All executives and managers attended.</li> </ul>
FY2019	<ul style="list-style-type: none"> <li>Revised Competition Laws Compliance Rules at NGK Electronics Devices, Inc. to strengthen that subsidiary's competition laws compliance system</li> </ul>	<ul style="list-style-type: none"> <li>Top management of headquarters, business groups, and Group companies provided notifications about compliance with competition laws at beginning of term</li> </ul>	<ul style="list-style-type: none"> <li>Held seminars on the Companies Act and competition laws for newly appointed executive officers</li> <li>Held competition law compliance lectures. All managers and those designated by competition law compliance managers attended.</li> <li>Information session provided regarding the Competition Laws Compliance Handbook's key points (on competitor information when creating email and documentation)</li> </ul>



## Strict Adherence to Laws and Regulations Relating to Export Management

As part of its full compliance efforts, NGK is engaged in strictly observing and enforcing laws and regulations related to import and export control. Based on the NGK Group Code of Conduct, we stipulate abidance with laws and regulations related to secure export control, and we carry out export control and employee training in accordance with internal rules and the Export/Import Handbook.

### Using Databases to Conduct Comprehensive Inspections and Customs Management

In response to the Foreign Exchange and Foreign Trade Act and other export control-related laws and regulations, NGK has screened exports to determine whether export licenses are required and has recorded screening results in a security export control database. However, since October 16, 2017, we have moved to a security export control system (TPP) and are performing management via this new system. Furthermore, export management with respect to the export of certain products is conducted under the Japanese government's AEO (authorized economic operator) Program.

We have used an export/import cargo management ledger to fulfill our obligations to track and record imports and exports; however, since our switch to a security export control system (TPP), we have been using the system's shipment ledger to track and record exports. We continue to use an import cargo control ledger for imports. Each department performs voluntary inspections of imports and exports under the AEO Program at the start of the fiscal year.

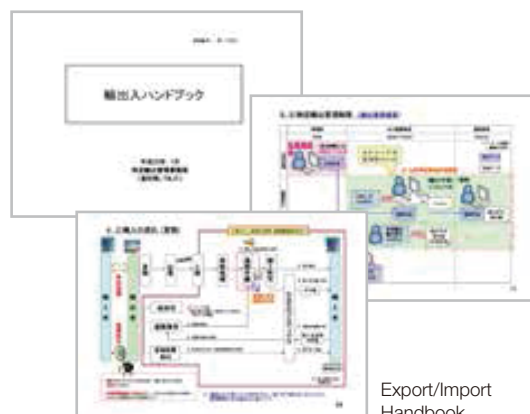
In addition, we use NACCS data (Nippon Automated Cargo and Port Consolidated System) to verify the completeness of export/import cargo management ledgers and shipment ledgers. We have achieved nearly 100% completeness for both imports and exports.

### Familiarization with the Export/Import Handbook

NGK also makes efforts toward thorough compliance with the Export/Import Handbook, which was published in fiscal 2012 and summarizes items for the observance of export/import customs clearance regulations.

In addition to publishing this handbook on the company intranet where it can be viewed throughout the entire company, we provide training to spread awareness of the content of the handbook through study meetings related to export/import management conducted in each business division.

Study meetings on the AEO Program and export/import management are held one or more times per year targeting relevant staff in divisions responsible for export and import activities. In fiscal 2019, these meetings were held 31 times, with 568 employees in attendance.



Export/Import Handbook

## Privacy Policy and Organization for Personal Information Protection

The NGK Group has established internal rules in an effort to ensure strict handling and management of personal information obtained from customers. In fiscal 2015, NGK formulated and published our Basic Policy on the Proper Handling of Specific Personal Information in response to the enforcement of the Act on the Use of Numbers to Identify a Specific Individual in Administrative Procedures. Moreover, our policies are in full compliance with the revised Act on the Protection of Personal Information, which came into effect on May 30, 2017.

Reference  
URL

Protection of personal information  
<https://www.ngk-insulators.com/en/utpolicy/>

## Information Security Policy and Structure

Within the NGK Group, proper management and operation of information assets is a collaborative effort carried out by the General Affairs and Information Technology Departments, in conjunction with other relevant administrative divisions and in line with the Basic NGK Group Information Security Policy.

Every year, personnel of NGK's Information Technology Department visit several Group companies to conduct on-site checks and provide guidance on their implementation of IT security measures. In fiscal 2019, eleven Group companies outside Japan and one Group company in Japan received such inspections.

Reference  
URL

**Basic NGK Group Information Security Policy**  
<https://www.ngk-insulators.com/en/info/policies/>

### Formulation of Basic NGK Group IT Security Standards

The rapid advance in information communication technologies and devices has made the quest for consistent IT security on a Group-wide level an urgent concern, thus in fiscal 2010 we formulated the NGK Group IT Security Standards with the goal of developing an IT security structure based on commonly shared Group standards and enhancing IT security.

Every year, each Group company drafts action plans for the enactment of countermeasures in an attempt to systematically strengthen security. Through these action plans, NGK confirms initiatives at each Group company and provides guidance as necessary.

### Information Security Training

Training sessions listed at the right are conducted throughout the year to ensure strict adherence to information security among all employees.

Training for newly hired employees and newly promoted supervisors and managers are offered to NGK employees while e-learning is offered to NGK employees and employees of some Group companies in Japan.

Training for newly hired employees	Number of participants: 143 (participation rate: 100%)
Training for newly promoted supervisors	Number of participants: 115 (participation rate: 100%)
Training for newly promoted managers	Number of participants: 50 (participation rate: 100%)
E-learning	Number of participants: 5,215 (participation rate: 100%)

Note: Excluding employees who were away on maternity leave, childcare leave, long-term business trips, etc.

## Status of Law and Regulation Violations

There were no material violations of laws or regulations within the NGK Group in fiscal 2019.

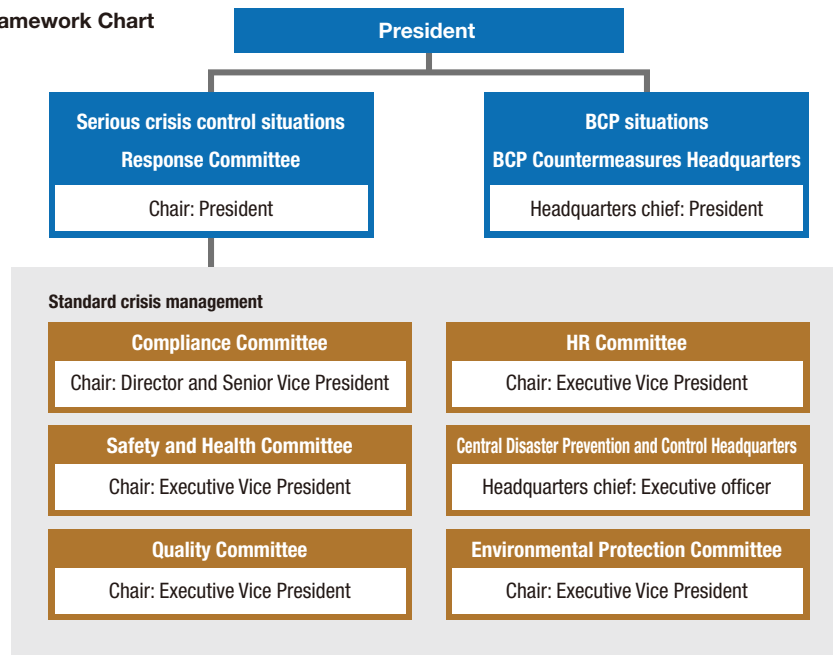
# Risk Management

## Approach to Risk Management

The NGK Group addresses the issue of serious risk by empowering the following committees to facilitate risk avoidance and prevention, in accordance with the Basic Rules of Crisis Management. Additionally, in the event of some particularly significant risk, the executive officer in charge of the Corporate Planning Office can call a meeting, which would include the president, to develop countermeasures.

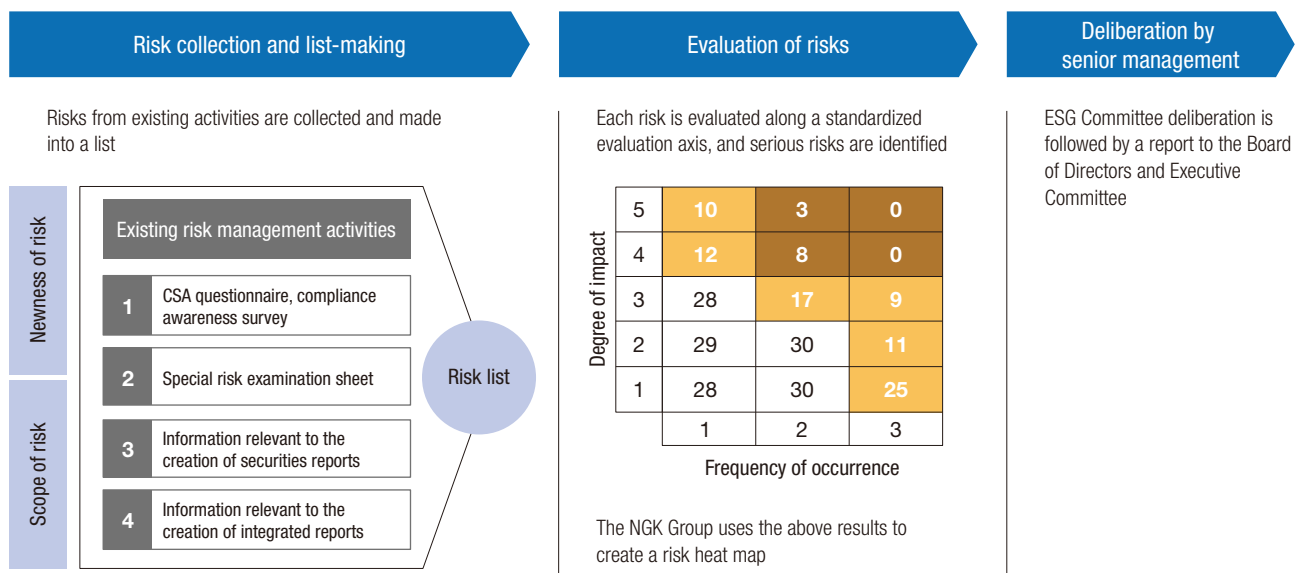
In times of increasing socio-economic uncertainty, it is important to have a heightened awareness of risk and to act before risks turn into crises. Therefore, in addition to the six committees, which we maintain in order to oversee matters of day-to-day risk, we also have in place a system by which top management can coordinate a rapid response to growing risks.

Risk Management Framework Chart



## Risk Identification Process

All risks discovered through the standard risk management process, which have the potential to affect the operational or financial situation of the Group are collected and reevaluated in order to identify any which may be serious risks. The ESG Committee will then deliberate and designate those risks that need to be managed by the Group as a whole.



## Risks, Risk Summaries, Risk Responses

- 1 Business operation risks 2 R&D-related risks 3 Legal compliance, human rights and safety, and quality-related risks  
4 Information systems-related risks 5 Currency exchange, capital, and procurement-related risks 6 Climate change and disaster-related risks

Risk	Summary	Response
1	All operations • Demonstrations, terrorism, war, infectious or communicable disease, and other unforeseen matters	• Construct globally distributed, alternative systems
	<b>1 Ceramic Products Business</b> • Drop in demand for NGK Group products due to decline in demand for internal combustion engine vehicles • Drop in market share due to rising competition from Chinese market	• Compensate for drop in demand by increasing number of new and high-performance products in line with stronger exhaust regulations • Strengthen competitiveness via technical responsiveness that anticipates environmental regulations, and via supply stability • Respond appropriately to automaker planning and changing business conditions, and then make revisions to capital investment planning
	• Inability to recover prior investment due to downturn in business, delayed timing of regulations, or other factors	
	<b>2 Process Technology Business</b> • Deterioration in performance and financial status due to declining demand for semiconductors • Delayed responsiveness to customer needs • Emergence of innovative semiconductor manufacturing process	• Work together with direct customers who manufacture semiconductor manufacturing equipment, and make revisions to equipment capacity and personnel and production systems, etc., where appropriate • Carefully monitor semiconductor manufacturing process trends and revise production systems where appropriate to ensure quick response to changes in demand • Carefully monitor customer trends and pursue production system innovation where appropriate to ensure quick response to changes in demand
	• Drop in market share due to growth of competition in kilns for lithium-ion battery cathode materials and electronic components	
	<b>3 Electronics Business</b> • Sudden drop in base station and data server demand	• Carefully monitor customer trends and pursue production system innovation where appropriate to ensure quick response to changes in demand • Carefully monitor customer trends and pursue timely technological development
	• Inability to develop new technology or release products compatible with customer technology innovations	
	<b>4 Energy Infrastructure Business</b> • Change in energy policies overseas	• Carefully monitor energy policy trends in each country and revise production systems where appropriate to ensure quick response to changes in demand • Strengthen competitiveness via technical responsiveness and supply stability • Carefully monitor customer trends and revise production systems where appropriate to ensure quick response to changes in demand
	• Trends among competitor companies and products • Delay in timing of market expansion for large-capacity and long-life batteries	
	2	• Inability to achieve adequate results with the input received due to increasingly complicated technological competition
3	<b>1 Legal compliance-related risks</b> • Decline in NGK Group's reputation due to actions in opposition to society's expectations with regard to legal and regulatory compliance, respect for human rights, contract compliance, etc.	• Utilize employee training and handbook distribution to ensure employees are familiar with relevant laws and regulations and have a more compliance-focused mindset • With regard to serious improprieties or legal/regulatory violations, undertake prevention and monitoring overseen by Business Ethics Committee, which comprises outside directors and compliance officers
	<b>2 Human rights and safety-related risks</b> • Human rights violations of workers in supply chain • Employee occupational hazards, illness, or physical and mental health problems	• Undertake human rights due diligence via HR Committee • In accordance with NGK Safety and Health Policy, identify serious hazard risks and use risk assessment to facilitate strengthening of preventative measures • Follow up on employees who work long hours, and conduct job grade-specific mental health education
	<b>3 Quality-related risks</b> • Quality-related risks such as loss of trust or profits, or contraction in growth, due to serious market complaint, contractual violation, or other unsatisfactory operations	• Have Quality Management Department perform monitoring of each Business Group's quality activities, in line with NGK Quality Policy and under direct supervision of senior management • Regarding serious issues, convene quality review meetings in order to find a solution quickly
4	• Negative impact on societal trust or business continuity due to shutdown of data processing, or to theft, destruction, manipulation, loss, etc., of data, following external cyber-attack or unauthorized system access, or after unexpected system failure or security issue	• Construct IT security system standardized for entire Group • Conduct information security training for employees
5	• Decreased sales and profits and deterioration of business performance due to strong yen • Risk of negative impact on business operations, performance, and financial situation of NGK Group as a result of financing difficulties stemming from serious regional financial crises and other factors • Rising production costs due to rising raw materials prices	• Keep production close to local demand centers, perform financing in local currency, and optimize purchasing according to currency exchange situation • Hedge risks with forward foreign exchange contracts and other financial instruments • Reflect risk in sale price to customer • Reduce costs through competitive purchasing, increased productivity, and other means
6	• Deterioration in business performance due to additional costs incurred by future international GHG regulations, environmental taxes, carbon taxes, etc.	• Invest time and resources into developing and popularizing products and services that reduce environmental impact, and into developing and introducing high-efficiency, environmentally friendly production technology
	• Operational decline due to global warming-caused sea level rise, increased size and magnitude of typhoons, increased frequency of local torrential rains, etc.	• Announced endorsement in February 2020 of Task Force on Climate-related Financial Disclosures (TCFD) recommendations. Begin taking concrete action • Promote business continuity plan (BCP) for entire Group
	• Deterioration in business performance due to shutdown of production following major disaster, fire, or other serious incident or accident • Decline in operations and negative impact on product manufacturing and sales due to emergence and spread of major infectious disease, such as new strain of influenza or coronavirus	

## Legal Risk Management at Group Companies Outside Japan

The NGK Group is engaged in strengthening its ascertainment of legal risk management status in overseas business to minimize the globalizing and diversifying risks associated with business expansion.

We ask all Group companies outside Japan to report information pertaining to the status of lawsuits, legal affairs and consultation with lawyers twice a year, and helpline usage, export controls and access to legal-related information once a year. Major issues found in such reports are reported to the Compliance Subcommittee and CSR Committee to share information.

Consultations from bases outside Japan are handled by lawyers and legal departments to avoid risks.

## Identifying and Preventing Risks Based on Questionnaire

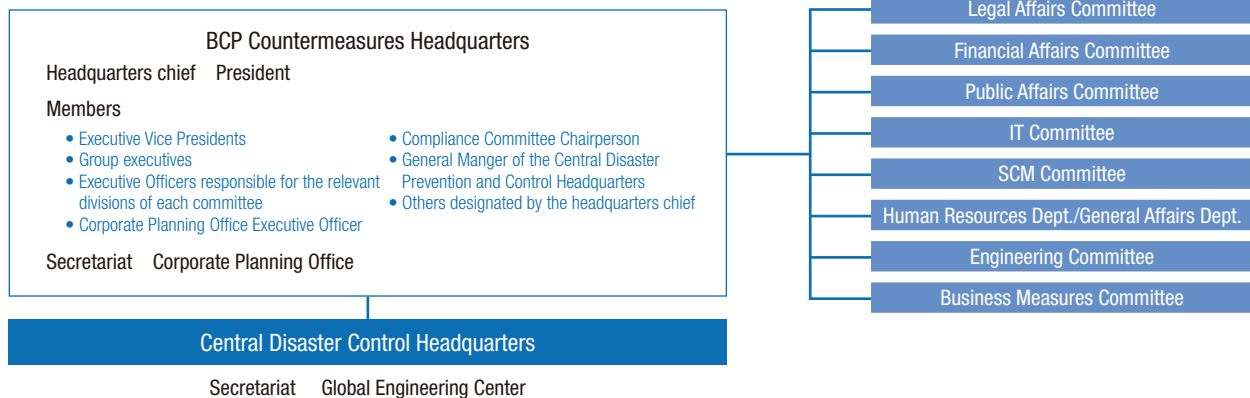
As part of efforts to enhance risk management practices, in fiscal 2019 NGK and its Group companies in Japan conducted the second CRS (Corporate Risk Survey). Combining the previously administered CSA (Control Self-Assessment) questionnaire and the compliance awareness survey, the CRS checks the understanding of respondents regarding the possibility of risk and its implications with the goal of grasping and preventing various potential risks arising from daily business operations. Based on the results of the survey, the relevant divisions and departments create measures to reduce risks.

## Business Continuity Plan (BCP) Initiatives

At NGK, we have established the BCP Countermeasures Headquarters as an organization for leading business continuity and quick recovery, under the direction of the president, in the event of a large-scale natural disaster, and we are promoting BCP for the Group as a whole. Measures include the establishment of multiple manufacturing bases and procurement sources, damage mitigation measures related to buildings and equipment, and employee safety assurance.

We conduct emergency drills assuming a major disaster with the aim of enhancing our responsiveness and adaptability in the event of a disaster crisis. In the drill, participants are instructed to take real actions faithfully according to the plan, through which we identify in detail issues related to each process and procedure and use the findings to improve the BCP.

### BCP Organizational Structure



In the event of an emergency or disaster, the Central Disaster Prevention and Control Headquarters will switch over to the Central Disaster Control Headquarters to respond to the disaster.

### FY2019 Initiatives

Education		<ul style="list-style-type: none"> <li>Invited disaster preparedness experts to present lectures aimed at heightening the crisis management mindset among headquarters members</li> <li>Hosted Web-based seminars on disaster preparedness and other topics for branches in and outside Japan</li> <li>Held disaster preparedness workshops aimed at key personnel in each division</li> </ul>
Awareness		<ul style="list-style-type: none"> <li>Distributed a disaster preparedness and emergency response guidebook to all employees of the NGK Group in Japan</li> </ul>
Improvement		<ul style="list-style-type: none"> <li>Invited disaster preparedness experts to come and hold disaster preparedness workshops aimed at key personnel in each division</li> <li>Revised our training scenarios to make them more effective</li> </ul>
Other		<ul style="list-style-type: none"> <li>Established systems for facilitating the simple and handy purchase of disaster preparedness equipment and supplies for NGK Group employees</li> </ul>

### Future Initiatives

- Initiatives aimed at resolving BCP-related issues brought into relief through workshops
- Ongoing disaster preparedness and BCP capacity assessment
- Improve the level of training and increase BCP effectiveness
- Ongoing household disaster preparedness support initiatives (seminars, disaster preparedness supplies sales events, etc.) focused on ensuring that respect for human life remains the top priority of BCP

## Response to the COVID-19 Pandemic

In light of the COVID-19 pandemic, the NGK Group activated its BCP in April 2020. Along with gathering and sharing up-to-date information about the current situation, ensuring employees are familiar with information about infection prevention, encouraging telecommuting and other options, and distributing surgical masks to employees, we are monitoring factors that hinder business activity and are developing response measures for them. All of these actions are being taken from an “employee and community safety-first” mindset, and they are aimed at ensuring we can continue our business activities in a socially responsible manner.



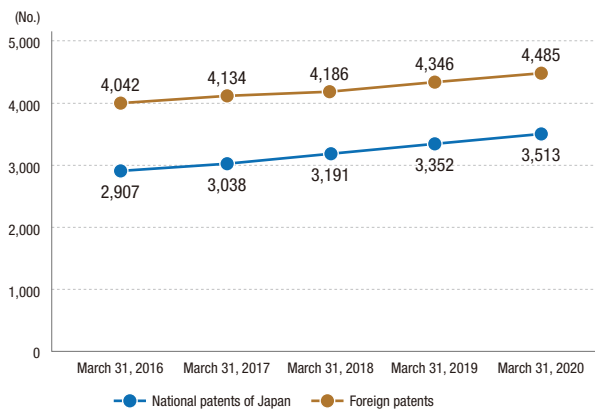
# Intellectual Property Management

The NGK Group encourages the creation of intellectual property (IP) rights and works to ensure proper protection and use of IP rights. In addition, based on the policy of respect for the rights of others and ourselves, it aims for a strategic patent network to be built within the close cooperation between the Intellectual Property Department and other divisions such as Business, Research and Development, and Technology Divisions.

Specifically, it features a patent mapping function to present the internal and external patent landscape of specific technology areas using charts and graphs, which can be easily shared within the Group.

To prevent patent infringement risks, we regularly conduct patent monitoring of other companies for product families and development themes to update our database.

Change in the Number of Patents Held

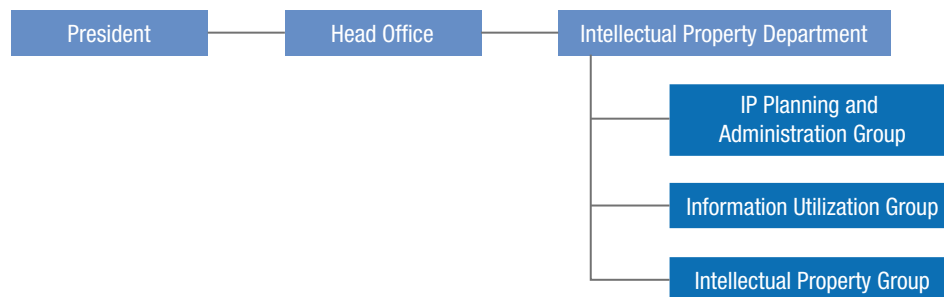


Number of Patents Held As of March 31, 2020

National patents of Japan **3,513**  
 Foreign patents **4,485**

## Intellectual Property Management System

Integrated management of intellectual property for the entire NGK Group is carried out by the Intellectual Property Department. This department also pursues intellectual property-related activities in conjunction with various other departments and divisions.



### Responsibilities of the Intellectual Property Department

Application for/acquisition of IP rights (patent, utility model, design): Establish IP rights for NGK's research and development achievements to safeguard corporate assets on a legal basis

Patent search: Analyze the current patent landscape of other companies to prevent patent infringement risks

Administration and operation of patent management systems

Administrative work relating to acquired patent rights, including maintenance of rights, operation of the employee invention compensation system, and cooperation with patent law firms

Application for/acquisition and maintenance of trademark rights for corporate logos and product trade names and marks

Copyright

In-house training of intellectual property

## Promoting Intellectual Property Training

### Training for Young Engineers

E-learning and seminars are provided with the aim of providing basic training for young engineers and of up-skilling for patent applicants.

Also, focusing primarily on young engineers in the Research and Development Department, trainings in patent search methods are conducted. These methods are taught via individual, computer-based practical training.

#### IP Training Provided in FY2019

	Intended participants	Number of participants
Patent Act introductory e-learning	Young engineers	71
Seminars on the patent system (Patent I/II/III)	Young engineers	151
Seminars to acquire skills for using the IP search program	Employees in charge, engineers	74
Small-group workshops	Young engineers in the Business and the Research and Development Divisions	113 (total for 11 sessions)

## Employee Invention Compensation System to Provide Incentives for Employee Inventions

In order to further encourage employees to create outstanding inventions, a revamped employee invention compensation system was launched in April 2019, which is divided into four categories: application incentives, registration incentives, implementation incentives, and excellent invention incentives.

The aim of the newly established “excellent invention incentives” category is to recognize, via a substantial financial reward and commendation, the contributions inventors of particularly outstanding inventions have made to NGK. Recipients are presented with either the Contributory Invention Award, which recognizes patents that have contributed significantly to business performance, and the Innovative Invention Award, which recognizes patents and patent applications for truly innovative inventions.

In fiscal 2019, after repeated and meticulous scrutiny of the applications from inventors, two applicants were chosen for the Contributory Invention Award and three for the Innovative Invention Award.

## Responding to Intellectual Property Risks Outside Japan

To support our business for automotive exhaust purification ceramic products, for which we conduct manufacturing on a global scale, we have built a mechanism for properly managing inventions at overseas plants. NGK promotes the practice of intellectual property management overseas at the same high level as in Japan.

### “Patent Searching Know-How” Special Lecture Delivered at Outside Seminar

At the Nagoya Chamber of Commerce and Industry (Naka Ward in Nagoya City) JPDS Fair in Nagoya (sponsored by Japan Patent Data Service Company), a special lecture was provided by Yohei Seguchi of the Information Utilization Group.

Japan Patent Data Service (JPDS) is a company specialized in providing intellectual property information services, patent management systems, and other resources. It holds the JPDS Fair every year in order to outline its products and to introduce new services and functionality. The theme of Seguchi’s talk was “Important Considerations when Performing Patent Searches with NewCSS\*”. He discussed various topics, such as NGK’s patent search activities and important points to remember when setting patent search queries.

\*NewCSS is the name of the patent data service.



# GRI Content Index

## 102 GENERAL DISCLOSURES

		Page
<b>GRI 102: General Disclosures 2016</b>		
<b>1 Organizational profile</b>		
102-1	Name of the organization	<ul style="list-style-type: none"> <li>• Corporate Outline (P132)</li> </ul>
102-2	Activities, brands, products, and services	<ul style="list-style-type: none"> <li>• Creating Value (P2-3)</li> </ul>
102-3	Location of headquarters	<ul style="list-style-type: none"> <li>• Corporate Outline (P132)</li> </ul>
102-4	Location of operations	<ul style="list-style-type: none"> <li>• Corporate Outline (P132)</li> </ul>
102-5	Ownership and legal form	<ul style="list-style-type: none"> <li>• Corporate Outline (P132)</li> </ul>
102-6	Markets served	<ul style="list-style-type: none"> <li>• Corporate Outline (P132)</li> <li>• Annual Securities Report, Overview of Business (P5) (Japanese)</li> </ul>
102-7	Scale of the organization	<ul style="list-style-type: none"> <li>• Corporate Outline (P132)</li> <li>• Creating Value (P2-3)</li> <li>• Annual Securities Report, Financial Highlights (P2-3) (Japanese)</li> </ul>
102-8	Information on employees and other workers	<ul style="list-style-type: none"> <li>• Overview of Employees (P51-53)</li> </ul>
102-9	Supply chain	—
102-10	Significant changes to the organization and its supply chain	NA
102-11	Precautionary principle or approach	<ul style="list-style-type: none"> <li>• ESG Management (P10-11)</li> <li>• Risk Management (P119-121)</li> </ul>
102-12	External initiatives	<ul style="list-style-type: none"> <li>• NGK Group Signs UN Global Compact (P11)</li> <li>• Position on SDGs (P12)</li> <li>• Preventing Global Warming (P24)</li> <li>• Protecting Biodiversity (P31)</li> </ul>
102-13	Membership of associations	<ul style="list-style-type: none"> <li>• NGK Group Signs UN Global Compact (P11)</li> <li>• Preventing Global Warming (P24)</li> </ul>
<b>2 Strategy</b>		
102-14	Statement from senior decision-maker	<ul style="list-style-type: none"> <li>• Message from the President (P4-9)</li> </ul>
102-15	Key impacts, risks, and opportunities	<ul style="list-style-type: none"> <li>• Creating Value (P2-3)</li> <li>• Risk Management (P119-121)</li> </ul>
<b>3 Ethics and Integrity</b>		
102-16	Values, principles, standards, and norms of behavior	<ul style="list-style-type: none"> <li>• NGK Group Philosophy (P1)</li> <li>• ESG Management (P10-11)</li> <li>• Environmental Philosophy (P14)</li> <li>• NGK Group Code of Conduct (P110-111)</li> </ul>
102-17	Mechanisms for advice and concerns about ethics	<ul style="list-style-type: none"> <li>• Whistleblowing System (P113)</li> </ul>
<b>4 Governance</b>		
102-18	Governance structure	<ul style="list-style-type: none"> <li>• Corporate Governance System (P88)</li> </ul>
102-19	Delegating authority	<ul style="list-style-type: none"> <li>• Environmental Management Frameworks and Environmental Management System (P17)</li> <li>• Corporate Governance System (P88)</li> </ul>
102-20	Executive-level responsibility for economic, environmental, and social topics	<ul style="list-style-type: none"> <li>• ESG Management (P10-11)</li> <li>• Environmental Management Frameworks and Environmental Management System (P17)</li> <li>• Corporate Governance System (P88)</li> </ul>

102-21	Consulting stakeholders on economic, environmental, and social topics	<ul style="list-style-type: none"> <li>• Environmental Management Frameworks and Environmental Management System (P17)</li> <li>• Basic Policies (P87)</li> <li>• Corporate Governance System (P88)</li> </ul>
102-22	Composition of the highest governance body and its committees	<ul style="list-style-type: none"> <li>• Board of Directors, Audit &amp; Supervisory Board, Executive Officers (P95-99)</li> <li>• Annual Securities Report, Status of Officers (P76-81) (Japanese)</li> </ul>
102-23	Chair of the highest governance body	<ul style="list-style-type: none"> <li>• Committees on Corporate Governance (P89)</li> <li>• Annual Securities Report, Overview of Corporate Governance (P67) (Japanese)</li> </ul>
102-24	Nominating and selecting the highest governance body	<ul style="list-style-type: none"> <li>• Election of Board Members, Executive Officers, and Audit &amp; Supervisory Board Members (P92)</li> <li>• Corporate Governance Report, Views on the Balance Between Knowledge, Experience, and Skills of the Board of Directors as a Whole, and Diversity and Size of the Board (P5)</li> <li>• Corporate Governance Report, Matters Concerning Functions of Business Execution, Audit and Supervision, Nomination, Determination of Remuneration, etc. (P19)</li> </ul>
102-25	Conflicts of interest	<ul style="list-style-type: none"> <li>• Election of Board Members, Executive Officers, and Audit &amp; Supervisory Board Members (P92)</li> <li>• Board of Directors, Audit &amp; Supervisory Board, Executive Officers (P95-99)</li> <li>• Reasons for Appointment of Outside Directors and Outside Audit &amp; Supervisory Board Members (P103)</li> </ul>
102-26	Role of highest governance body in setting purpose, values, and strategy	
102-27	Collective knowledge of highest governance body	<ul style="list-style-type: none"> <li>• Seminars Promote Understanding of LGBT Issues (P61)</li> </ul>
102-28	Evaluating the highest governance body's performance	<ul style="list-style-type: none"> <li>• Evaluation on the Effectiveness of the Board of Directors (P93)</li> </ul>
102-29	Identifying and managing economic, environmental, and social impacts	<ul style="list-style-type: none"> <li>• ESG Management (P10-11)</li> <li>• Evaluation on the Effectiveness of the Board of Directors (P93)</li> </ul>
102-30	Effectiveness of risk management processes	<ul style="list-style-type: none"> <li>• Risk Management (P119-121)</li> </ul>
102-31	Review of economic, environmental, and social topics	
102-32	Highest governance body's role in sustainability reporting	
102-33	Communicating critical concerns	<ul style="list-style-type: none"> <li>• Risk Management (P119-121)</li> </ul>
102-34	Nature and total number of critical concerns	
102-35	Remuneration policies	<ul style="list-style-type: none"> <li>• Remuneration of Directors and Audit &amp; Supervisory Board Members (P100-101)</li> </ul>
102-36	Process for determining remuneration	<ul style="list-style-type: none"> <li>• Remuneration of Directors and Audit &amp; Supervisory Board Members (P100-101)</li> </ul>
102-37	Stakeholders' involvement in remuneration	<ul style="list-style-type: none"> <li>• Remuneration of Directors and Audit &amp; Supervisory Board Members (P100-101)</li> </ul>
102-38	Annual total compensation ratio	<ul style="list-style-type: none"> <li>• Basic Information on Employees&gt;Employee Status (P52)</li> <li>• Remuneration of Directors and Audit &amp; Supervisory Board Members (P100-101)</li> </ul>
102-39	Percentage increase in annual total compensation ratio	
<b>5 Stakeholder Engagement</b>		
102-40	List of stakeholder groups	<ul style="list-style-type: none"> <li>• Communication with Stakeholders (P40-41)</li> </ul>
102-41	Collective bargaining agreements	<ul style="list-style-type: none"> <li>• Labor Union (P74)</li> <li>• Annual Securities Report, Overview of Employees (P12) (Japanese)</li> </ul>
102-42	Identifying and selecting stakeholders	<ul style="list-style-type: none"> <li>• Communication with Stakeholders (P40-41)</li> </ul>
102-43	Approach to stakeholder engagement	<ul style="list-style-type: none"> <li>• Communication with Stakeholders (P40-41)</li> </ul>
102-44	Key topics and concerns raised	<ul style="list-style-type: none"> <li>• System for Making Use of Customer Feedback in Management (P50)</li> <li>• Communication Activities with Procurement Partners (P78)</li> </ul>
<b>6 Reporting Practice</b>		
102-45	Entities included in the consolidated financial statements	<ul style="list-style-type: none"> <li>• Corporate Outline (P132)</li> </ul>
102-46	Defining report content and topic boundaries	

102-47	List of material topics	<ul style="list-style-type: none"> <li>• Key ESG Action Themes (P11)</li> </ul>
102-48	Restatements of information	NA
102-49	Changes in reporting	<ul style="list-style-type: none"> <li>• Key ESG Action Themes (P11)</li> </ul>
102-50	Reporting period	<ul style="list-style-type: none"> <li>• Target Period (P135)</li> </ul>
102-51	Date of most recent report	<ul style="list-style-type: none"> <li>• NGK Report Archive <a href="https://www.ngk-insulators.com/en/sustainability/backnumber.html">https://www.ngk-insulators.com/en/sustainability/backnumber.html</a></li> </ul>
102-52	Reporting cycle	<ul style="list-style-type: none"> <li>• NGK Report Archive <a href="https://www.ngk-insulators.com/en/sustainability/backnumber.html">https://www.ngk-insulators.com/en/sustainability/backnumber.html</a></li> </ul>
102-53	Contact point for questions regarding the report	<ul style="list-style-type: none"> <li>• For inquiries about this report (Back cover)</li> <li>• Inquiries about sustainability <a href="https://www.ngk-insulators.com/en/contact/sustainability.html">https://www.ngk-insulators.com/en/contact/sustainability.html</a></li> </ul>
102-54	Claims of reporting in accordance with the GRI Standards	
102-55	GRI content index	<ul style="list-style-type: none"> <li>• GRI Content Index (P125-131)</li> </ul>
102-56	External assurance	<ul style="list-style-type: none"> <li>• Independent Practitioner's Assurance (P134)</li> </ul>

### 103 Management Approach

GRI 103: Management Approach 2016		
103-1	Explanation of the material topic and its boundary	<ul style="list-style-type: none"> <li>• Key ESG Action Themes (P11)</li> </ul>
103-2	The management approach and its components	<ul style="list-style-type: none"> <li>• ESG Management (P10-11)</li> <li>• NGK's Core Policy on the Environment (P14)</li> <li>• Five-Year Environmental Action Plan (P15)</li> <li>• Environmental Management Frameworks and Environmental Management System (P17)</li> <li>• Activities for Achieving the Aichi Targets (P31)</li> <li>• Communication with Stakeholders (P40)</li> <li>• Quality Policy, Quality Objectives 2020 (P43)</li> <li>• System for Making Use of Customer Feedback in Management (P50)</li> <li>• Structure to Promote Safety and Health Management (P54)</li> <li>• System to Promote Diversity (P61)</li> <li>• Supply Chain Management System (P75)</li> <li>• Social Contribution Activity Promotion System (P79)</li> <li>• Corporate Governance System (P88)</li> <li>• NGK Group Code of Conduct (P110)</li> <li>• Compliance Promotion Structure (P112)</li> <li>• Whistleblowing System (P113)</li> <li>• Corruption Prevention Structure (P115)</li> <li>• Risk Management (P119)</li> </ul>
103-3	Evaluation of the management approach	<ul style="list-style-type: none"> <li>• Five-Year Environmental Action Plan Progress Report (P16)</li> </ul>

### 200 Economic

GRI 201: Economic Performance 2016		
201-1	Direct economic value generated and distributed	<ul style="list-style-type: none"> <li>• Annual Securities Report, Corporate Overview (P2) (Japanese)</li> </ul>
201-2	Financial implications and other risks and opportunities due to climate change	<ul style="list-style-type: none"> <li>• Creating Value (P2-3)</li> <li>• Risk Management of Water Resources and Response (P30)</li> <li>• Risks, Risk Summaries, Risk Responses (P120)</li> </ul>
201-3	Defined benefit plan obligations and other retirement plans	<ul style="list-style-type: none"> <li>• Annual Securities Report, Defined Benefit System (P122) (Japanese)</li> </ul>
201-4	Financial assistance received from government	<ul style="list-style-type: none"> <li>• Annual Securities Report, Consolidated Income Statement (P94) (Japanese)</li> </ul>
GRI 202: Market Presence 2016		
202-1	Ratios of standard entry level wage by gender compared to local minimum wage	

202-2	Proportion of senior management hired from the local community	
<b>GRI 203: Indirect Economic Impacts 2016</b>		
203-1	Infrastructure investments and services supported	<ul style="list-style-type: none"> <li>• Creating Value (P2-3)</li> <li>• NGK Report 2020, At a Glance (P59)</li> </ul>
203-2	Significant indirect economic impacts	
<b>GRI 204: Procurement Practices 2016</b>		
204-1	Proportion of spending on local suppliers	
<b>GRI 205: Anti-corruption 2016</b>		
205-1	Operations assessed for risks related to corruption	
205-2	Communication and training about anti-corruption policies and procedures	• Thorough Enforcement of Compliance (P110-118)
205-3	Confirmed incidents of corruption and actions taken	NA
<b>GRI 206: Anti-competitive Behavior 2016</b>		
206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	• Status of Law and Regulation Violations (P118)
<b>GRI 207: Tax 2019</b>		
207-1	Approach to tax	
207-2	Tax governance, control, and risk management	
207-3	Stakeholder engagement and management of concerns related to tax	
207-4	Country-by-country reporting	

### 300 Environmental

<b>GRI 301: Materials 2016</b>		
301-1	Materials used by weight or volume	• Overall Perspective of Environmental Impact (P21-22)
301-2	Recycled input materials used	• Overall Perspective of Environmental Impact (P21-22)
301-3	Reclaimed products and their packaging materials	• Five-Year Environmental Action Plan Progress Report > Recycling Rate (P16)
<b>GRI 302: Energy 2016</b>		
302-1	Energy consumption within the organization	<ul style="list-style-type: none"> <li>• Overall Perspective of Environmental Impact (P21-22)</li> <li>• INPUT (P23)</li> </ul>
302-2	Energy consumption outside of the organization	<ul style="list-style-type: none"> <li>• Overall Perspective of Environmental Impact (P21-22)</li> <li>• INPUT (P23)</li> </ul>
302-3	Energy intensity	• Five-Year Environmental Action Plan Progress Report (P16)
302-4	Reduction of energy consumption	• Five-Year Environmental Action Plan Progress Report (P16)
302-5	Reductions in energy requirements of products and services	
<b>GRI 303: Water and Effluents 2018</b>		
303-1	Interactions with water as a shared resource	• Risk Management of Water Resources and Response (P30)
303-2	Management of water discharge-related impacts	• Regulatory Compliance (P19)
303-3	Water withdrawal	• Overall Perspective of Environmental Impact > Water Withdrawal by Source, Water Discharge by Destination, Recycled Amount, Recycling Rate (P21-22)
303-4	Water discharge	• Overall Perspective of Environmental Impact > Water Withdrawal by Source, Water Discharge by Destination, Recycled Amount, Recycling Rate (P21-22)



303-5	Water consumption	<ul style="list-style-type: none"> <li>• Overall Perspective of Environmental Impact (P21-22)</li> <li>• INPUT (P23)</li> <li>• Risk Management of Water Resources and Response (P30)</li> </ul>
<b>GRI 304: Biodiversity 2016</b>		
304-1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	<ul style="list-style-type: none"> <li>• Biodiversity Survey of Company-Owned Site (P32)</li> </ul>
304-2	Significant impacts of activities, products, and services on biodiversity	
304-3	Habitats protected or restored	<ul style="list-style-type: none"> <li>• Employee Volunteering (P32)</li> </ul>
304-4	IUCN Red List species and national conservation list species with habitats in areas affected by operations	
<b>GRI 305: Emissions 2016</b>		
305-1	Direct (Scope1) GHG emissions	<ul style="list-style-type: none"> <li>• Overall Perspective of Environmental Impact (P21-22)</li> <li>• OUTPUT (P23)</li> </ul>
305-2	Energy indirect (Scope 2) GHG emissions	<ul style="list-style-type: none"> <li>• Overall Perspective of Environmental Impact (P21-22)</li> <li>• OUTPUT (P23)</li> <li>• Introduction of Green Power (P28)</li> </ul>
305-3	Other indirect (Scope 3) GHG emissions	<ul style="list-style-type: none"> <li>• Overall Perspective of Environmental Impact&gt;Reporting Scope 3 CO<sub>2</sub> Emissions (P21-22)</li> </ul>
305-4	GHG emissions intensity	<ul style="list-style-type: none"> <li>• Reducing CO<sub>2</sub> Emissions Associated with Manufacturing Activities (P24-25)</li> </ul>
305-5	Reduction of GHG emissions	<ul style="list-style-type: none"> <li>• Five-Year Environmental Action Plan Progress Report (P16)</li> <li>• Measures to Reduce CO<sub>2</sub> Emissions and Effects (P25)</li> <li>• Reduction of CO<sub>2</sub> from Logistics (P27)</li> <li>• Environmental Efficiency (P38)</li> </ul>
305-6	Emissions of ozone-depleting substances (ODS)	
305-7	Nitrogen oxides (NO <sub>x</sub> ), sulfur oxides (SO <sub>x</sub> ), and other significant air emissions	
<b>GRI 306: Waste 2020</b>		
306-1	Waste generation and significant waste-related impacts	<ul style="list-style-type: none"> <li>• Overall Perspective of Environmental Impact (P21-22)</li> <li>• Promoting Effective Use of Resources (P29)</li> </ul>
306-2	Management of significant waste-related impacts	<ul style="list-style-type: none"> <li>• Promoting Effective Use of Resources (P29)</li> </ul>
306-3	Waste generated	<ul style="list-style-type: none"> <li>• Overall Perspective of Environmental Impact (P21-22)</li> <li>• OUTPUT (P23)</li> <li>• Promoting Effective Use of Resources&gt;Amount of discarded materials generated / basic unit per net sales (P29)</li> </ul>
306-4	Waste diverted from disposal	<ul style="list-style-type: none"> <li>• Overall Perspective of Environmental Impact (P21-22)</li> <li>• OUTPUT (P23)</li> <li>• Promoting Resource Recycling (P29)</li> </ul>
306-5	Waste directed to disposal	<ul style="list-style-type: none"> <li>• Overall Perspective of Environmental Impact (P21-22)</li> <li>• OUTPUT (P23)</li> </ul>
<b>GRI 307: Environmental Compliance 2016</b>		
307-1	Non-compliance with environmental laws and regulations	NA
<b>GRI 308: Supplier Environmental Assessment 2016</b>		
308-1	New suppliers that were screened using environmental criteria	<ul style="list-style-type: none"> <li>• Promotion of CSR Procurement (P77-78)</li> </ul>
308-2	Negative environmental impacts in the supply chain and actions taken	

## 400 Social

GRI 401: Employment 2016		
401-1	New employee hires and employee turnover	<ul style="list-style-type: none"> <li>• Basic Information on Employees&gt;Turnover Ratio (P52)</li> <li>• Diversity&gt;New Graduate Hires (P61)</li> </ul>
401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	<ul style="list-style-type: none"> <li>• Enhancement of Work-Life Balance Systems (P67)</li> <li>• Systems Operated Independently by NGK (P68)</li> </ul>
401-3	Parental leave	<ul style="list-style-type: none"> <li>• Overview of Childrearing Support Measures and Users (P68)</li> </ul>
GRI 402: Labor/Management Relations 2016		
402-1	Minimum notice periods regarding operational changes	
GRI 403: Occupational Health and Safety 2018		
403-1	Occupational health and safety management system	<ul style="list-style-type: none"> <li>• Occupational Safety and Health (P54-57)</li> </ul>
403-2	Hazard identification, risk assessment, and incident investigation	<ul style="list-style-type: none"> <li>• Occupational Safety and Health (P54-57)</li> </ul>
403-3	Occupational health services	<ul style="list-style-type: none"> <li>• Occupational Safety and Health (P54-57)</li> <li>• Health Management (P58-60)</li> </ul>
403-4	Worker participation, consultation, and communication on occupational health and safety	<ul style="list-style-type: none"> <li>• Occupational Safety and Health (P54-57)</li> <li>• Health Management (P58-60)</li> </ul>
403-5	Worker training on occupational health and safety	<ul style="list-style-type: none"> <li>• Occupational Safety and Health (P54-57)</li> <li>• Health Management (P58-60)</li> </ul>
403-6	Promotion of worker health	<ul style="list-style-type: none"> <li>• Occupational Safety and Health (P54-57)</li> <li>• Health Management (P58-60)</li> </ul>
403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	
403-8	Workers covered by an occupational health and safety management system	<ul style="list-style-type: none"> <li>• Occupational Safety and Health (P54-57)</li> <li>• Health Management (P58-60)</li> </ul>
403-9	Work-related injuries	<ul style="list-style-type: none"> <li>• Work-Related Accidents, Lost Worktime Accidents and Non-Lost Worktime Accidents by Type, Severity Rate (number of lost workdays per 1,000 hours worked), Rate of Lost-Worktime Injuries (number of lost-worktime accidents per a million hours worked), Number of Deaths from Work-Related Accidents (P54-57)</li> </ul>
403-10	Work-related ill health	<ul style="list-style-type: none"> <li>• Occupational Safety and Health (P54-57)&gt;Rate of Occupational Disease</li> </ul>
GRI 404: Training and Education 2016		
404-1	Average hours of training per year per employee	<ul style="list-style-type: none"> <li>• Training Participant Summary (P70)</li> </ul>
404-2	Programs for upgrading employee skills and transition assistance programs	<ul style="list-style-type: none"> <li>• Human Resource Development (P70-73)</li> </ul>
404-3	Percentage of employees receiving regular performance and career development reviews	<ul style="list-style-type: none"> <li>• Human Resource Development (P70-73)</li> </ul>
GRI 405: Diversity and Equal Opportunity 2016		
405-1	Diversity of governance bodies and employees	<ul style="list-style-type: none"> <li>• Diversity (P61-65)</li> <li>• Board of Directors, Audit &amp; Supervisory Board, Executive Officers (P95-99)</li> <li>• Corporate Governance Report, Views on the Balance Between Knowledge, Experience, and Skills of the Board of Directors as a Whole, and Diversity and Size of the Board (P5)</li> </ul>
405-2	Ratio of basic salary and remuneration of women to men	
GRI 406: Non-discrimination 2016		
406-1	Incidents of discrimination and corrective actions taken	
GRI 407: Freedom of Association and Collective Bargaining 2016		
407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	

GRI 408: Child Labor 2016		
408-1	Operations and suppliers at significant risk for incidents of child labor	<ul style="list-style-type: none"> <li>• Human Rights (P42)</li> <li>• Promotion of CSR Procurement (P76-77)</li> </ul>
GRI 409: Forced or Compulsory Labor 2016		
409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	<ul style="list-style-type: none"> <li>• Human Rights (P42)</li> <li>• Promotion of CSR Procurement (P76-77)</li> </ul>
GRI 410: Security Practices 2016		
410-1	Security personnel trained in human rights policies or procedures	
GRI 411: Rights of Indigenous Peoples 2016		
411-1	Incidents of violations involving rights of indigenous peoples	NA
GRI 412: Human Rights Assessment 2016		
412-1	Operations that have been subject to human rights reviews or impact assessments	• Human Rights (P42)
412-2	Employee training on human rights policies or procedures	• Human Rights (P42)
412-3	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	
GRI 413: Local Communities 2016		
413-1	Operations with local community engagement, impact assessments, and development programs	• Social Contribution Activities in Collaboration with Local Communities and NPOs (P81-83)
413-2	Operations with significant actual and potential negative impacts on local communities	
GRI 414: Supplier Social Assessment 2016		
414-1	New suppliers that were screened using social criteria	• Promotion of CSR Procurement (P76-77)
414-2	Negative social impacts in the supply chain and actions taken	
GRI 415: Public Policy 2016		
415-1	Political contributions	• Political Contributions (P115)
GRI 416: Customer Health and Safety 2016		
416-1	Assessment of the health and safety impacts of product and service categories	• Quality Activity System (P44)
416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	NA
GRI 417: Marketing and Labeling 2016		
417-1	Requirements for product and service information and labeling	
417-2	Incidents of non-compliance concerning product and service information and labeling	NA
417-3	Incidents of non-compliance concerning marketing communications	NA
GRI 418: Customer Privacy 2016		
418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	• Status of Law and Regulation Violations (P118)
GRI 419: Socioeconomic Compliance 2016		
419-1	Non-compliance with laws and regulations in the social and economic area	NA

## Corporate Outline

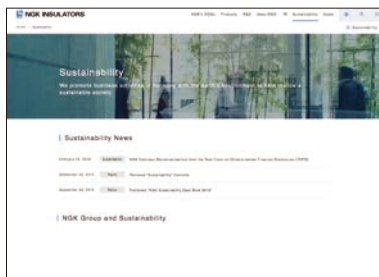
(as of March 31, 2020)

### Corporate Outline

Company name	NGK Insulators, Ltd.	Consolidated subsidiaries	55
Address	2-56 Suda-cho, Mizuho, Nagoya 467-8530, Japan Telephone + (81) 52-872-7181	Equity-method affiliates	2
Established	May 5, 1919	Employees	NGK 4,224 Consolidated 20,000
Paid-in capital	69.8 billion yen	Stock Exchange Code	5333
Net sales	442.0 billion yen (consolidated, for FY2019)		

### NGK Group Website

This is the Sustainability Data Book 2020, a report on NGK's sustainability-related efforts. Our website also has sustainability information, in addition to detailed corporate information and investor relations.



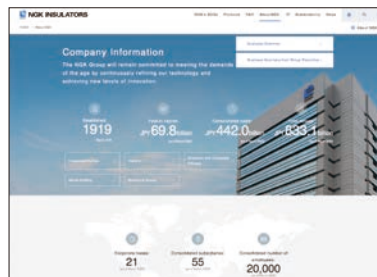
#### Sustainability

English

<https://www.ngk-insulators.com/en/sustainability/>

Japanese

<https://www.ngk.co.jp/sustainability/>



#### About NGK

English

<https://www.ngk-insulators.com/en/info/>

Japanese

<https://www.ngk.co.jp/info/>



#### Investor Relations

English

<https://www.ngk-insulators.com/en/ir/>

Japanese

<https://www.ngk.co.jp/ir/>

## NGK Group

### NGK Insulators

Head Office / Tokyo Main Office / Osaka Branch / Chita Site / Komaki Site / Ishikawa Plant / Sapporo Sales Office / Sendai Sales Office / Hokuriku Sales Office / Hiroshima Sales Office / Takamatsu Sales Office / Fukuoka Sales Office

### Group Companies

#### ■ Japan

ENERGY SUPPORT CORPORATION / KANSAI ENERGYS CORPORATION  
 KYUSHU ENERGYS CO., LTD. / HOKURIKU ENERGYS CORPORATION  
 ENERGYS SANGYO CORPORATION / AKECHI INSULATORS, LTD.  
 NGK OKHOTSK, LTD. / NGK METEX CORPORATION  
 NGK FINE MOLDS, LTD. / NGK CERAMIC DEVICE CO., LTD.  
 NGK ELECTRONICS DEVICES, INC. / SOSHIN ELECTRIC CO., LTD.  
 SOSHIN DEVICE CO., LTD. / SOSHIN POWERTECH CO., LTD.  
 RISSHIN ELECTRONICS CO., LTD. / NGK CHEMITECH, LTD.  
 NGK FILTECH, LTD. / NGK ADREC CO., LTD.  
 NGK KILNTECH CORPORATION / NGK SPORTS PLANNING CO., LTD.  
 NGK LIFE CO., LTD. / NGK YU-SERVICE CO., LTD. / NGK LOGISTICS, LTD.

#### ■ America

NGK-LOCKE, INC. / NGK CERAMICS USA, INC.  
 NGK AUTOMOTIVE CERAMICS USA, INC. / NGK MATERIAL USA, INC.  
 NGK CERAMICS MEXICO, S. DE R.L. DE C.V.  
 NGK METALS CORPORATION / NGK INSULATORS OF CANADA, LTD.  
 FM INDUSTRIES, INC. / NGK ELECTRONICS USA, INC.  
 SOSHIN ELECTRONICS OF AMERICA INC.

#### ■ Europe, Africa

NGK ITALY S.R.L. / NGK BERYLCO U.K. LTD. / NGK CERAMICS EUROPE S.A.  
 NGK EUROPE GMBH / NGK DEUTSCHE BERYLCO GMBH  
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NGK Head Office



# Independent Practitioner's Assurance

# Deloitte.

デロイト トーマツ

(TRANSLATION)

## Independent Practitioner's Assurance Report

August 31, 2020

Mr. Taku Oshima,  
President,  
NGK Insulators, Ltd.

Masahiko Sugiyama  
Representative Director  
Deloitte Tohmatsu Sustainability Co., Ltd.  
3-2-3, Marunouchi, Chiyoda-ku, Tokyo

We have undertaken a limited assurance engagement of the energy-origin CO<sub>2</sub> emissions on a non-consolidated basis on page 21 (the "CO<sub>2</sub> Information") for the year ended March 31, 2020 included in the "NGK Sustainability Data Book 2020 (PDF)" (the "Report") of NGK Insulators, Ltd. (the "Company").

### The Company's Responsibility

The Company is responsible for the preparation of the CO<sub>2</sub> Information in accordance with the calculation and reporting standard adopted by the Company (the Report page 23). CO<sub>2</sub> quantification is subject to inherent uncertainty for reasons such as incomplete scientific knowledge used to determine emissions factors and numerical data.

### Our Independence and Quality Control

We have complied with the independence and other ethical requirements of the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants, which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior. We apply International Standard on Quality Control 1, *Quality Control for Firms that Perform Audits and Reviews of Financial Statements, and Other Assurance and Related Services Engagements*, and accordingly maintain a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

### Our Responsibility

Our responsibility is to express a limited assurance conclusion on the CO<sub>2</sub> Information based on the procedures we have performed and the evidence we have obtained. We conducted our limited assurance engagement in accordance with the International Standard on Assurance Engagements ("ISAE") 3000, *Assurance Engagements Other than Audits or Reviews of Historical Financial Information*, issued by the International Auditing and Assurance Standards Board ("IAASB"), ISAE 3410, *Assurance Engagements on Greenhouse Gas Statements*, issued by the IAASB and the *Practical Guideline for the Assurance of Sustainability Information*, issued by the Japanese Association of Assurance Organizations for Sustainability Information.

The procedures we performed were based on our professional judgment and included inquiries, observation of processes performed, inspection of documents, analytical procedures, evaluating the appropriateness of quantification methods and reporting policies, and agreeing or reconciling with underlying records. These procedures also included the following:

- Evaluating whether the Company's methods for estimates are appropriate and had been consistently applied. However, our procedures did not include testing the data on which the estimates are based or reperforming the estimates.
- Performing interviews of responsible persons and inspecting documentary evidence to assess the completeness of the data, data collection methods, source data and relevant assumptions applicable to the sites.

The procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for, a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had we performed a reasonable assurance engagement.

### Limited Assurance Conclusion

Based on the procedures we have performed and the evidence we have obtained, nothing has come to our attention that causes us to believe that the CO<sub>2</sub> Information is not prepared, in all material respects, in accordance with the calculation and reporting standard adopted by the Company.

The above represents a translation, for convenience only, of the original Independent Practitioner's Assurance report issued in the Japanese language.

Member of  
Deloitte Touche Tohmatsu Limited



## External Evaluation / Editorial Policy

### External Evaluation

In September 2019, NGK was selected for the 4th consecutive year for the Dow Jones Sustainability Asia Pacific Index in the Dow Jones Sustainability Indices, a major index for socially responsible investment.

NGK has been honored with other selections. These include the MSCI Japan ESG Select Leaders Index, an operator of

Japan's Government Pension Investment Fund (GPIF); the MSCI Japan Empowering Women (WIN) Index; and the 2020 Certified Health & Productivity Management Outstanding Organizations Recognition Program (White 500), managed by Japan's Ministry of Economy, Trade and Industry (METI) and the Nippon Kenko Kaigi.



2020 CONSTITUENT MSCI JAPAN  
ESG SELECT LEADERS INDEX

MSCI JAPAN  
EMPOWERING WOMEN INDEX (WIN)



### Editorial Policy

The NGK Sustainability Data Book 2020 reports details of the NGK Group's ESG information. Stakeholders can find separate information on what strengths the NGK Group has to offer, how we are creating value, how we plan to grow further, and how we are contributing to sustainable development of society and the entire world in the NGK Report 2020. This data book has been prepared and edited in line with the Global Reporting Initiative (GRI) Sustainability Reporting Standards.

#### ■ Target Organization

Indicated along with each article and data report included in this data book.

#### ■ Target Period

April 1, 2019 to March 31, 2020

#### ■ Forward-looking Statements

This report contains forward-looking statements such as performance forecasts. These forward-looking statements are based on things such as information currently available to NGK and on certain assumptions judged to be rational. Please note that actual performance may differ from forecasts due to various unforeseen reasons.



## NGK INSULATORS, LTD.

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**Design:** This report has been designed, with a focus on typeface, color scheme and diagram style, to improve legibility and readability.