

Corporate Social Responsibility Report

# CSR Report 2014



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**We Will Continue to Create Products with Value to Society as a Global Manufacturing Company** .....



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## Editorial Policy

### Reference Guidelines

Ministry of the Environment's Environmental Reporting Guidelines (2012) and the Global Reporting Initiative's (GRI) Sustainability Reporting Guidelines (Versions 3.1 and 4.0).

### Target Organization

As each example differs, data is presented individually for each article in the report.

### Target Period

April 1, 2013-March 31, 2014

### Sections Based on CSR Promotion Actions

NGK clearly states eight actions for promoting CSR (see P. 14) defined in the NGK Group Guidelines for Corporate Behavior and establishes targets for each action every fiscal year. Sections in the CSR Report 2014 correspond to these eight actions for promoting CSR, resulting in a report that captures the actual state of NGK's CSR activities.

### This Report and Other Reporting Media

Although there are no objectives set for promotion activities in this CSR Report, important Group and company activities are reported in addition to activities set forth in the CSR promotion action objectives.

All the information in this report is also available on the CSR pages of NGK's corporate website, which includes a wider range of content than is covered in this printed report.

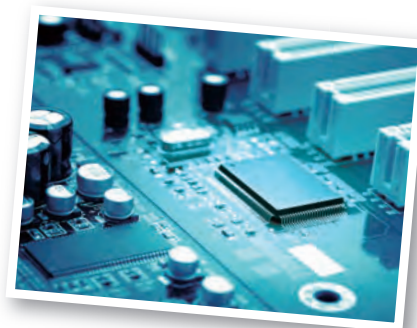
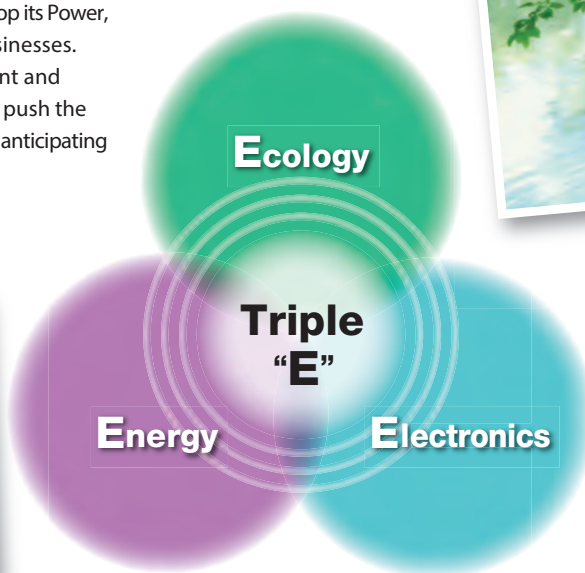




# Providing Advanced Ceramics Technologies in the Triple “E” Domain

## Business Fields and Segments

The NGK Group leverages its core ceramics technology in the fields of Ecology, Energy, and Electronics (the “Triple-E” Fields) to develop its Power, Ceramic Products and Electronics businesses. NGK aims to conserve the environment and contribute to society by continuing to push the boundaries of new ceramics technology anticipating future needs.



## Corporate Outline

**Company name:**  
NGK INSULATORS, LTD.

**Address:**  
2-56, Suda-cho, Mizuho, Nagoya  
467-8530, Japan  
Telephone + (81) 52-872-7171

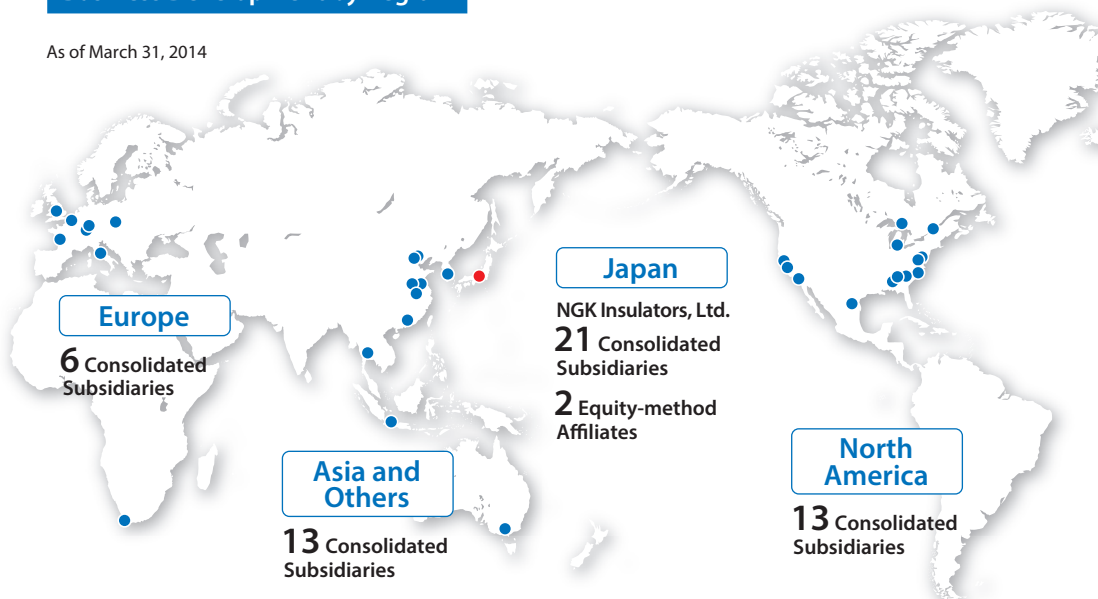
**Establishment:**  
May 5, 1919

**Paid-in Capital:**  
69.8 billion yen  
(As of March 31, 2014)

**Employees:**  
NGK: 3,531  
Consolidated: 13,210  
(As of March 31, 2014)

## Business Development by Region

As of March 31, 2014



# NGK Products Used in All These Ways

Products using proprietary ceramics technologies provide the world with stable electric power, reduce environmental impact and create advanced electronic products that contribute to the creation of a better society.

Supporting the stable supply of energy



Reducing environmental impact



Contributing to the advancement of electronic products



## Power Business

### ● NAS<sup>®</sup> Battery Systems for Electric Energy Storage

NAS batteries enable megawatt-class electricity storage, facilitate power demand peak cut and provide stable and renewable energy.



NAS<sup>®</sup> battery systems for electric energy storage

### ● Insulators and Electric Power Equipment

Power transmission, substation and distribution insulators and related products support the stable supply of energy in over 100 countries around the world.



Insulators for power transmission

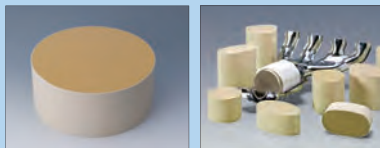


UHV gas bushing

## Ceramic Products Business

### ● HONEYCERAM<sup>®</sup> Honeycomb Ceramics for Automotive Catalytic Converters to Purify Exhaust Gases

Automobile exhaust gas is purified by catalytic metals on the ceramics surface.



Large size HONEYCERAM<sup>®</sup>

HONEYCERAM<sup>®</sup> for gasoline-powered vehicles

### ● Diesel Particulate Filters (DPFs)/ NOx Sensors

Providing various products for the purification of diesel engine exhaust gas.



Cordierite (left) and silicon carbide (right) DPFs

High-precision in-vehicle NOx sensor

### ● Industrial Processing Products

Contributing to water purification in each process, manufacturing solar cell and lithium-ion batteries.



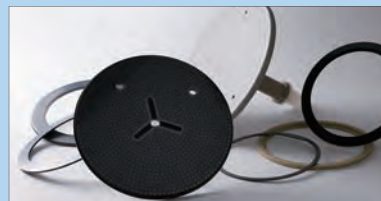
Industrial heating systems

Various ceramic filters

## Electronics Business

### ● Ceramics for Semiconductor Manufacturing Equipment

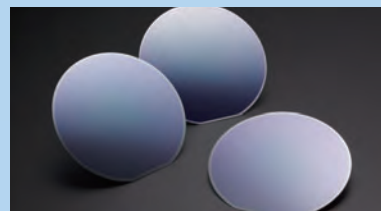
Fine ceramics enabling semiconductor miniaturization and improved productivity.



Ceramics for semiconductor manufacturing equipment

### ● Ceramics for Electric and Electronic Machinery

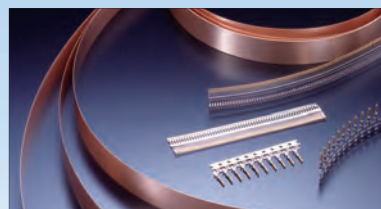
Providing bonded wafers and piezoelectric micro-actuators for digital devices, electronic components for telecommunications equipment and HICERAM<sup>®</sup> translucent alumina ceramics.



Bonded wafers

### ● Beryllium Copper Alloy

Contributing to improved reliability and miniaturization technologies with conductive spring material for electrical appliances and automobiles.

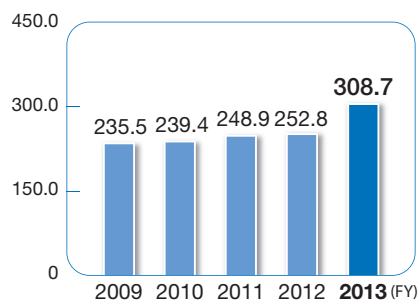


Beryllium copper strip

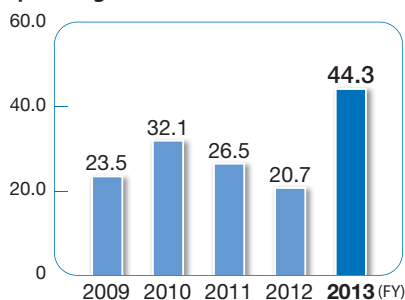
## Business Overview (Consolidated)

Data includes target company consolidated results (21 domestic, 32 overseas companies as of March 31, 2014)

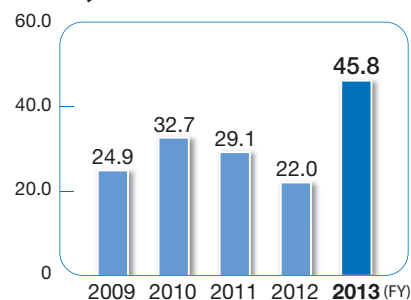
**Net Sales** (Billions of yen)



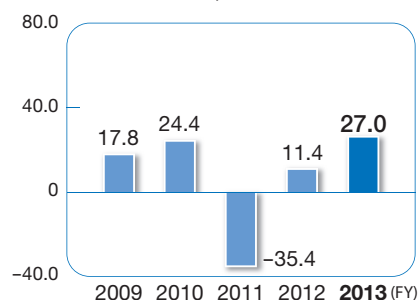
**Operating Income** (Billions of yen)



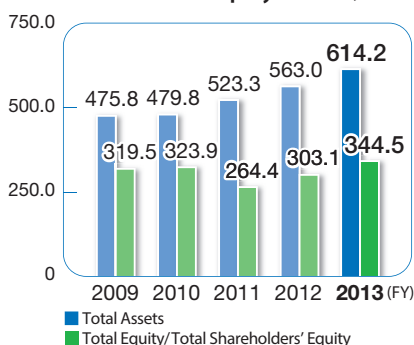
**Ordinary Income** (Billions of yen)



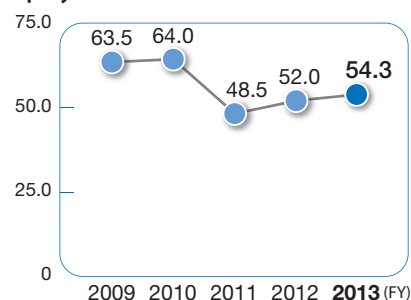
**Net Income** (Billions of yen)



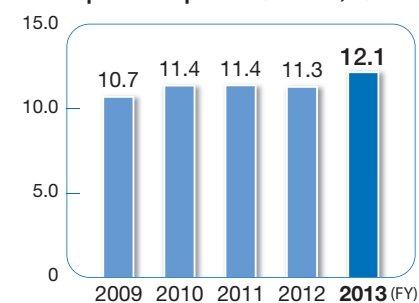
**Total Assets, Total Equity/  
Total Shareholders' Equity** (Billions of yen)



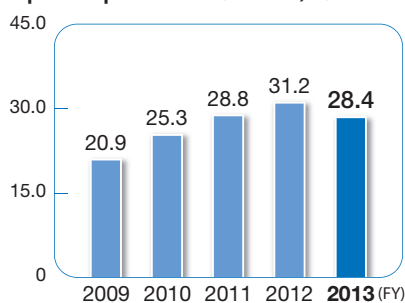
**Equity Ratio** (%)



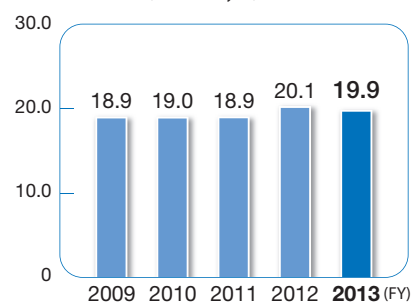
**Research and Development Expenses** (Billions of yen)



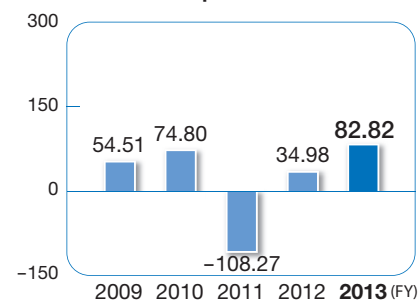
**Capital Expenditures** (Billions of yen)



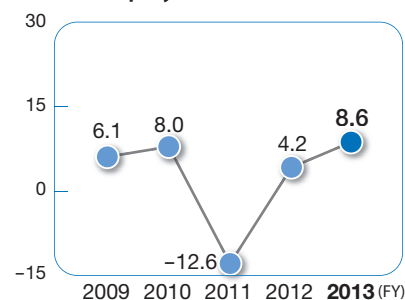
**Depreciation and Amortization** (Billions of yen)



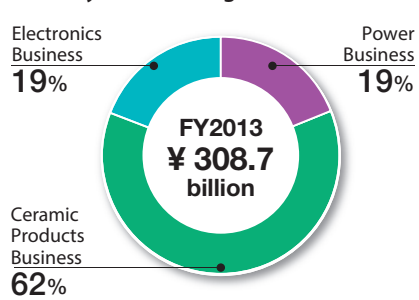
**Net Income (Loss) per Share** (Yen)



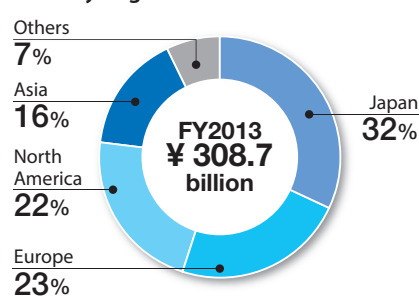
**Return on Equity** (%)



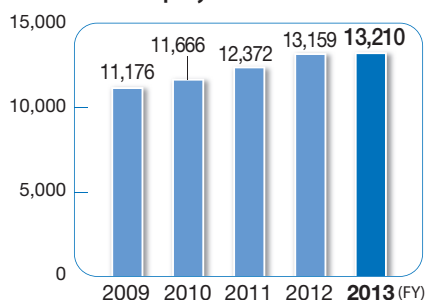
**Sales by Business Segment**



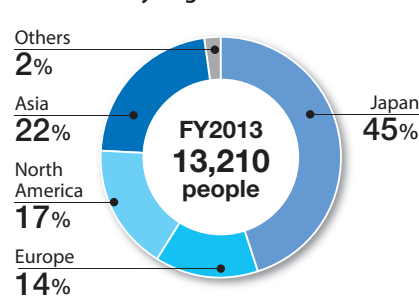
**Sales by Region**



**Number of Employees**



**Workforce by Region**





# We Will Continue to Create Products with Value to Society as a Global Manufacturing Company



In June 2014, I assumed the post of NGK President.

While listening sincerely to the voices of all our stakeholders, I will embody the NGK corporate philosophy and live up to the expectations and trust of all our stakeholders to contribute to the development of a sustainable society.

In fiscal 2013, NGK Group net sales increased due to steady demand for automotive-related products in the Ceramic Products Business, increased demand for ceramics used for semiconductor manufacturing equipment in the Electronics Business and the resumption of shipments of NAS<sup>®</sup> battery systems for electric energy storage in the Power Business. In terms of income, profits also increased as a result of higher sales and the effects of the weakened yen. Although we expect an ongoing increase in demand for automotive-related products and ceramics for semiconductor manufacturing equipment, we also anticipate intensified competition. Furthermore, the competitiveness of some of our other insulators, electronic components and industrial processing products has declined and needs to be strengthened.

Given this business environment, to continue achieving sustainable growth as a manufacturing company amid rapidly changing and increasingly intensified global competition, we will promote ongoing enhancements including strengthening competitiveness over the medium term (new/reformed manufacturing structures) and create new products and businesses (2017 Challenge 30) as important management strategies.

## Profile

March 1980	Joined NGK INSULATORS, LTD.
April 1999	General Manager, Engineering Department, NAS Battery Division, Power Business Group
April 2004	General Manager, NAS Battery Division, Power Business Group
June 2007	Vice President & General Manager, NAS Battery Division, Power Business Group
June 2011	Senior Vice President & General Manager, NAS Battery Division, Power Business Group
April 2012	Senior Vice President & Group CTO, Power Business Group
April 2014	Senior Vice President & CTO
June 2014	President



## Making Strong Businesses Even Stronger

The creation of a leaner business structure and speedier management decision-making are indispensable for competing successfully in the global marketplace.

We will make strong businesses even stronger by creating an efficient global manufacturing structure and higher performance products, establishing innovative manufacturing methods to bolster competitiveness and enhancing the profitability of existing businesses.

At the same time, in business areas where we continue to struggle, we will reorganize manufacturing bases in Japan and overseas and restructure businesses to thoroughly streamline them and reduce costs in an attempt to quickly transform them into profit-generating structures.

## Creating New Products and Business

Having announced 2017 Challenge 30, a company-wide objective calling for new products to comprise 30% of net sales in fiscal 2017, the research and development and business divisions are working together to create new products and businesses.

We are moving steadily forward with the launch of bonded wafers for SAW filter applications and a wavelength conversion element for green laser light sources commercialized in April 2014 and aiming for the early market release of GaN wafers used for ultra-high brightness LEDs, HICERAM® (translucent alumina ceramic) wafers and other wafers for electronic devices.

Additionally, we are also engaged in the commercialization of promising developed products including subnano-ceramic membranes, solid oxide fuel cells (SOFC) and chip-type ceramic secondary batteries.

As we move forward with research and development, we are creating technologies and products totally new to the company. We aim to create new businesses that will be future pillars of growth through product development utilizing the NGK Group's strength in ceramics technologies.

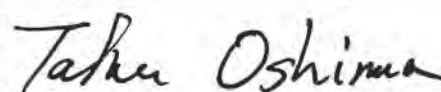
## As a Member of the Global Business Community

Nearly 70% of NGK Group net sales originate overseas and opportunities to conduct business overseas are increasing as never before. In overseas business today, there is a strong demand for the prevention of international corruption and compliance with laws and ordinances related to imports, exports and competition laws.

As a member of the global business community, we will heighten management transparency and autonomy, further strengthen corporate governance and compliance structures and promote the creation of an environment in which all NGK Group employees observe rules and guidelines for corporate behavior, possess strong ethics, a fair sense of values and act in accordance with international standards for judgment criteria.

Furthermore, for the NGK Group to realize peak performance as a global enterprise, each employee must be highly motivated to make efforts on a daily basis to enhance their individual skills. To this end, we will focus efforts on cultivating diverse human resources and encouraging employees to think freely and flexibly while taking on new challenges.

The CSR Report 2014 introduces topics related to CSR promotion items that highlight the goals of NGK Group CSR initiatives. After reading this publication, as well as the full report posted on our corporate website, we invite you to offer your direct and honest opinions on NGK's initiatives.



**Taku Oshima**  
President

# Creating New Products and Businesses in Response to Societal Issues and Needs on a Global Scale

To realize a sustainable society through the provision of products that contribute to the resolution of various societal issues, NGK is taking up the challenge of creating new products and businesses utilizing ceramics and other proprietary technologies.

## 2017 Challenge 30

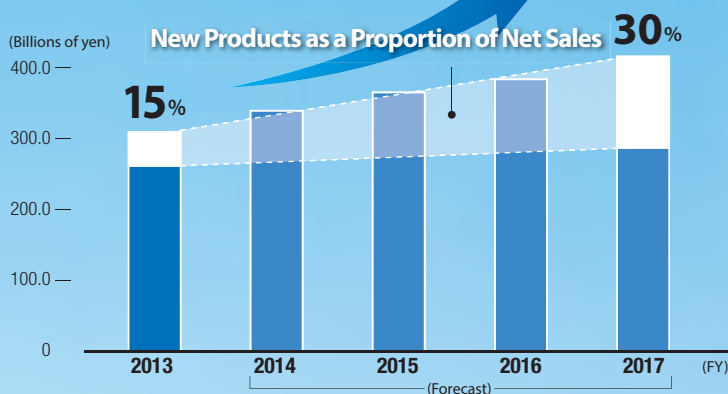
### Aiming for a Sales Ratio in Which New Products Comprise 30% of Net Sales

Having announced 2017 Challenge 30, an objective calling for new products to comprise 30% of net sales in fiscal 2017, NGK is engaged in the creation of new products and businesses.

Making use of NGK's strong business domains and wide variety of proprietary technologies, we aim to create new products and businesses that contribute to the resolution of issues facing our customers and society. To achieve this objective, we must further increase the range of our development themes.

To this end, in April 2012 we established the New Business Planning Office with aim of searching for promising development themes. We are promoting the search for development themes in areas enabling use of proprietary technologies and societal issues and needs.

Targets for New Products as a Proportion of Net Sales





## Business Domains

- Search in domains peripheral to strong businesses
- Search in domains able to make use of core technologies

## Customer Approach

- Strengthen ability to access markets and customers
- Dig deeper into customer needs
- Augment new applications for existing products

## Internal Structure

- Cooperation between research and development and business divisions
- Amass internal knowledge
  - Enhance external coordination

## Strengthen Research Theme Search Activities



## Energy Problems

- Decrease environmental impacts
- Stable energy provision
- Pursue energy conservation



## Next-Generation Car Societies

- Reduce CO<sub>2</sub> emissions
- Convert to alternative energy
- Create a safe transit system

## Needs

## Societal Issues and Expectations



## Advanced Information and Telecommunications

- Response to rising volume of information and telecommunications
- Pursuit of power conservation and high integration
- Popularization of wearable devices



## Safe and Reliable Societies

- Food production and distribution innovations
- Support for an aged society
- Contribute to preventative medical treatments



New  
Business  
Planning  
Office

# Searching for New Product and Business Research Themes Utilizing Strong Business Lines and Proprietary Technologies

## Going Beyond Divisional and Group Frameworks to Create a Coordinated Structure

The mission of the New Business Planning Office is to search for research themes utilizing proprietary technologies and areas peripheral to strong businesses including automotive and power. To this end, NGK established a company-wide, horizontally deployed working group that crosses divisional and Group company boundaries to begin searching for research themes in strong business lines including automotive and power.

Additionally, to match seeds with needs, we are conducting company-wide online brainstorming and implementing various measures, including open innovation meetings with experts, to incorporate technologies and ideas from outside the company. NGK is taking up the challenge of creating new products and businesses utilizing ceramics and other proprietary technologies to realize a sustainable society through the provision of products that contribute to the resolution of various societal issues.

## Formulating Research Themes Matching Seeds and Needs

The matching of NGK technologies and expertise (seeds) with customer and market needs is connected to the formulation of promising development themes necessary for the creation of new products and businesses.

Four themes based on customer and market needs and issues were established as a result of company-wide online brainstorming, which began in October 2013. Proposals to resolve these issues are currently being deliberated, with approximately 170 employees from the sales, engineering and planning departments in each business division engaged in discussions online. These discussions lead to the formulation of research themes linked to the creation of new products and businesses through coordination among the research and development and business divisions.



## Utilizing a Wide Range of Proprietary Technologies

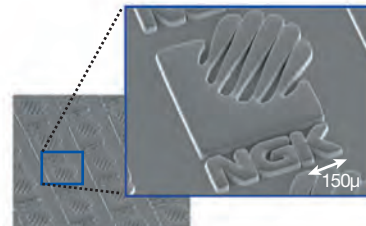
### For Example, Three-Dimensional Forming Technologies Realizing Complex and Detailed Shaping

NGK provides numerous three-dimensional shaped ceramics through gel-cast forming technologies realizing high dimensional precise and complex shaping, as well as imprint forming technologies realizing ultra high dimensional precision detailed shaping.

Contributes  
to smaller  
size and  
weight of  
products



Gel-cast forming prototype



Imprint forming prototype





## Maximizing Use of External Technologies and Ideas

From here on out, it will be difficult to achieve innovation if development is only conducted in-house. Accordingly, NGK holds open innovation meetings where NGK engineers and experts from outside the company share and exchange ideas and search for development ideas through brainstorming sessions focused on core technologies including three-dimensional ceramics forming technologies. Going forward, NGK plans to hold technical study meetings attended by experts, including veteran specialists from other companies and university professors.

### Automotive Working Group Initiatives

The automotive working group searches for new products in the automotive area and shares sales routes to all auto manufacturers and automotive parts and equipment makers with the rest of the company.

Although NGK's flagship product HONEYCERAM® targets automotive exhaust systems, there are still many opportunities to develop new markets for this product, such as internal combustion systems, power semiconductors, energy storage batteries and other electrical systems.

From now, NGK will strengthen coordination among business divisions and accelerate the company-wide horizontal creation of new products.

### Power Working Group Initiatives

The power working group coordinates with the Power Business Division on activities aimed at discovering the potential needs of power companies.

It also exchanges information with experts in the power industry and searches for needs in accordance with upcoming structural changes in the industry and the introduction of new technologies.

Going forward, the power working group plans to hold study meetings with the Power Business Group and Group companies to thoroughly discuss development theme ideas.

## Message from the New Business Planning Office General Manager

### Strengthening the Search for Promising Development Themes Linked to the Resolution of Societal Issues

NGK possesses a number of proprietary technologies focused on ceramics that are useful for resolving societal needs in areas including energy, the environment and information telecommunications. I think these technologies can be utilized in an even wider range of areas.

In the two years since the New Business Planning Office was established, we have formulated initiatives and invigorated coordination within and outside the company. The seeds of promising development are finally ready to sprout as we move toward the cultivation phase. Having created measures aimed at discovering needs, we are searching for development themes and strengthening support for the search activities being conducted in each division. We will further enhance coordination within and outside the company to new levels. As an organization responsible for the upstream activity of searching for development themes, we want to contribute to the rapid creation of new products and businesses linked to the resolution of societal issues.

### Hideki Shimizu

General Manager,  
New Business  
Planning Office,  
NGK



## For Example, Porosity Control Technologies

### It is possible to Separate a Molecular Level

By controlling the pore size of porous ceramics precisely, fine particulate materials and bacteria can be separated, removed or sifted liquids and vapors at the molecular level.

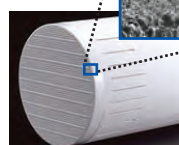
**Innovating  
the industrial  
separation  
process**

Pore size  
Under 10  
micrometers



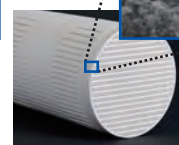
Diesel particulate filter

Pore size  
Under 100  
nanometers



Microfiltration  
membrane

Pore size  
Under 1  
nanometer



Sub-nano-ceramic  
membrane

# Engaging in New Product Development to Meet Societal Needs Through a Variety of Technologies

New  
product

## Contributing to High-Speed, High-Quality Telecommunications

### Bonded Wafers for SAW Filter Applications

Surface acoustic wave (SAW) filters are a key electronic component in smartphones and other radio communication devices. An important function of the devices is to select specific radio waves which affect communication quality. However, conventional SAW filters have temperature dependence of its properties due to thermal expansion and contraction.

NGK developed the world first bonded wafers for SAW filters that have lower thermal expansion of wafer surfaces by shaping thin piezoelectric single crystal layer on base Si substrate. NGK contributes a development of high-performance SAW filters which realize higher communication speeds and reduced bandwidth congestions.

New  
product

## Achieving the Highest Level of Conversion Efficiency in the World

### Wavelength Conversion Elements for Green Laser Light Sources

Wavelength conversion element utilizing bonded wafer technology is a key device which realizes wavelength conversion from infrared to green light.

NGK's unique structure for these devices achieves the highest level of conversion efficiency in the world, enabling the miniaturization and cost reduction of devices including high-luminosity, high-resolution business projectors.

In  
develop-  
ment

## Bringing Innovation to Electronic Devices

### Wafers for Electronic Devices

Utilization of NGK proprietary technologies involving the bonding of dissimilar materials, the growing of crystals and the processing of monocrystal substrate laminates results in high-performance wafers that bring innovation to electronic devices.

In addition to new bonded wafers for SAW filter applications, NGK has successfully developed gallium nitride (GaN) wafers with exponentially enhanced luminescent efficiency for light-emitting diode (LED) light sources and large diameter HICERAM® wafers (made from translucent alumina ceramics) enabling an alternative to sapphire wafers.

In  
develop-  
ment

## Combining High-Output Efficiency and Durability

### Solid Oxide Fuel Cell Module

Fuel cells that generate power through the chemical reaction between hydrogen and oxygen are attracting attention as a source of clean energy.

NGK develops ceramic solid oxide fuel cell (SOFC) modules, a backbone power generation component providing the highest power generation efficiency among fuel cells. SOFC are expected to become the next-generation power generation system. NGK's proprietary design using all ceramics provides a combination of high-output efficiency and durability.







## Realizing Smaller and Lighter Electronic Devices

### Chip Type Ceramic Secondary Batteries

Safer and more reliable than conventional lithium-ion batteries, all-solid state batteries are highly anticipated to be the next-generation of batteries. Using proprietary crystalline technologies, NGK develops chip type ceramic secondary batteries using positive electrodes with significantly heightened lithium-ion conductivity.

Ultra-thin (0.2 mm) with high energy density, these batteries are operable under high temperatures (120 degrees Celsius). Enabling adjacent mounting with semiconductor components on the circuit board, these batteries realize the miniaturized and lightweight specifications of wearable technology and other next-generation devices forecast to spread in the near future.



Solar Watch



Smart Card



Wearable Device



## Purifying the Exhaust of Direct-Injection Gasoline Engine Vehicles

### Gasoline Particulate Filter (GPF)

NGK developed the GPF ceramic filter to remove PM from the exhaust of direct-injection gasoline engine vehicles, with mass production set to launch in 2016 at NGK Ceramics Polska.

Under the emission regulation Euro 6 to be enforced from September 2014, a restriction on the PM concentration from gasoline engine vehicles will be added to the restriction on diesel engine vehicles. As a result, direct-injection gasoline engine vehicles are expected to require particulate material filters since they emit more PM than ordinary gasoline engine vehicles, causing demand for GPFs to increase in Europe.



## Conserving Energy in the Drying Process

### Wavelength Control Drying System

The drying process is indispensable for the manufacture of films and sheets for thin displays, electrode plates for lithium-ion batteries and capacitors and separators. The wavelength control drying system developed by NGK achieves drying through bombardment by infrared light with wavelengths that have effective evaporative properties, enabling significantly reduced energy consumption and shortening drying time to less than half that required in traditional drying methods utilizing hot air.

Low temperatures are maintained inside the furnace, making this system applicable for flammable solvents and resin films sensitive to heat.



## Enhancing Safety During Quick Charges

### Heat-Suppressing Beryllium Copper

NGK developed a beryllium copper alloy combining high strength and conductivity remarkable for its heat suppression properties that is as strong as titanium copper alloy with nearly five times more conductivity.

When used for smartphone and battery terminals of charging device, this alloy enhances safety during quick charges by suppressing the generation of heat. It also possesses the high strength and long fatigue life required for electric and hybrid vehicle connectors that carry large currents, facilitating safe quick charging.

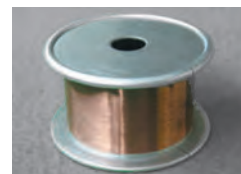


## Realizing Smaller and Lighter Industrial Equipment

### Zirconium Copper Wire

Zirconium copper wire is an extremely thin (0.02-0.2 mm diameter) wire possessing high strength and conductivity created through a wire drawing process using an alloy combining zirconium and copper.

Demand for conductive wire of thin diameter used in components has increased due to the smaller and lighter size and the higher efficiency of industrial equipment. Using zirconium copper wire for coil and windings for motor and as the conductive wire in coaxial cable enables smaller sizes, lighter weights and higher efficiency.



# Basic Approach to Corporate Governance and Status Initiatives

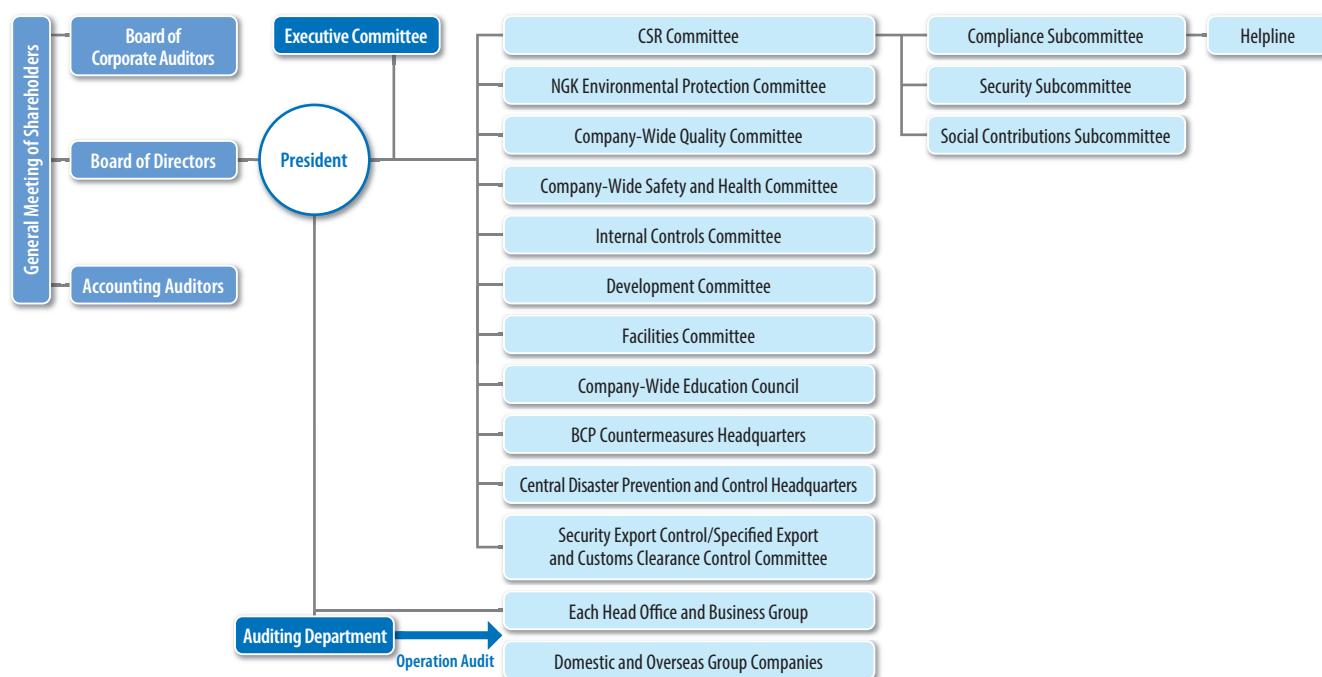
To ensure appropriate operations and transparent management, NGK has set its sights on establishing and maintaining an organization capable of swiftly responding to changes in the business environment, and a fair and open management system emphasizing the interests of shareholders. These components make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

To put this approach into practice, NGK has chosen a governance structure anchored by a Board of Corporate Auditors. In addition to the General Meeting of Shareholders, the Board of Directors and the Board of Corporate Auditors, 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.

Considering the importance of swift and optimal decision making and execution for responding promptly to changes in the operating environment, NGK introduced a corporate officer system, thus separating the management decision-making and supervision functions from business execution functions, and clearly defining the responsibilities of both.

## Corporate Governance Structure



### Board of Directors

The Board of Directors, comprising 12 members as of June 27, 2014, deliberates matters prescribed in the Companies Act, as well as other important management issues, providing oversight for the execution of duties by directors. The Board of Directors includes the appointment of two highly independent external directors, who are expected to play a proper role in strengthening corporate governance through suggestions and advice to the Board on all management issues.

### 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 monitoring 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 Law. The NGK Group Guidelines for Corporate Behavior were formulated as a policy embodying the Group's corporate and management philosophies and as a guide for the actions we take.

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 CSR Committee,

### Board of Corporate Auditors

The Board of Corporate Auditors consists of four members, each of whom attend Board of Directors meetings and conduct other activities to audit the execution of duties by directors. To further strengthen corporate governance, the Board of Corporate Auditors includes the appointment of two highly independent external corporate auditors, each possessing significant business experience. One of our standing corporate auditors spent many years engaged in NGK financial operations, and one external corporate auditor has many years of operational experience in financial institutions; both possess a considerable degree of financial and accounting knowledge.

meanwhile, is responsible for a range of activities that include formulating NGK Group Guidelines for Corporate Behavior, ensuring compliance with laws, regulations and corporate ethics is fully entrenched throughout the Group, and developing responses to incidents and accidents it believes could significantly impact the Company. The committee's actions are designed to maintain and improve the level of the Group's internal control system.

### Promoting CSR Activities Through the Establishment of Various Committees

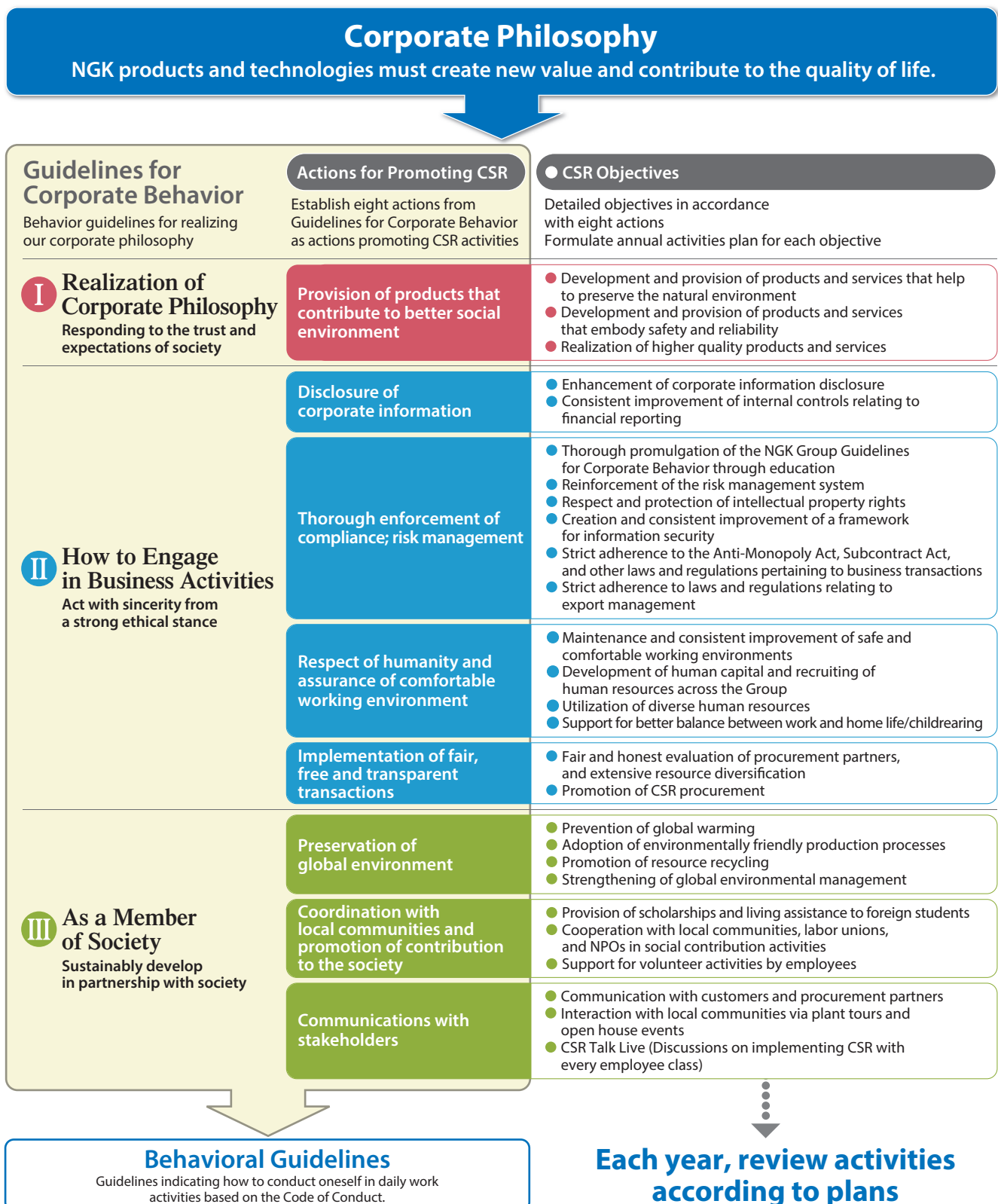
Aiming to contribute to the development of a sustainable society, the NGK Group has established the CSR Committee, the NGK Environmental Protection Committee, the Company-wide Quality Committee, the Company-wide Safety and Health Committee, and the Internal Controls Committee to promote Group CSR activities.



# CSR Activities Basic Concepts and Systems

Through the embodiment of our corporate philosophy, the NGK Group will continue to provide products and services that contribute to the creation of a better social environment and bring new value to society.

By putting these activities into practice, we are working together with our customers, employees and business partners to fulfill our social responsibility as a company in every respect, an act essential to meeting the public's expectations and earning its trust.












# CSR Objectives and Achievements

**I** Realization of Corporate Philosophy

**II** How to Engage in Business Activities

**III** As a Member of Society

Note: In this table, "NGK" refers to NGK INSULATORS Ltd. (non-consolidated) and "Group company" refers to Group companies in Japan and overseas.

Plan	Do	Check * Evaluation	Reference	Action
FY2013 Targets	FY2013 Activities Summary			FY2014 Targets
Actions for Promoting CSR: Provision of Products That Contribute to Better Social Environment				
● Development and Provision of Products and Services That Help to Preserve the Natural Environment				
1 Strengthen global production system in response to increased demand for automotive-related parts. (NGK Group)	1 Strengthened global production system in response to expanding demand for automotive-related products.	○	 P. 20	● Strengthen production system in response to market trends for automotive-related products.
● Development and Provision of Products and Services That Embody Safety and Reliability				
1 Make effort to restore confidence in NAS battery, continuously receive orders (NGK)	1 Received order for large number of NAS batteries from a European transmission system operator	○	 P. 22	● Promote market development and cost reductions
● Realization of Higher Quality Products and Services				
1 Thoroughly eliminate quality risk by reinforcing design reliability and aim for further improvement of production quality. (NGK Group)	1 Created guidelines to strengthen design review (DR)  2 Conducted company-wide DR on company-wide review activities and important themes	○  ○	 P. 21	● Enhance design quality in light of deterioration, improve manufacturing methods to control variation
Actions for Promoting CSR: Disclosure of Corporate Information				
● Enhancement of Corporate Information Disclosure				
1 Continue to provide fair and honest information disclosure in a timely and appropriate manner. (NGK Group)	1 Conducted ongoing fair and honest information disclosure in a timely and appropriate manner.	○	 WEB	● Enhance and continue to provide fair and honest information disclosure in a timely and appropriate manner
● Consistent Improvement of Internal Controls Relating to Financial Reporting				
1 Reduce the number of issues identified by audits. (NGK Group)  2 Raise efficiency in assessment and audit of processes that were rated favorably in the previous fiscal year. (NGK Group)	1 Completed all improvements during fiscal year despite additional findings  2 Raised efficiency in assessment and audit of processes that were rated favorably.	△  ○	 WEB	● Curtail and clearly improve items identified by audits  ● Raise efficiency in assessment and audit of processes that were rated favorably in the previous fiscal year.
Actions for Promoting CSR: Thorough Enforcement of Compliance; Risk Management				
● Thorough Promulgation of the NGK Group Guidelines for Corporate Behavior Through Education				
1 Continue thorough awareness and inculcation of NGK Group Guidelines for Corporate Behavior and behavioral guidelines (NGK Group)	1 Familiarized employees with career training, created a paper on awareness summarizing guidelines for corporate behavior distributed to all employees	○	 WEB	● Continue thorough awareness and inculcation of NGK Group Guidelines for Corporate Behavior and behavioral guidelines
● Reinforcement of the Risk Management System				
1 Continue to have the CSR Committee periodically confirm and follow up on the status of Company-wide risk countermeasures. (NGK Group)  2 Conduct fourth CSA questionnaire targeting all of NGK. (NGK)	1 CSR Committee met three times, followed up on status of risk countermeasures.  2 Distributed the fourth Control Self Assessment (CSA) questionnaire to 1,467 people including NGK executive directors and standing corporate auditors	○  ○	 WEB	● The CSR Committee will regularly follow-up on the status of Company-wide risk countermeasures.  ● Distribute CSA questionnaire to all domestic Group companies
● Respect and Protection of Intellectual Property Rights				
1 Enhance awareness-raising programs for managers. (NGK)  2 Continue to conduct small group discussion-based seminars for young engineers. (NGK)	1 Launched intellectual property strategy after China intellectual property risk workshop held last fiscal year  2 Patent Map Usage explanatory meetings were held two times and small group discussion-based seminars were held eight times for young engineers.	○  ○	 P. 24	● Conduct awareness program for managers on innovator intellectual property management  ● Continue to conduct small group discussion-based seminars for young engineers.
● Creation and Consistent Improvement of a Framework for Information Security				
1 Enhance each division through training and other support (NGK)	1 Complete at all Group companies.	○	 WEB	● Continue to follow up on security measures and strengthen software management



✱ Evaluation standards:

○ Target achieved △ Achieved 80% or more of objective ✕ Less than 80% of target achieved



Indicates activities covered in this report.



Indicates activities not included in this report that are covered on our website.

Plan	Do	Check	Action
FY2013 Targets	FY2013 Activities Summary	* Evaluation	Reference

## Actions for Promoting CSR: Thorough Enforcement of Compliance; Risk Management

### ● Strict Adherence to the Anti-Monopoly Act, Subcontract Act, and Other Laws and Regulations Pertaining to Business Transactions

1 Regularize competition law seminars led by lawyers at Group companies in the United States and Europe (NGK Group)	1 Conducted competition law seminars at Group companies in Korea, the United States and Europe	○	P. 23 <ul style="list-style-type: none"> <li>Continue regularization of seminars, etc.</li> <li>Promote thorough awareness and use of competition laws handbook</li> </ul>
2 Make employees fully aware of and observe the Competition Law Compliance Handbook. (NGK Group)	2 Conveyed latest information on competition laws to inculcate thorough awareness	○	

### ● Strict Adherence to Laws and Regulations Relating to Export Management

1 Raise divisions to a higher level by supporting their educational and other activities. (NGK)	1 Launched integrated management of customs clearance status of company-wide import cargo and inculcated thorough awareness of import/export handbook	○	P. 24 <ul style="list-style-type: none"> <li>Ongoing study meetings and training related to import/export management</li> </ul>
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## Actions for Promoting CSR: Respect of Humanity and Assurance of Comfortable Working Environment

### ● Maintenance and Consistent Improvement of Safe and Comfortable Working Environments

1 Follow up at Company-wide level to ensure all risks are identified and countermeasures formulated. (NGK)	1 Strengthened three-year risk assessment scenario, conducted activities surpassing second year objectives	○	P. 28 <ul style="list-style-type: none"> <li>Focus efforts on safety training to prevent accidents before they occur</li> <li>Promote 5S workplace certification activities, continue to develop company-wide</li> <li>Continue health management for employees who routinely work long hours.</li> </ul>
2 Extend Company-wide activities to get approval as a 5S workplace. (NGK)	2 489 teams at three plants conducted activities, all teams acquired certification	○	
3 Continue health management for employees who routinely work long hours. (NGK)	3 Number of employees receiving health checks and interviews declined significantly 67% compared to the previous fiscal year	○	

### ● Development of Human Capital and Recruiting of Human Resources across the Group

1 Optimize training by considering the needs of divisions and participants. (NGK)	1 Conducted systematic human resources training corresponding to position and occupation	○	<ul style="list-style-type: none"> <li>Plan highly effective human resource training</li> <li>Promote systematic training in attempt to strengthen onsite capabilities</li> <li>Ongoing language training (Goal: 80% of new hires score 600 or higher on the TOEIC). (NGK)</li> </ul>
2 Systematic training aimed at strengthening on-site capabilities. (NGK Group)	2 13 new trainees joined training for the development of in-house instructors, bringing the total number to 25 people	○	
3 Ongoing language training (Goal: 80% of new hires score 600 or higher on the TOEIC). (NGK)	3 85% of new hires achieved a TOEIC score of 600 points or higher	○	

### ● Utilization of Diverse Human Resources

1 Achieve legally stipulated employment rate of 2.0% after requirement increase (NGK)	1 Achieved the 2.07% legally mandated ratio.	○	P. 26 <ul style="list-style-type: none"> <li>Maintain legally stipulated employment rate of 2.0% or higher</li> <li>Continue to promote use of system for transferring to general employment jobs.</li> </ul>
2 Continue to promote use of system for transferring to general employment jobs. (NGK)	2 As of fiscal 2013, a total of 69 employees had transferred jobs	○	

### ● Support for Better Balance between Work and Home Life/Childrearing

1 Thorough observance of rules regarding working hours. (NGK Group)	1 Exchanged opinions and launched study meetings involving labor and management	○	P. 26 <ul style="list-style-type: none"> <li>Work with labor union to promote rectification of long working hours</li> <li>Increase use of expanded childrearing support measures.</li> </ul>
2 Increase use of expanded childrearing support measures. (NGK Group)	2 Expanded use of system for working shorter hours while raising children	○	

## Actions for Promoting CSR: Implementation of Fair, Free and Transparent Transactions

### ● Fair and Honest Evaluation of Procurement Partners, and Extensive Resource Diversification

1 Conduct assessment on 10% of total number of suppliers (NGK)	1 Conducted visits and assessment on 10% (98 firms) of all suppliers	○	P. 29 <ul style="list-style-type: none"> <li>Conduct assessment on 10% of total number of suppliers</li> <li>Promote consideration of collected questionnaire results</li> </ul>
2 Ensure multiple suppliers for important materials. (NGK Group)	2 Conducted questionnaire on BCP targeting top 50 suppliers	○	

### ● Promotion of CSR Procurement

1 We will integrate Green Procurement Guidelines into CSR Procurement Guidelines and advance from the diffusion (understanding) to factual investigation stage to the compliance (agreement) to expansion stage. (NGK Group)	1 Combined green procurement and CSR procurement guidelines advanced from "penetration (understanding)—factual investigation" phase to "compliance (agreement)—expansion" phase Added principles regarding "controversial minerals, bribery, human rights and labor" to CSR Procurement Guidelines	○	P. 29 <ul style="list-style-type: none"> <li>Carry on with "compliance (agreement—expansion)" phase, expand CSR procurement by seeking agreement from new suppliers</li> </ul>
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# CSR Objectives and Achievements

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Plan	Do	Check	Action
FY2013 Targets	FY2013 Activities Summary	* Evaluation	Reference

## Actions for Promoting CSR: Preservation of Global Environment

### ● Prevention of Global Warming

<b>1</b> Curb CO <sub>2</sub> emissions. Domestic: Emissions volume of less than 181,000 metric tons Basic unit per net sales 8% reduction from previous fiscal year* <sup>1</sup> Overseas: Basic unit per net sales 5% reduction from previous fiscal year* <sup>1</sup>	<b>1</b> Curb CO <sub>2</sub> emissions. Domestic: Emissions volume of less than 181,000 metric tons Basic unit per net sales 9% reduction from previous fiscal year Overseas: Basic unit per net sales 22% reduction from previous fiscal year	○	 P. 32	● Curb CO <sub>2</sub> emissions. Domestic: Emissions volume of less than 183,000 metric tons Basic unit per net sales 13% reduction from previous fiscal year Overseas: Basic unit per net sales 4% reduction from previous fiscal year
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### ● Adoption of Environmentally Friendly Production Processes

<b>1</b> Promote the development of innovative process technologies for overseas locations. (NGK Group)  <b>2</b> Develop NGK energy-efficiency measures for general-purpose equipment at Group companies. (NGK)	<b>1</b> Introduced highly efficient equipment into domestic manufacturing bases and developed management improvements at overseas bases  <b>2</b> Conducted energy conservation diagnostics on general purpose equipment at Group companies in Japan and overseas	○	 P. 32	● Promote the development of innovative process technologies for overseas locations.  ● Promote energy conservation diagnostics on general purpose equipment at Group companies in Japan and overseas
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### ● Promotion of Resource Recycling

<b>1</b> Curb amount of discarded materials generated. Domestic: Basic unit per net sales 15% reduction compared to the previous fiscal year* <sup>1</sup> Overseas: Basic unit per net sales 5% reduction compared to the previous fiscal year* <sup>1</sup>  <b>2</b> Improved recycling rate Conduct detailed analysis of Group companies in Indonesia, Poland and Mexico.	<b>1</b> Curb amount of discarded materials generated. Domestic: Basic unit per net sales 6% reduction compared to the previous fiscal year Overseas: Basic unit per net sales 22% reduction compared to the previous fiscal year  <b>2</b> Improved recycling rate Identified issues at overseas Group companies with low recycling rates	△	 P. 33	● Curb amount of discarded materials generated. Domestic: Basic unit per net sales 23% reduction compared to the previous fiscal year Overseas: Basic unit per net sales 9% reduction compared to the previous fiscal year  ● Increase recycling rates within the scope appropriate for actual conditions at all overseas manufacturing bases
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### ● Strengthening of Global Environmental Management

<b>1</b> Began creation of a mechanism for sharing information in China, where laws and regulations change frequently. (NGK Group)	<b>1</b> Created a mechanism for ascertaining the status of responses to laws and regulations at overseas Group companies	○	 P. 34	● Identify potential environmental risks at overseas Group companies
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\*1 Revised method tallying sales and corrected objectives fro last fiscal year accordingly.

## Actions for Promoting CSR: Coordination with Local Communities and Promotion of Contribution to the Society


### ● Provision of Scholarships and Living Assistance to Foreign Students

<b>1</b> Maintain support to foreign students. (NGK)  <b>2</b> Continue to hold language classes and cross-cultural exchange meetings led by foreign students conducted within and outside the company. (NGK)  <b>3</b> Continue to investigate responses of other organizations. Consider incorporating findings in future measures. (NGK)	<b>1</b> Provided housing for 39 students from five countries and scholarships for 20 students from nine countries.  <b>2</b> Held 40 language classes and 13 cross-cultural exchange meetings.  <b>3</b> Distributed NGK International Friendship Club and New Year's greeting cards after support concluded	○	 P. 36   WEB	● Maintain support to foreign students.  ● Continue to hold language classes and cross-cultural exchange meetings led by foreign students conducted within and outside the company.  ● Distribute information after support ends.
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### ● Cooperation with Local Communities, Labor Unions, and NPOs in Social Contribution Activities

<b>1</b> Continue making efforts to understand Group company activities with initiatives for information transmission and sharing to link activities of each company. (NGK Group)	<b>1</b> Shared the status of activities at each company.	○	 P. 35, 36	● Ascertain activity status and maintain distribution of information connected to the upcoming activities at each Group company
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### ● Support for Volunteer Activities by Employees


<b>1</b> Create environment enabling employees to easily participate in volunteer activities. (NGK)	<b>1</b> Donated approximately 44,000 school meals to Africa through Table for Two (TFT).  <b>2</b> Conducted forest cultivation volunteer activities	○	 P. 36	● Continued to create an environment enabling employees to easily take part in volunteer activities
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✱ Evaluation standards:

○ Target achieved △ Achieved 80% or more of objective ✕ Less than 80% of target achieved




 Indicates activities covered in this report.

 Indicates activities not included in this report that are covered on our website.



Plan	Do	Check	Action
FY2013 Targets	FY2013 Activities Summary	* Evaluation	Reference

## Actions for Promoting CSR: Communications with Stakeholders



### ● Communication with Customers and Procurement Partners

1 Hold earnings results presentations for major suppliers. (NGK)	1 Held earnings results presentations for approximately 120 major suppliers.	○	 P. 38	• Hold earnings results presentations for major suppliers.
2 Continue to operate the supplier helpline. (NGK)	2 Continued to operate the supplier helpline.	○		• Continue to operate the supplier helpline.
3 Employ most appropriate suppliers and continue supplier visitation activities to step up supplier quality. (NGK)	3 Visited 11 new suppliers and 87 existing suppliers for a total of 98 suppliers visited	○		• Continue visits and assessments focused on new and major suppliers

### ● Interaction with Local Communities via Plant Tours and Open House Events











































1 Conduct ongoing exchanges with regional communities through plant tours and other activities. (NGK)	1 Interacted with local communities through eight plant tours at four sites	○	 P. 38	• Continue to interact with local communities
2 Conduct dialog with external stakeholders. (NGK)	2 Exchange opinions focusing on regional administrators	△		• Conduct ongoing dialog with external stakeholders.

### ● CSR Talk Live (Discussions on Implementing CSR with Every Employee Class)

1 Hold two-way communication events with NGK and domestic Group company employees. (NGK and domestic Group companies)	1 Conducted CSR Talk Live eight times, with one Group company participating for the first time	○	 P. 37	• Continue two-way communication events with NGK and domestic Group company employees
2 Further enhance CSR-Web content. (NGK and domestic Group companies)	2 Distributed information related to CSR activities and CSR Committee proceedings on the online CSR Web.	○		• Enhance CSR-Web content.

## Initiatives Other than CSR Objectives and Achievements

In addition to annual activities corresponding to CSR actions for promoting CSR and CSR objectives, activities for which no objectives have been established, but are nevertheless important to society, are also reported in this report and on our website as listed below.

<b>Provision of Products That Contribute to Better Social Environment</b>		
Contribute to Limiting Emissions of Particulate Matter (PM)	 P. 19	
Total Employee Participation in Development of QuiC Activities to Improve Quality	 P. 22	
Strengthening Product Quality Education, Including Training to Prevent Quality Defect Risks, and Training to Raise the Level of DR		
Making Sure NGK Products Have No Adverse Effects on User Health and Safety		
<b>Disclosure of Corporate Information</b>		
Aiming for More Open Shareholder Meetings		
Investor Presentations and Individual Visits		
Measures for Returning Profits to Shareholders		
Shareholders Information		
<b>Thorough Enforcement of Compliance; Risk Management</b>		
Conducting Compliance Education in Japan and overseas		
Strengthening Understanding of Overseas Group Company Legal Risk Management Status		
Training Aimed at Establishing a Business Continuity Structure	 P. 24	
Establishing an Employee Invention Incentive System, Encouraging Employee Inventions		
<b>Respect of Humanity and Assurance of Comfortable Working Environment</b>		
Promoting the Recruitment of Female Managers In Japan and Overseas	 P. 25	
Promoting Safety and Health Activities at Overseas Group Companies	 P. 27	
Strengthen Occupational Safety and Health Management		
Extension of Activities Supporting Mental and Physical Health		
Respect for Human Rights and Thorough Prevention of Harassment		
Proactive Exchange of Opinions Among Labor-Management Regarding Management Issues and Welfare		
Cultivate Global Human Resources, Conduct Practical Overseas Training		
Ongoing Expansion of Employment and Positions for Women as a Company Promoting Women's Activities		
Two Systems for Making Use of Employee Individuality and Skills		
Extending Transfers to Regular Employment and Double Promotions to Contract Manufacturing Employees		
Management of Follow-up System to Fit Young Employees in the Workplace		
Updating System for Rehiring Employees to Include Half-Time Employment Option		
Certified by the Ministry of Health, Labour and Welfare as a Company Supporting Childcare		
Safety and Health Education Targeting the Prevention of Workplace Accidents		
<b>Preservation of Global Environment</b>		
NGK's Core Policy on the Environment		
<b>Preservation of Global Environment</b>		
Environmental Philosophy		
Environmental Action Guidelines		
Consolidated Environmental Management Promotion System		
History of NGK's Environmental Activities		
Overall Perspective of Environmental Impact	 P. 30	
Fiscal 2012 Initiatives Within the Third Five-Year Environmental Action Plan (2011-2015)	 P. 31	
Environmental Management System Initiatives		
Environmental Audits		
Environmental Risk Management		
Education and Development		
Environmental Accounting		
Environmental Communication	 P. 34	
<b>Coordination with Local Communities and Promotion of Contribution to the Society</b>		
Donating Emergency Food Supplies to Food Banks and Other Organizations		
Company-wide Deployment of the NGK Eco Point System	 P. 34	
<b>Communications with Stakeholders</b>		
Promoting the Creation of a Mechanism for Responding to Customer Voices	 P. 38	

# Provision of Products That Contribute to Better Social Environment

Guided by a Company-wide Quality Policy that 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.

## Topics 2013

### CSR Objectives

Development and Provision of Products and Services That Help to Preserve the Natural Environment

## Collecting Over 99% of Particulate Matter (PM) Emitted from Diesel Power Generators

### Contributing to the Resolution of Various Issues with Superior Black Smoke Removal Technology



NGK developed the CERALLEC system for removing black smoke from diesel power generators using ceramic filter manufacturing technologies conforming to strict standards for vehicle exhaust gas. Removing over 99% of particulate matter (PM), these products contribute to the prevention of air pollution and health hazards.

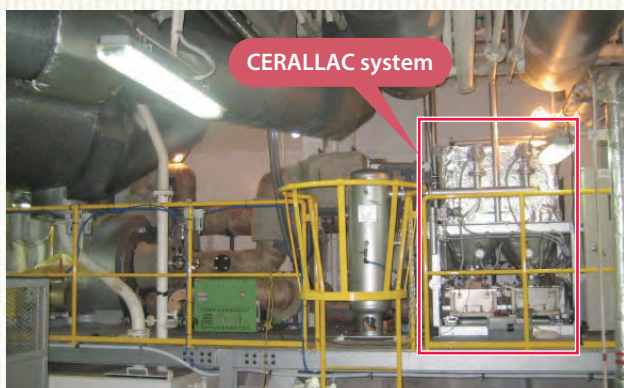
At present, CERALLEC plays an active role in processing diesel engine exhaust gas through a variety of applications at chemical plants in developing countries such as China and Singapore, as well as at power stations and manufacturing facilities around the world.

### Actively Preventing Air Pollution from Marine Engines



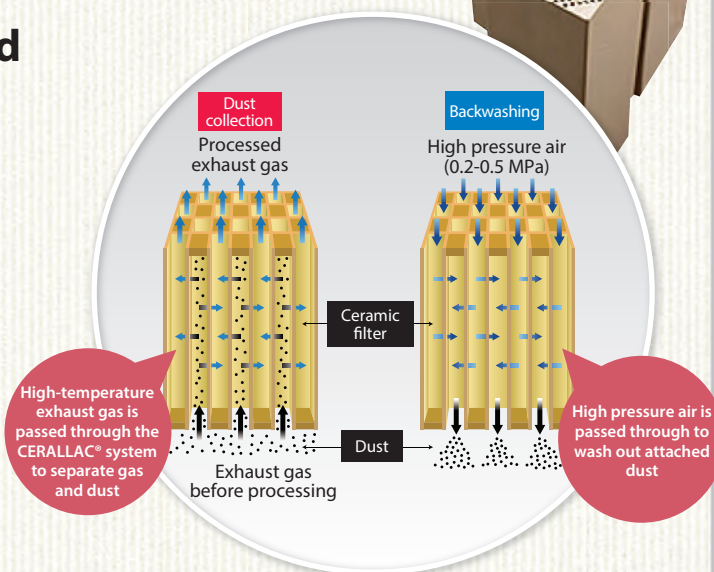
Amid tightening regulations on exhaust gas from diesel engines powering ships and the ongoing introduction of regulations on nitrogen oxides (NOx) and sulfur oxides (SOx), regulations for PM are also being considered.

NGK has begun developing a ceramic system for marine vessel main engines (driving mechanisms), which emit a significant amount of exhaust gas, in addition to those already available for marine auxiliary engines (power generators). The results of a demonstration test conducted on an actual vessel for 1,100 hours beginning in August 2013 are being confirmed as development and verification are being accelerated toward early practical application.



Confirming high PM removal performance during a demonstration test on a marine vessel

High temperature resistant  
**CERALLEC**  
ceramic filters



### Customer Voice

### Enhancing the Effects of Environmental Measures During Diesel Engine Development



Engines are operated under extreme conditions during endurance tests and other demonstrations in the engine test lab at our diesel engine development base, resulting in the emission of more gas and black soot than during normal performance. To remove this soot, we introduced CERALLEC. The superior performance of CERALLEC enables us to safely test older engines that do not conform to exhaust gas regulations.

Going forward, we expect NGK to enhance maintenance and other aftercare, supplying new products with improved performance offering support for further environmental measures.



**Mr. Atsushi Arimoto**

Managing Director, ISUZU DIESEL ENGINE TECHNICAL AND SERVICE OF SUZHOU LIMITED



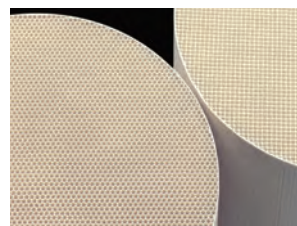
## Enhancing the Vehicle Exhaust Emissions Control Product Manufacturing Structure in Response to Market Demands

NGK focuses efforts on the development and production of exhaust emissions control products such as HONEYCERAM® ceramics for automobile exhaust purification, diesel particulate filters and high-precision on-vehicle nitrogen oxide (NOx) sensors for automobile exhaust purification. In recent years, we have been expanding and upgrading our global production structure in response to increasing demand driven by the strengthening of automobile exhaust regulations around the world and increased auto sales, in developing countries.

With regard to HONEYCERAM ceramics for automobile exhaust purification, NGK completed to expand production capacity approximately 40% by fiscal 2013 through the construction of a new large size HONEYCERAM diesel automotive exhaust gas purifier plant in Poland in January 2014, and enhanced manufacturing facilities at factories in Japan and overseas.

In terms of NOx sensors, NGK raised production capacity

from 2.4 million units per year to 7 million units per year in fiscal 2013.

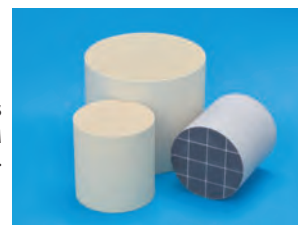


### ◀ HONEYCERAM®

A ceramic substrate holding catalysts that convert harmless hazardous elements contained in vehicle exhaust.

### ▶ Diesel Particulate Filters

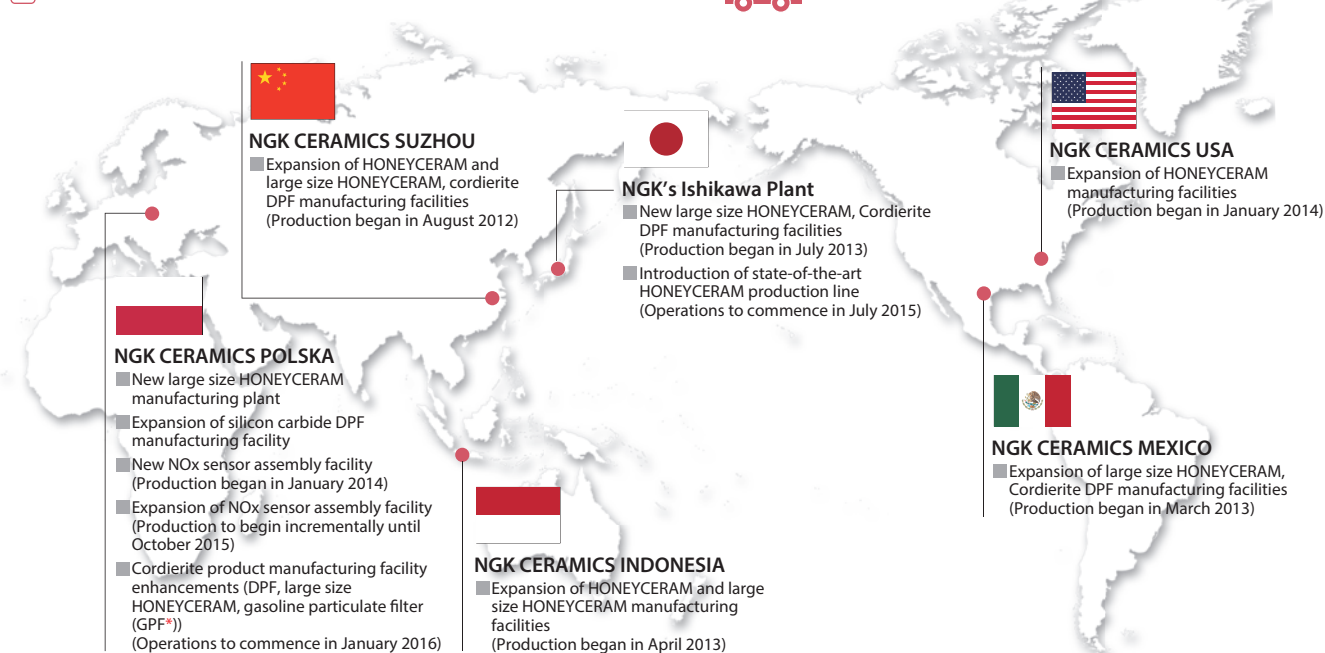
A ceramic filter that removes PM from diesel engine exhaust.



### ◀ High-Precision on-Vehicle Nitrogen Oxide (NOx) Sensors

Sensors enabling high-precision measurement of vehicle exhaust NOx concentrations at the ppm level in real time.

## ▶ Status of Global Production Structure Enhancements in Recent Years



\* GPF is a new product.

## Safely Disposing of Radioactive Waste

Nuclear power plants produce a large amount of combustible waste. NGK delivers incineration systems for the safe incineration disposal of waste to all nuclear power plants and several research facilities in Japan.

In 2013, a rotary kiln was delivered to a facility that disposes of radioactive waste. The rotary kiln is a rotating furnace in which waste can continuously be deposited and disposed. Its sealed structure prevents radioactive materials from leaking, while negative pressure maintained inside the furnace area safely disposes of radioactive waste.



Delivered rotary kiln

# Provision of Products That Contribute to Better Social Environment

## CSR Objectives

## Realization of Higher Quality Products and Services

## Strengthening the Elimination of Quality Risks Company-wide

### NGK Group Corporate Rules for Company-Wide Quality Activities

In recent years, amid increasingly sophisticated and diverse customer quality demands, target market and other discrepancies have resulted in a disparity in quality activity levels among divisions in the NGK Group. Having decided and established on restructuring NGK quality activities, in fiscal 2010 NGK formulated Corporate Rules for Company-wide Quality Activities aimed at eliminating quality risks.

DR is positioned as NGK's most important corporate activity, implemented when development milestones or manufacturing processes change. Reviewers throughout entire company participate in important DR to support the elimination of quality risks. Professional engineers and corporate executive management also participate in Company-wide DR (Company-wide Quality Review Meetings) to evaluate product reliability and safety from a variety of perspectives.

### From Establishing Rules, to Improving Their Effectiveness

In fiscal 2013, internal audits were conducted in each division, the efficacy of Corporate Rules for Company-Wide Quality Activities was confirmed and discussions were held to further improve division quality activities. In addition, to enable the thorough elimination of quality risks by further activating DR, DR Guidelines were created and training was conducted to improve DR effectiveness.

NGK also strengthened design reliability from the perspectives of durability and safety of products in the market. Going forward, NGK will thoroughly eliminate quality risks and make further improvements to production quality through initiatives to strengthen quality activities.

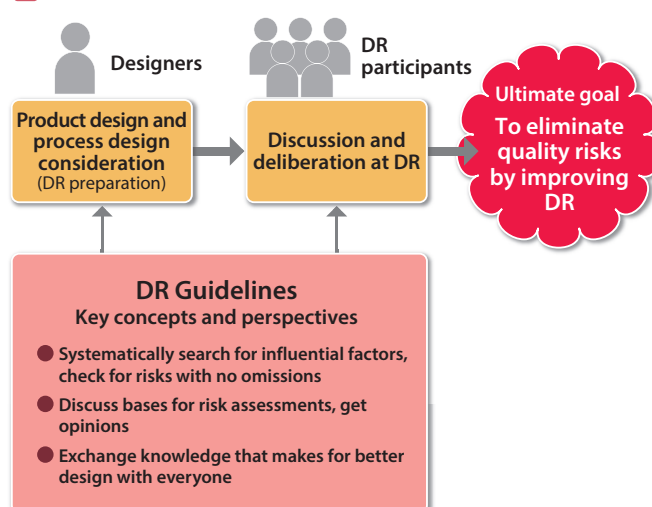
### Corporate Quality Policy

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

### Fiscal 2014 Company-wide Quality Targets

Eliminate quality risk by placing an emphasis on product design life and robust manufacturing processes.

#### The Aim of DR Guidelines



### Important Points Pertaining to Design Process Review

#### Designers and DR participants must pay attention to:

- ☐ Clarify intentional and unintentional changes, evaluating the impact of these change.
- ☐ Clarify customer uses and variations in production; reflect in product and process designs
- ☐ Confirm indispensable quality

### Important Points Pertaining to DR Management

#### DR coordinators and responsible manager must pay attention to:

- ☐ DR is a place where everyone reviews design together
- ☐ Deliberation output items are clarified from the outset  
Clarify the foundation and idea behind design proposals
- ☐ Continuously improve DR management
- ☐ Conduct related training regularly to improve DR quality



## Total Employee Participation in Development of QuiC Activities to Improve Quality

The NGK Group develops QuiC (Quality up innovation Challenge) quality improvement activities that all employees have participated in since 2003. These activities attempt to enhance product and work quality, in particular, quality improvement activities conducted by small groups, which results in suggestions for improvement, with the best improvements shared as an example across the entire NGK Group.

Participation in NGK improvement suggestion activities was about 100% for the manufacturing divisions and around 83% for the non-manufacturing divisions in fiscal 2013, with approximately 41,000 suggestions submitted in all. Each year in July, NGK holds a Company-wide contest at headquarters to showcase examples of outstanding improvement activities intended for deployment.

In fiscal 2013, the company-wide contest were held on July 12 with presentation from a total of 16 divisions including overseas Group companies. Approximately 400 employees participated.

Going forward, NGK aims to further invigorate these activities through the participation of all employees from manufacturing and non-manufacturing divisions.

## Engaged in Quality Improvements with Participation from All Employees from Manufacturing and Non-Manufacturing Divisions including Overseas Group Companies

As a manufacturer, we focus efforts on quality improvement activities in non-manufacturing divisions as well as manufacturing divisions. NGK held a company-wide contest in fiscal 2013 where teams from non-manufacturing division such as Sales, Legal Affairs and Production Control enthusiastically presented the results of their activities.

### Production Control Division



The NAS Battery Production Management Division received the highest award in recognition of its efficient inventory management system.

### Sales Division



The Sales Division received an award for outstanding performance resulting from the efficiency of its sales office work duties.



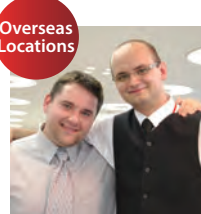
Training was conducted for sales office employees and work duty improvements were implemented from the customer's perspective.

### Manufacturing Division

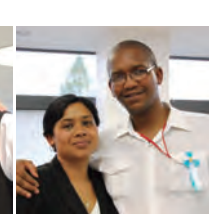


The factory improvement team achieved improved productivity.

### Overseas Locations



Prize-winning employees from manufacturing locations in Poland and South Africa presented product defect reduction measures and other initiatives.



## CSR Objectives

Development and Provision of Products and Services That Embody Safety and Reliability

## NAS® Battery Systems for Large-Capacity Electric Energy Storage

In light of increasing demand for its large -capacity electricity storage batteries to enable the widespread use of sustainable energy resources, NGK is expanding the introduction of NAS batteries in Japan and overseas.

Going forward, NGK will proactively promote activities aimed at expanding sales and increasing orders for NAS batteries on a global scale, while also making efforts to reduce costs and meet the needs of customers around the world.



### United Arab Emirates

NGK received order from the Abu Dhabi Water & Electricity Company for a 60,000 kilowatt NAS battery system; delivery of the first lot was completed in March 2014.



### United States

In April 2013, California's largest power company PG&E began operation of 4,000 kilowatt NAS battery system installed at a customer site.



### Italy

NGK signed a framework agreement with major transmission system operator Terna S.p.A. for the provision of an NAS battery system with a maximum 70,000 kilowatt output. The first order for 35,000 kilowatts has been received.



### Japan

A project has materialized involving emergency use/momentary drop in voltage applications. NGK is also moving forward with installation planning for a NAS battery system on an island location.



### Canada

In March 2013, the BC Hydro and Power Authority began operation of 1,000 kilowatt NAS battery system installed in Yoho National Park, part of the Canadian Rocky Mountain natural park group.



President Taku Oshima (who was Senior Vice-President at the time of photo) participates in the ribbon-cutting ceremony for the NAS battery system installed in Canada.





# Thorough Enforcement of Compliance; Risk Management

The NGK Group views compliance as the foundation of CSR and makes an effort to instill this view into employees. We make every effort to strengthen information security and minimize risks in business activities.

## Topics 2013

### CSR Objectives

Strict Adherence to the Anti-Monopoly Act, Subcontract Act, and Other Laws and Regulations Pertaining to Business Transactions

## Reinforcing Efforts to Observe Competition-Related Laws

The NGK Group endeavors to strictly and thoroughly observe business related laws and regulations such as the Anti-Monopoly Act and the Subcontract Act.

To strengthen our compliance system for competition laws, we established Competition Laws Compliance Rules in fiscal 2011 as one of the company rules that define compliance duties for officers and employees, management structure and matters that must be observed or are prohibited.

In fiscal 2013, to inculcate a thorough awareness of these rules, we provided the latest information of Competition Law and explanations of the rules at various Competition Law training sessions. We also made an effort to spread awareness through commentary at various compliance training sessions on the Competition Law Handbook, which presents guidelines for specific behaviors required for staff to observe Competition Laws. This handbook was created in fiscal 2012 and distributed to all NGK directors and employees (all management staff and regular staff in divisions whose activities are within the sphere of Competition Laws).

Once again this year, an attorney was invited as an outside lecturer to conduct Competition Law Compliance presentations, which were conducted at three venues. NGK directors and management staff totaling approx. 360 people attended these lectures. Overseas Group companies in South Korea, the United States and Europe also invited attorneys from Japan or their country to explain Competition Law details and enforcement status and to conduct seminars on important points for observing Competition Law in the workplace.

NGK will continue to conduct Competition Law training next fiscal year including at overseas Group companies.

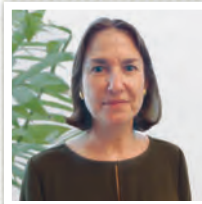
### Conducting Lectures on Competition Law Observance in Each Region

As one component of education aimed at strengthening NGK's Competition Law compliance structure, lectures are conducted for directors, management staff from Sales and other divisions and salespeople.



Lectures Related to Competition Law Observance Conducted at Business Offices

### Ms. Alison L. Smith, Lecturer



Partner at the Houston, Texas offices of McDermott Will & Emery. Served as Deputy Assistant Attorney General in the Antitrust Division of the U.S. Department of Justice. Provided NGK employees with a lecture including points to consider in daily business practice in the context of recent international trends in Competition Law.

Education  
targeting overseas  
Group companies

Approx. 140  
participants

Conducted: 1 time  
(same theme at three venues)  
1 time for directors, 2 times for  
management and sales staff  
Content: Current practical trend  
of U.S. Anti-trust Law

Seminar  
presented  
by outside lecturer

Approx. 360  
participants

(directors,  
management staff  
and sales staff)

Conducted: South Korea and Europe  
1 time, United States (DVD training/  
conducted at each company) 1 time  
Content: Competition Law explanation  
and points to remember  
in the workplace

Conducted: 9 times  
Content: Specific activities for the  
observance of Competition Laws

Competition  
Law training led  
by in-house lecturer

Approx. 200  
participants

(business divisions/  
Group companies)

競争法ハンドブック  
ーカルテル防止のためにー

2 厳しくなる制裁金、刑罰ーカルテル摘発は当局の最重要事項  
競争法による規制の中で、世界各国で特に厳しく規制されているのは、カルテルです。その  
な罰金等（表Ⅱ-1 参照）や米国における個人に対する禁固刑の適用（図Ⅱ  
あり、競争法当局がカルテルの摘発を最重要事項と捉えている。



## Awareness Programs for Managers

NGK conducted manager-class awareness programs to enhance intellectual property strategy in the research and development and business divisions, making use of issues identified in these programs in NGK's intellectual property strategy.

In fiscal 2013, NGK launched an intellectual property strategy related to competitor patent application trend search and NGK technology's protection by know-how after last fiscal year's intellectual property training session on the subject of intellectual property risks in the China market. In fiscal 2014, we plan inviting a university professor to conduct an awareness program for managers on the subject of innovator's intellectual property management.

## Young Engineer Training

NGK continuously conducts presentations on patent map utilization and uses educational graphs and charts for the visualization of intellectual property information targeting mainly young engineers in research and development divisions. e-learning has been used Company-wide for basic education.

In fiscal 2013, presentations on patent map utilization were held twice, with a total of five employees taking part. 55 employees participated in e-learning. Furthermore, interactive-style small group seminars were held eight times primarily for young engineers in the research and development and business divisions. These seminars were attended by a total of 57 employees who exchanged opinions on subjects including fundamental patent knowledge, how to view inventions seen in patent applications by other companies, internal invention incentive system, prior art search and how to read patent specifications.

## Training Aimed at Establishing a Business Continuity Structure

NGK established the BCP Countermeasures Headquarters as an organization for promoting business continuity planning (BCP) company-wide.

In September 2013, a BCP restoration measures meeting led by the President, who is also the head of the Countermeasures Headquarters, was held as part of a training session to confirm the latest damage reports based on a hypothetical scenario involving a large-scale earthquake.

In November, BCP case study training was conducted to verify comprehension and response capabilities with respect to BCP, from the occurrence of a large-scale earthquake, until restoration policies are determined. The BCP action plan was revised according to issues and deficiencies identified during the training.

Going forward, as a measure of precaution and to enable each employee and organization to make appropriate decisions and take appropriate actions, NGK will raise the efficacy of BCP through a variety of training activities.

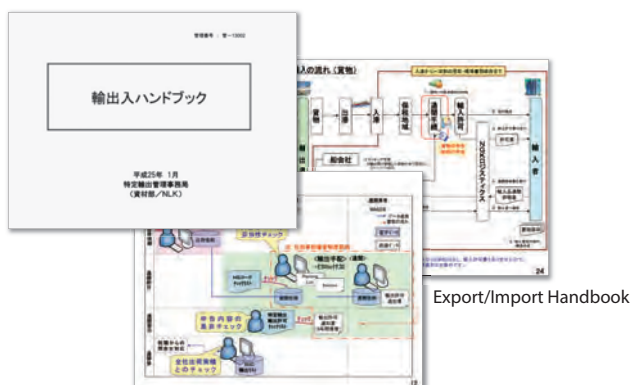


## Strict Implementation of Secure Screening and Export/Import Procedures

In response to the Foreign Exchange and Foreign Trade Act and other export control-related laws and regulations, NGK screens exports and judges whether export licenses are required and records screening results in a security export control database.

In fiscal 2013, NGK began integrated management of the customs clearance status of import cargo company-wide with the addition of a new import cargo management ledger function to the database. This enables awareness of each individual import item-related activities conducted at each onsite location and is linked to stronger observance of related laws and regulations.

NGK also made efforts toward thorough compliance with the Export/Import Handbook, which summarizes items for the observance of export/import customs clearance regulations. In addition to publishing this handbook on the company intranet, we provide education to spread awareness of the handbook through study meetings related to export/import management conducted internally in each business division.



Export/Import Handbook



President Kato (presently serving in an advisory role) led training on preparing for earthquakes.

BCP case study training. NGK aims to establish a business continuity structure through various training activities.



# Respect of Humanity and Assurance of Comfortable Working Environment

The NGK Group makes an effort to respect the humanity of its employees and provide a safe and comfortable working environment. In the interest of fair treatment, NGK employs a human resources system that enables employees to maximize their potential.

## Topics 2013

### CSR Objectives

#### Utilization of Diverse Human Resources

## Promoting the Recruitment of Female Managers In Japan and Overseas

In fiscal 2013, the number of female managers (management staff) increased from eight to 12 people, 1.5 times compared to the previous fiscal year.

In addition to efforts aimed at increasing opportunities for motivated and skilled women on a career track to make significant contributions, the NGK Group is engaged in creating a comfortable working environment for women.



### Focusing Efforts on Human Resource Cultivation and Formulation of Management Strategy as a Director

As the Vice President of Human Resources, I am responsible for all areas related to employees, including hiring, labor, benefits design, and the formulation of human resource systems. I also work in close cooperation with the President, focusing my efforts on the formulation of corporate management strategy.

There is one other mission that, as a member of management, I must not forget: the cultivation of a successor. I hope to cultivate human resources that will successfully lead the company to realize ongoing corporate development after my generation has retired.



**Linda Bundy Williams**

Vice-President of Human Resources  
LOCKE INSULATORS, INC.



### Contributing to Corporate Development through Financial and Tax Affairs

In China, accounting and taxation systems are changing rapidly. Since the company was established in 2001, we have made consistent efforts to reduce risks associated with the impact of these changes. I am proud that my work has contributed to corporate development from the perspectives of financial and tax affairs.

Going forward, to the best of my abilities, I will make an effort to identify and cultivate talented human resources to contribute to all my effort toward further corporate development.



**Feng Weihua**

General Manager,  
Financial Department  
NGK CERAMICS SUZHOU CO., LTD.



### Promoting Global Business Development with Technical Knowledge and Overseas Work Experience

I had been responsible to material control at one of our overseas manufacturing locations for three years where I had utilized my career as an engineer about developing raw materials and materials.

At present, I'm in charge of procuring ceramics raw materials in NGK headquarters' Purchasing Department. I make efforts to facilitate stable supply of low cost raw materials for all production bases in Japan and overseas. Ensuring the low-cost and stable procurement of raw materials for all production sites throughout the world is critical not only for maintaining the predominance of existing products, but also for starting-up mass production of new products rapidly. I hope our procurement efforts contribute to the development of future business.



**Aiko Otsuka**

Manager  
Materials Purchasing Group,  
Purchasing Department  
NGK INSULATORS, LTD.



### Engaged in Business Structure Improvements as a Necessary Corporate Activity

As the General Affairs Section Chief, in addition to acting as the secretariat for corporate activities including safety and health, environmental management and the elimination of loss, my job involves employee salaries, insurance and general health.

At present, NGK is engaged in company-wide efforts to realize more efficient and streamlined operations and is making every effort to promote activities making use of its many years of manufacturing technology research in engineering. With a comprehensive view of the entire company, I hope to contribute to an improved business structure through proactive suggestions for other divisions and practical encouragement.



**Masako Noda**

Section Chief,  
General Affairs,  
Administration Dept  
IKEBUKURO HORO KOGYO CO., LTD.



## Encouraging Women to Actively Participate with a System for Transferring from General Employment Jobs

In 1992, NGK created the System for Transferring from General Employment Jobs, enabling employees who joined the company in general employment positions to transfer into career-track positions offering a wider range of duties and specializations.

Career plan roundtable discussions led by employees who have transferred to general employment jobs and other activities to promote use of this system resulted in a total of 69 employees transferring jobs by fiscal 2013.

## Employment of People With Disabilities Surpasses Legally Mandated Ratio

The NGK Group is engaged in initiatives to expand employment of people with disabilities. As a result of promoting employment by accepting students from special needs schools as trainees and hiring participants from employment seminars for people with disabilities, the ratio of people with disabilities employed by NGK at the end of fiscal 2013 was 2.07%, which exceeded the legally mandated ratio of 2.0% instituted in April 2013.

Going forward, NGK will make an effort to maintain and expand the ratio of employees with disabilities.

▶ Percentage of Employees with Disabilities (NGK)



## Leaving Work on Time Expanded to Two Days Per Week Work-Life Balance Actualization Card Created

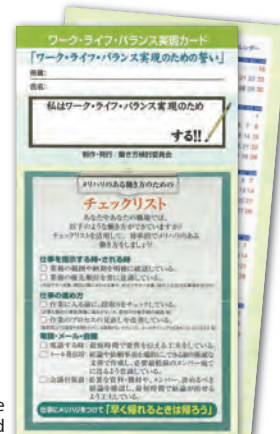
NGK is engaged in the creation of an environment that makes work easy for employees who are both working and raising children or providing care for a family member.

In fiscal 2013, refresh days (leaving work on time) were expanded to every Wednesday and Friday each week. In addition, the Human Resources Department and the labor union hold a work style examination committee study meeting aimed at realizing a full work-life balance where employee awareness regarding working styles and working hours is examined and considered. In January 2014, a pocket-sized work-life balance actualization card was created and distributed to all employees to promote the utilization of

paid holidays and a variety of work style options.

Going forward, we will make an effort for improvements regarding working long hours from the perspective of preventing deleterious effects on health.

Work-life balance actualization card



## Child care Support System Users Are on the Rise

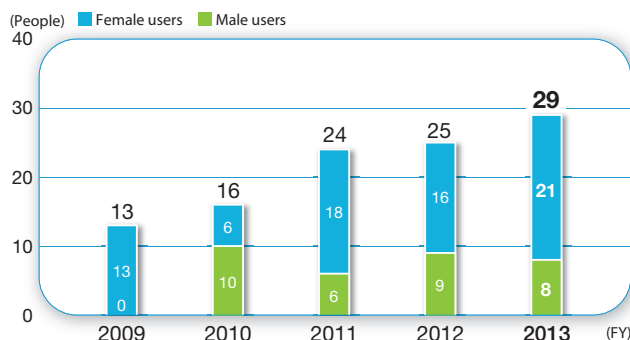
In 2010, NGK established new rules related to child care and is engaged in expanding child care support measures.

In fiscal 2013, four years after support measures were expanded, usage continued to expand with 37 employees taking advantage of shortened working hours to raise their children, four more people than the previous fiscal year. The half-day paid holiday system was utilized an average of 7.5 times per employee and continues to rise.

In addition, the number of employees taking advantage of the traditional childcare holiday system is increasing each year. In fiscal 2013, four more employees utilized this system than in the previous year, a total of 29 employees, of which eight were men.

Going forward, NGK will continue its efforts to create a workplace environment that supports both work and family.

▶ Utilization of Child Care Leave System (NGK)



Feedback from employees who have utilized childcare holiday systems is provided on the company intranet to promote their use.



# Respect of Humanity and Assurance of Comfortable Working Environment

## Topics 2013

### CSR Objectives

#### Maintenance and Consistent Improvement of Safe and Comfortable Working Environments

## Promoting Safety and Health Activities at Overseas Group Companies

NGK conducts safety and health activities at each of its overseas Group companies. In fiscal 2013, to enhance initiatives at each company, a database was created to share information on workplace accidents and countermeasures among overseas Group companies.

In fiscal 2014, we will promote initiatives aimed at cultivating global safety and health culture.



### NGK CERAMICS SUZHOU CO., LTD.

NGK established an occupational safety and health management system (OSHMS) at this company in 2009. In terms of independent activities, month-long emphasis activities are conducted with a different theme each month, systematic safety checks are implemented after monthly Company-wide Safety and Health Committee meetings and workplace environmental improvements related to noise, heat and dust are also carried out.

In fiscal 2013, case studies on past workplace accidents occurring at NGK were presented and included in the safety training for new employees. As these were accidents that actually occurred, the effect of the training on employees was strong, resulting in a drop in the number of accidents compared to the previous year, from four incidents to just two.



### NGK CERAMICS SOUTH AFRICA (PTY) LTD.

Having officially earned international OSHMS standard OHSAS18001 certification (2007 version) in 2012, this company is proactively engaged in safety and health activities including ongoing risk management.

In fiscal 2013, efforts were made to prevent accidents from recurring by applying the 8D problem-solving method, which approaches improvements from the perspective of eight categories related to safety and health.

In fiscal 2014, efforts will be focused on operational improvements and the prevention of accidents through initiatives including toolbox meetings to confirm procedures and safety before work begins.



### NGK CERAMICS MEXICO, S.DE R.L.DE C.V.

This company has been proactively engaged in safety and health activities since it began operations in 2011.

At daily meetings, Human Resources Safety and Health Group people announce reminders to worksite leaders and their superiors. This group also holds environmental health and safety (EHS) meetings each month where section managers and their superiors gather to exchange opinions related to safety and health as well as report on accidents or injuries.





## Focusing Efforts on Heightened Safety Awareness

After an accident at the Chita Site in July 2012, NGK formulated a three-year action plan and strengthened safety measures.

In fiscal 2013, we continued the exhaustive risk assessment which we began in fiscal 2012, formulating measures sequentially against the risks picked up from operations which are based on the degree of importance and danger. Responding to this serious accident with sincerity, we instantly moved to expand the scope of assessment, conducting an emergency review of the potential for serious accidents, such as getting caught or pulled into machinery and electric shock hazards, with the aim of promoting both tangible and intangible safety countermeasures.

Fiscal 2013 marks year two of the three-year action plan and we have already completed 75% of all exhaustive risk assessment work. We also provided education on residual risks at all worksites.

## Company-wide 5S Activities Include Administrative Divisions

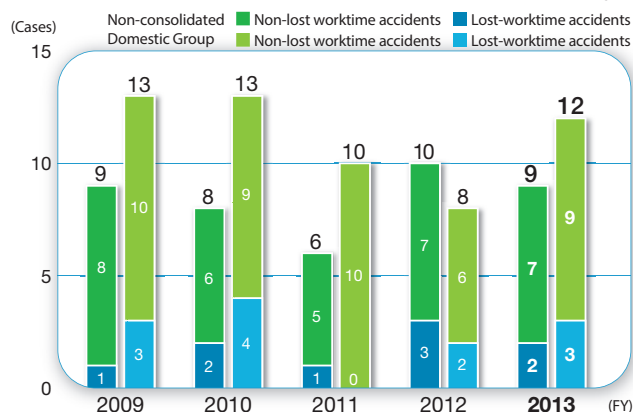
Since fiscal 2012, NGK has been promoting the expansion of 5S\* activities Company-wide to include administrative divisions.

Teams formed in each workplace promote the establishment of team objectives and periodic times to conduct activities. Teams that clear assessment standard check items are certified as 5S workplaces.

In fiscal 2013, the activities of 489 teams in three workplaces all received certification. Successful examples were reported to the Company-wide Safety and Health Committee and developed throughout the company

\* Sort, Set in order, Shine, Standardize and Sustain the workplace.

### Work-Related Accidents (NGK and 15 Group Companies Involved in Domestic Manufacturing)



Innovative was to ensure existing inventory items are selected before unused items. This also eliminates time loss searching for inventory items.



An example of improved displays. Labels indicating inventory units prevent inventory shortages and over-purchasing.

## Gran Prix Held to Test Forklift Safety Skills

From the second half of fiscal 2013, the NGK Plants in headquarters engaged in further strengthening of its safety activities by holding a forklift safe driving contest called the L-ANE Grand Prix. L-ANE stands for lift (L) safety (AN) and enjoy (E).

In this first grand prix, a total of 12 employees from five manufacturing groups (10 employees) and one administrative group (2 employees) participated. The contestants loaded water-filled goldfish bowls and tall stacks of cargo onto the forklift to compete on the safety of their driving and precision of their unloading skills.

Going forward, we will attempt to increase safety awareness through a variety of initiatives and plan to develop successful activities at other plants.

A contestant tries not to spill the water in the goldfish bowl as he verbally confirms safety in a loud voice.



The winners praised by the plant general manager (middle).



# 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, free and transparent business transactions with the procurement partners in our supply chain.

## Topics 2013

### CSR Objectives

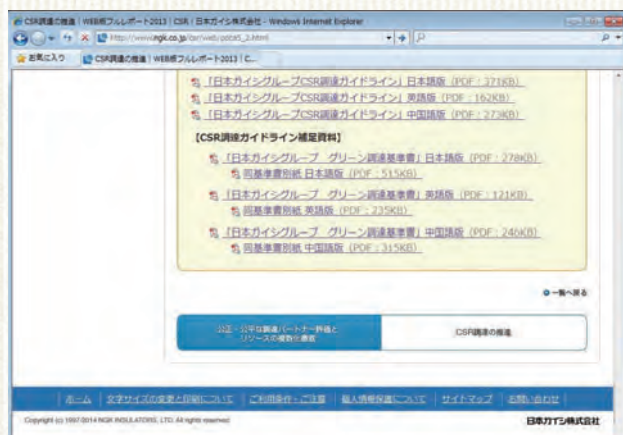
#### Promotion of CSR Procurement

## In Response to Societal Demands on Procurement Activities

### Revising CSR Procurement Guidelines, Integrating with Green Procurement Guidelines

In fiscal 2013, the NGK Group updated the content of the CSR Procurement Guidelines in line with basic purchase policies, adding sections on disputed minerals, corruption and principles regarding human rights and labor. This was integrated with the Green Procurement Guidelines to form the new CSR Procurement Guidelines. The new CSR Procurement Guidelines were disclosed to all suppliers of NGK and its Group companies in Japan and overseas, as well as published on the NGK corporate website in Japanese, English and Chinese languages.

"Green Procurement Standards", which was partially revised from the Green Procurement Guidelines, was newly incorporated in the CSR Procurement Guideline as supplemental material.



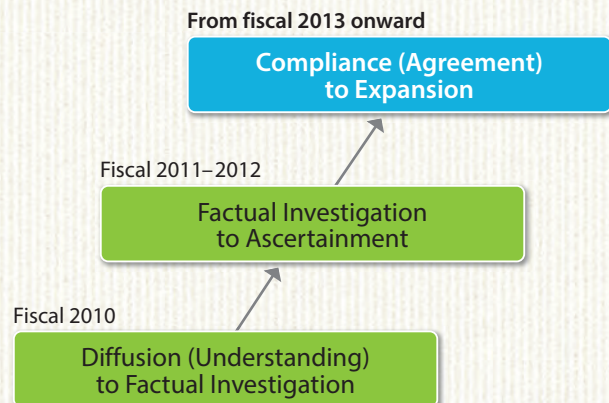
### Advancing CSR Procurement Activities from the Diffusion (Understanding) to Factual Investigation Stage to the Compliance (Agreement) to Expansion Stage

In fiscal 2013, to advance CSR procurement activities from the diffusion (understanding) to factual investigation stage to the compliance (agreement) to expansion stage, we added a request for sign-off on an agreement requiring observation of new guidelines for suppliers as part of the CSR Procurement Guideline revisions. As a result of this request, 95%\* of NGK and domestic Group company suppliers and 80%\* of overseas Group company suppliers signed the agreement.

In fiscal 2014, we will aim to further expand CSR procurement by asking all new suppliers to sign this agreement.

Note: Purchase amount conversion

#### CSR Procurement Guidelines Diffusion/Expansion Roadmap



### CSR Objectives

#### Fair and Honest Evaluation of Procurement Partners, and Extensive Resource Diversification

## Promoting BCP Countermeasures Through the Multiple Procurement of Important Purchases

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 are in the process of insuring that the storage facilities for these items are located in a safe place that cannot be damaged by tsunami.

In fiscal 2013, we conducted a survey among our top 50 suppliers regarding the status of their BCP manual, emergency contact network, etc., to ascertain conditions and trends at supplier locations.

Going forward, this survey will be used as basic reference material when formulating BCP.







# Preservation of Global Environment

The NGK Group engaged in ongoing environmental conservation efforts by improving manufacturing processes through the development and introduction of innovative manufacturing technology that reduces environmental impact.

(Environmental Conservation) Activities Covered

- NGK Headquarters/Nagoya Site/Chita Site/Komaki Site/Ishikawa Plant (does not include Tokyo Main Office, Osaka Branch and six other sales offices)
- Domestic NGK and Group companies (12 manufacturing-related consolidated subsidiaries)
- Overseas Group companies (17 manufacturing-related consolidated subsidiaries)

## NGK's Core Policy on the Environment

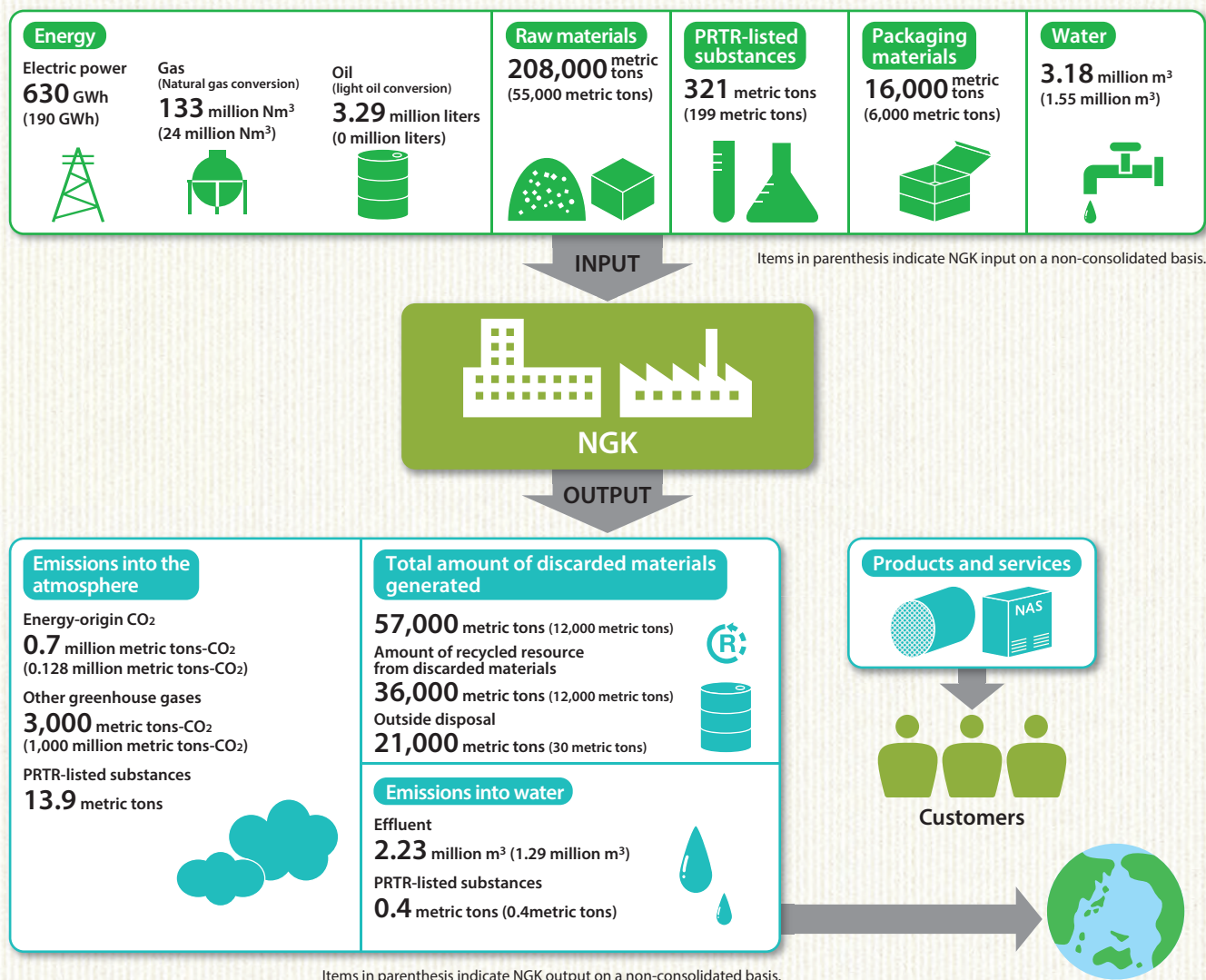
Recognizing that protecting the environment is a vital issue that all of humanity must face, the NGK Group formulated its Core Policy on the Environment in April 1996 in order to bring its corporate activities into harmony with the environment. On the basis of this policy, we work to reduce the environmental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

## Overall Perspective of Environmental Impact

The diagram below shows inputs and outputs in business activities conducted by NGK. It shows inputs of raw material and energy and outputs in the form of manufactured products and services, as well as substances that are discharged into the atmosphere and into water.

In line with increased production volume, the NGK Group output of substances impacting the environment (CO<sub>2</sub> and other emissions) is on the rise. However, efforts to introduce the latest manufacturing processes and improve the management of facilities have resulted in an output rate of increase that is lower than the production volume and sales rates of increase.

## NGK Input/Output



Notes: Environmental performance values in this report have been rounded up for convenience; therefore they may not match totals when added together.  
 Notes: "discarded materials" indicates total amount of industrial waste and valuables. indicates external recycling.

## Preservation of Global Environment

### Fiscal 2012 Initiatives Within the Third Five-Year Environmental Action Plan (2011-2015)

The NGK Group promotes environmental initiatives based on the formulation of Five-Year Environmental Action Plans. The Third Five-Year Environmental Action Plan, which was launched in fiscal 2011, aims to reduce environmental impacts on a global scale resulting from the expansion of overseas manufacturing sites, promoting these activities by establishing reduction targets for CO<sub>2</sub> emissions and discarded materials overseas.

Fiscal 2013 targets and results, as well as Five-Year Plan targets, are stated below.

Fiscal 2013 CO<sub>2</sub> and other emissions reduction activities were successfully conducted according to plans in Japan and overseas. However, for the reasons to mention later, initial targets for domestic discarded materials basic unit per net sales were not achieved. In terms of the promotion of resource recycling, domestic recycling rate targets were achieved ahead of 2015 objectives. Regarding the effective use of water resources, having established usage standards, we completed verification of usage status in all Group companies. We are also proceeding as planned on other items, including the improved management of chemical substance usage and the promotion of environmental contributions through products.

Category	Item	Management item	FY2013 environmental performance			Five-Year Plan Objectives (Fiscal 2015)
			Targets*3	Achievements	Evaluation*1	
Global warming prevention	Reduction of CO <sub>2</sub> from production activities	Domestic CO <sub>2</sub> emissions	181,000 metric tons or less	181,000 metric tons	○	10% reduction compared to fiscal 1990 (Less than 190,000 metric tons)
		Domestic basic unit per net sales	Reduce 8% compared to previous fiscal year	Reduce 9% compared to previous fiscal year	○	20% reduction from fiscal 2010
		Overseas basic unit per net sales	Reduce 5% compared to previous fiscal year	Reduce 22% compared to previous fiscal year	○	5% reduction from fiscal 2010
	Reduction of CO <sub>2</sub> from logistics	NGK basic unit per transport volume*2	Reduce 1% compared to previous fiscal year	Reduce 6% compared to previous fiscal year	○	1% reduction each year
Effective use of resources	Reduction of discarded materials	Domestic basic unit per net sales	Reduce 15% compared to previous fiscal year	Reduce 6% compared to previous fiscal year	×	10% reduction from fiscal 2010
		Overseas basic unit per net sales	Reduce 5% compared to previous fiscal year	Reduce 22% compared to previous fiscal year	○	5% reduction from fiscal 2010
	Promotion of resource recycling	Domestic recycling rate	Improvement of Domestic Group company recycling rate	Domestic recycling rate 99.2%	○	99% or more
		Overseas recycling rate	Investigate situation at Group companies with low recycling rates	Identified issues at Group companies with low recycling rates	○	Set and manage recycling rates established with consideration for the conditions in each country
	Effective use of water resources	Progress rate of plan	Investigate water resource usage status at Group companies in Japan and overseas	Ascertained water resource usage status at all Group companies in Japan and overseas	○	Create standards for efficient usage based on water resource usage status survey
Ensuring chemical substances management	Improvement in management level for chemical substances	Progress rate of plan	Establish appropriate management of upgraded management systems	Confirmed appropriate management status with onsite audits, etc.	○	Upgrade a chemical substance management system
Provision of eco products	Promotion of environmental contribution through products	Progress rate of plan	Expand products for evaluation	Expanded evaluations to seven core products	○	Formulate quantitative standards for degree of environmental contribution from products
	Promotion of green procurement		(Completed Green Supplier certifications in fiscal 2012)		○	Complete green supplier certification
Promotion of environmental communication	Robust environmental contribution activities	Progress rate of plan	Promote Environmental Partnership Organizing Club (EPOC) event Promoted activities in conjunction with regional communities	Conducted corporate seminars and next-generation environmental education Promoted activities in conjunction with regional communities	○	Continue and expand activities related to regional communities
	Improvement in environmental awareness		Conduct employee environmental education Promote participation in environmental events	Conducted position-based training, professional training and environmental lectures Fully implemented the Eco Point system, promoted eco-proposals and participation in green curtain and other activities	○	Continue and expand environmental education, information disclosure

Note: Figures noted in the Third Five-Year Environmental Action Plan are targets established each fiscal year.

\*1. Self-evaluation standards for achievement level: ○ Target achieved △ 80% or more of target achieved × Less than 80% of target achieved

\*2. NGK basic unit per transport volume expresses in metric ton-kilometers the amount of crude oil equivalent fuel used.

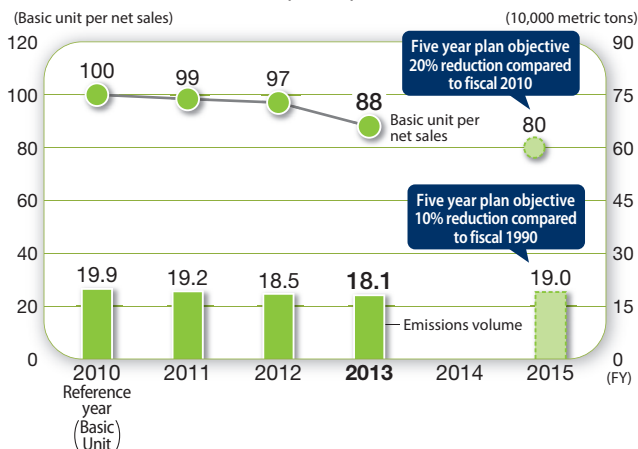
\*3. Revised sales calculation method. Accordingly, basic unit per net sales targets compared to the previous fiscal year were also revised.



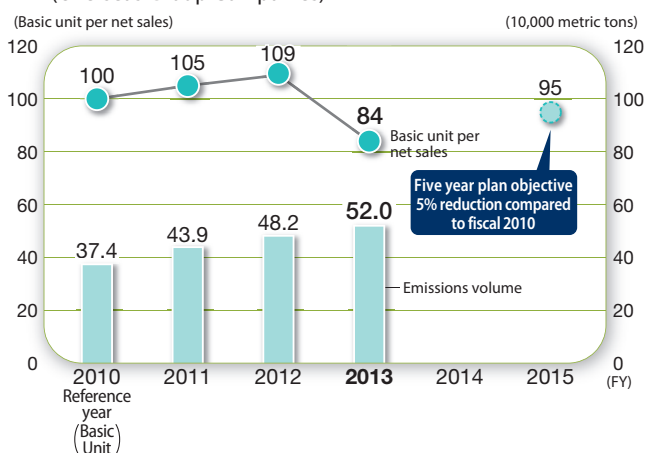
## CSR Objectives

### Prevention of Global Warming

#### CO<sub>2</sub> Emissions/Basic Unit Per Net Sales\*1 (NGK and Domestic Group Companies)



#### CO<sub>2</sub> Emissions\*2/Basic Unit Per Net Sales\*1 (Overseas Group Companies)



\*1 Basic unit per net sales calculated as 100 in fiscal 2010.

The calculation method for sales in all fiscal years including the base year was revised.

\*2 Inaccuracies in the volume of fiscal 2010 CO<sub>2</sub> emissions were corrected.

## Domestic and Overseas CO<sub>2</sub> Reduction Plans Progressing on Track

The NGK Group is engaged in curbing global CO<sub>2</sub> emissions through manufacturing process improvements.

In fiscal 2013, domestic CO<sub>2</sub> emissions reductions (amounting to approximately 7,000 tons) surpassed objectives set at the beginning of the year (approximately 6,000 tons). As a result, we achieved the fiscal 2013 target for CO<sub>2</sub> emissions\* from manufacturing activities (emissions of 181,000 tons or less). We also achieved the target set at the beginning of the year aiming for an 8% reduction in the basic unit per net sales compared to the previous fiscal year. We achieved a 12% reduction compared to fiscal 2010 levels, demonstrating solid progress toward the Five-Year Plan objective of a 20% reduction compared to fiscal 2010.

\* CO<sub>2</sub> conversion factors (kg-CO<sub>2</sub>/unit) used in calculating CO<sub>2</sub> emissions are as follows: Units are indicated in parentheses. Purchased electric power (kWh): 0.42 Fuel oil (L): 2.677 Diesel fuel (L): 2.64 Kerosene (L): 2.49 City gas (Nm<sup>3</sup>): 2.347 LPG (kg): 3.007 LNG (kg): 2.70 Gasoline (L): 2.322

Sources: Federation of Electric Power Companies of Japan (fiscal 1990 actual figures), Ministry of the Environment. Some factors have been calculated independently by NGK. However, fiscal 2012 energy-origin CO<sub>2</sub> emission volume for NGK on a non-consolidated basis is 146,000 metric tons when using the CO<sub>2</sub> conversion factor provided by the Cabinet Orders of the Law Concerning the Promotion of Measures to Cope with Global Warming (revised in December 2013).

At the same time, in terms of fiscal 2013, CO<sub>2</sub> emissions reductions overseas, we greatly surpassed the target established at the beginning of the year (approximately 13,000 tons), achieving reductions amounting to 25,000 tons. As a result, we significantly exceeded the 5% reduction target for basic unit per net sales CO<sub>2</sub> emissions, achieving a 22% reduction in CO<sub>2</sub> emissions. Having already achieved a reduction of 16% compared to fiscal 2010, we were able to achieve the Five-Year Plan objective (a reduction of 5% compared to fiscal 2010) ahead of schedule.

## CSR Objectives

### Adoption of Environmentally Friendly Production Processes

## Controlling CO<sub>2</sub> Emissions through Manufacturing Process Efficiency

As the NGK Group continues to expand overseas manufacturing, we are focusing efforts on manufacturing efficiency at our overseas locations in an attempt to curb the amount of CO<sub>2</sub> and discarded materials released. We have made steady progress as a result of introducing improvements to facilities and operations conducted in Japan to our overseas manufacturing locations.

In fiscal 2013, CO<sub>2</sub> reduction measures at overseas plants focused on improving firing process efficiency. As a result, in addition to the aforementioned effects of general-purpose equipment improvements, we achieved CO<sub>2</sub> reductions of approximately 25,000 tons.

In fiscal 2014 we will continue to focus on firing process improvements and plan to promote further reductions in CO<sub>2</sub>, including the introduction of energy-saving general-purpose equipment, highly efficient manufacturing equipment other than kilns and improved yield rates among other initiatives.



High-efficiency continuous kiln

## Other Initiatives Aimed at Reducing CO<sub>2</sub> Emissions

At NGK, we are promoting energy-saving activities focused on general purpose equipment (plant utility equipment, air conditioning, lighting, etc.) as part of our effort to reduce CO<sub>2</sub> emissions. We promote the elimination of waste from supply sources (compressors, boilers) as well as supply destinations (manufacturing equipment), eradicating air and steam leaks and making the operation of compressors and boilers more efficient. We are also aggressively engaged in activities aimed at eliminating waste from air conditioning and replacing other lighting to LED. Since fiscal 2013, we have conducted energy-saving diagnostics on all equipment, creating energy-saving guidelines summarizing

points focused on energy conservation concepts as a horizontal deployment tool for domestic Group companies and overseas production sites accounting for a significant proportion of manufacturing.



Energy-saving diagnostics and guidance

As a result, in fiscal 2013 CO<sub>2</sub> reductions were almost 20% higher at domestic facilities, which reduced about 2,000 tons of CO<sub>2</sub>, while approximately 4,000 tons of CO<sub>2</sub> was reduced overseas.

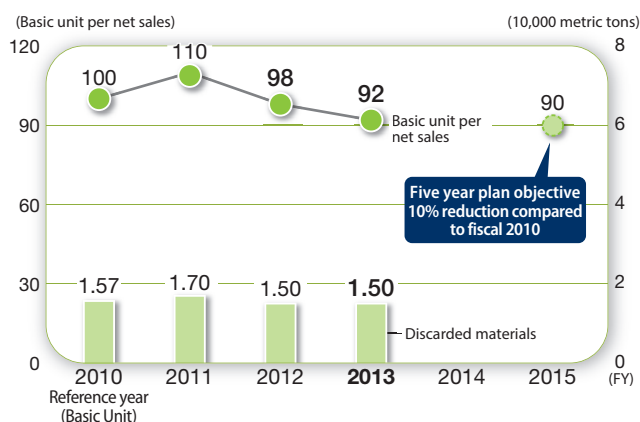
NGK is also engaged in reducing CO<sub>2</sub> emitted through logistics activities. Having set a domestic logistics target of an annual 1% decrease in the basic unit per transport, we are promoting a modal shift\* focused on large projects. In fiscal 2013, an increased number of projects involving the long-distance shipment of a large volume of products switched from truck to ocean liners resulted in a 6% reduction in the basic unit per transport compared to the previous fiscal year.

\* Modal shift refers to using more efficient rail and ocean liners, rather than trucks for main transport routes, in order to lower environmental impact and improve logistics efficiency.

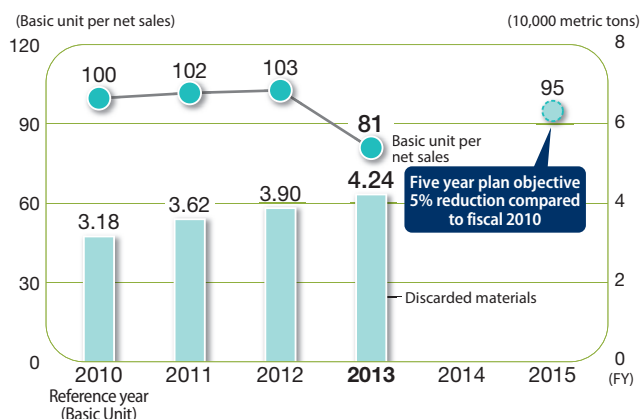
## CSR Objectives

### Promotion of Resource Recycling

#### ▶ Amount of Discarded Materials Generated/ Basic Unit Per Net Sales\*<sup>1</sup> (NGK and Domestic Group Companies)



#### ▶ Amount of Discarded Materials Generated/ Basic Unit Per Net Sales\*<sup>1</sup> (Overseas Group Companies)



\*<sup>1</sup> Basic unit per net sales calculated as 100 in fiscal 2010. The calculation method for sales in all fiscal years including the base year was revised.

## Despite Falling Short of Targets for the Reduction of Discarded Materials in Japan, Significant Achievements Were Made Overseas

The NGK Group is engaged in curbing discarded materials globally and is focusing efforts on expanding the reuse of raw materials in domestic and overseas manufacturing processes.

In fiscal 2013, targets set at the beginning of the year for the reduction of discarded materials in Japan (approximately 400 tons) were mostly achieved. However, the effect of changes to certain aspects of the manufacturing process and capital expenditures caused an increase in the amount of discarded materials generated. This resulted in a decline in basic unit per net sales of 6% compared to the previous year, which led to our falling short of targets set at the beginning of the year (15% reduction compared to the previous year). Nevertheless, having achieved an 8% reduction compared to fiscal 2010 levels is solid progress toward the achievement of targets set out in the Five-Year Plan (a 10% reduction compared to fiscal 2010 levels).

At the same time, we made significant achievements with regard to reducing discarded materials overseas, greatly surpassing targets set at the beginning of the year (a reduction of 4,000 tons). As a result, we significantly exceeded the targeted 5% reduction in discarded materials generated on a basic unit per net sales basis compared to the previous fiscal year, achieving a reduction of 22%. Moreover, as we have achieved a 19% reduction compared to fiscal 2010 levels, we have already cleared the Five-Year Plan target (of a 5% reduction compared to fiscal 2010 levels).

Going forward, we will further promote manufacturing process improvements, higher yield rates through more efficient use of resources and the reuse of raw materials within processes in an effort to reduce the amount of discarded materials generated.

## Promoting Recycling at all NGK Group Companies

Through systematic sorting, separating and the quest for new recycling methods, NGK focuses efforts on reducing discarded materials and promoting resource recycling. As a result, we maintain a high recycling rate of 99.7%\*.

In fiscal 2013, we focused on improvements at domestic Group companies and were able to increase the recycling rate from 96.0% in the previous fiscal year to 97.3%.

As a result, NGK and its domestic Group companies achieved a combined recycling rate of 99.2%, clearing 99% of Five-Year Plan targets ahead of time.

Regarding overseas Group companies, where situations differ by country and region, our aim is to establish recycling rate targets and institute management under the Five-Year Plan that considers the conditions in each country. In fiscal 2013, we focused efforts on issues connected to low recycling rates at overseas Group company sites, enabling us to identify special circumstances preventing the promotion of recycling. This fiscal year, in addition to consideration of areas in need of improvement, including those with special circumstances, we will determine the appropriate range of recycling rates given the circumstances at all overseas Group companies.

Note: Due to internal standards, non-recyclable discarded materials are excluded from these calculations.



## Information on Revised Laws and Regulations at Overseas Group Companies and Enhanced Mechanisms for Ascertaining Responses and Management Status

NGK shares information on revisions to domestic environmental laws and regulations with Group companies in Japan, having created a mechanism in 2011 that functions to ascertain the status of responses to these revisions. Through the establishment of this mechanism NGK is able to determine the status of responses to revised laws and regulations at domestic Group companies.

In fiscal 2013, Group companies including those located overseas completed acquisition of environmental ISO certification, establishing an environmental management framework in accordance with the NGK Group overall environmental management system. Also in fiscal 2013, we enhanced mechanisms enabling the head office to regularly glean the status of information on revisions to important laws and regulations in countries where overseas Group companies have been established, the status of each company's response to laws and regulations, and their respective management status.

In addition to the aforementioned response to laws and regulations, we have also created and operate a system for the head offices to gather information regarding activities aimed at lessening environmental impacts at domestic and overseas Group companies.

### Company-wide Deployment of the NGK Eco Point System

Under the NGK Eco Point System, employees earn points for environmental behaviors conducted at work and in the home, a portion of which is converted into cash and donated to regional municipalities (environmental funds), contributing to regional communities.

This system was introduced at the Chita Site in fiscal 2012 as a trial and then expanded throughout the entire company in fiscal 2013. Approximately 85% of all employees participate in these activities.



Nagoya City, Aichi Prefecture



Komaki City, Aichi Prefecture



Handa City, Aichi Prefecture



Nomi City, Ishikawa Prefecture

Donating to environmental-related funds in regional municipalities where the head offices, the Chita and Komaki sites and the Ishikawa Plant are located.

## Strengthening Environmental Management Linked to Business Planning

The NGK Group practices environmental management linked to business planning. We aim for environmental management responsive to constantly changing business planning, such as highly advanced process technology innovations leading to successful product and location strategies and cost competitiveness based on rapidly changing market needs on a global scale.

Specifically, initiatives aimed at reducing impacts on the environment in accordance with business plans involve conducting forecast estimates of achievement evaluations by business group, product line and manufacturing site in Japan and overseas every six months to reexamine which initiatives we must to pursue next.

As part of these initiatives, in fiscal 2013, we established the Environmental Expert Committee as a subcommittee under the NGK Environmental Protection Committee, a company-wide decision-making body. The Environmental Expert Committee facilitates discussions among managers from planning and production divisions to 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 sustainable and expansive environmental management.

### Introducing Green Power Since 2002

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, earlier than any other company. The Green Power Certification System contract we signed with Japan Natural Energy Company Limited calls for them to generate two million kilowatt hours of wind power for us each year.

This is equivalent to about 60% of the power consumed annually by the NGK headquarters building, a reduction of approximately 800 tons of CO<sub>2</sub> emissions per year and the annual amount of CO<sub>2</sub> absorbed by approximately 60,000 cedar trees.



### Conducting Guest Lectures on the Subject of Water

Since 2005, NGK has participated in the planning of next-generation educational businesses with the Environmental Partnership Organizing Club (EPOC) by conducting guest lectures at elementary schools. We teach students about the importance of water through lectures and quizzes using an original NGK textbook. In fiscal 2013, we conducted guest lectures five times for approximately 400 students.







As a Member of Society

# Coordination with Local Communities and Promotion of Contribution to the Society

We will actively commit ourselves to contributing to society, satisfying the needs of local communities with our interest in social tasks required by the countries and local communities, centered on people and education, environmental preservation, and community involvement with the objective of becoming a corporate citizen that can be trusted by local communities.

## Topics 2013

CSR Objectives

Cooperation with Local Communities, Labor Unions, and NPOs in Social Contribution Activities

## Overseas Group Company Social Contribution Activities



### NGK CERAMICS POLSKA SP.Z O.O.



**Aleksandra Olbrys**

HR Specialist

#### Believing in the Unlimited Potential of Children

We created a charity to sell pictures painted by children from an orphanage. All proceeds are donated to the orphanage. Since 2009, the charity has held an annual event drawing approximately 3,000 employees and their families.

Once again in 2013, the children created fantastic works brimming with individuality and a sense of the unlimited possibilities of children, which were auctioned off by employees. As always, every painting was sold.

Charity Promotes Purchase of Children's Paintings



### NGK METALS CORPORATION

#### Doing it for the Children's Smiles

Each year as Christmas approaches, our employees take the opportunity to give back to the local community.

In December 2013, employees collected donations of coats, clothing, sporting goods, toys, books and other items that were donated to children as Christmas presents.

Giving Christmas Presents to Disadvantaged Children



**Lynne Woodside**

Manager,  
Environment and Safety



### NGK EUROPE GMBH

#### Coming Together through Social Contribution Activities

In June 2013, 47 employees participated in the JP Morgan Corporate Challenge jogging race held in Frankfurt. This charity event collects donations from participating corporations that are given to an organization supporting people with disabilities.

All employees who participated experienced a sense of fulfillment from contributing to society, as well as a sense of accomplishment after the race upon completing the 5.6 km course.



**Nils Unger**

Key Account Manager



Participating in Charity Runs





## CSR Objectives

### Provision of Scholarships and Living Assistance to Foreign Students

## Continued Support for Housing and Scholarships

NGK continued its support activities for foreign students with the aim of contributing to human resource cultivation that fosters the development of an international community. In fiscal 2013, we provided housing for 39 students from five countries and scholarships to 20 students from nine countries.

## Supporting Foreign Students and Communities, Exchanges with Employees

Since fiscal 2000, we have conducted language classes taught by foreign students and held cross-cultural exchange meetings where foreign students introduce their native countries with the aim of facilitating grassroots international relations among supported students and regional communities.

In fiscal 2013, Chinese and Korean language classes were held 20 times, while cross-cultural exchange meetings introducing foreign students from nine countries including India, Uzbekistan and Morocco were held 10 times. As of fiscal 2013, approximately 740 members of regional communities have participated in these activities.

In addition, cultural exchange meetings with NGK

employees were held three times at three different sites where foreign students from Uzbekistan and Morocco mingled with 65 NGK employees.



NGK employees mingle with foreign students from Uzbekistan and Morocco at a cultural exchange meeting.

## CSR Objectives

### Support for Volunteer Activities by Employees

## Providing Employees with Information on Volunteering

To create opportunities for employees to volunteer outside work, we provide information on our intranet pertaining to volunteer activities.

In fiscal 2013, 27 employees participated in volunteer activities including tree-planting and environmental conservation initiatives conducted by the public interest incorporated foundation OISCA International and other organizations.



"OISCA Forest" company-sponsored forestation volunteer activities conducted in October 2013 (Kitashitara District, Aichi Prefecture).

## Volunteer Activities Utilizing Vending Machines

— NGK YU-SERVICE CO., LTD.; NGK FINE MOLDS, LTD.; NGK METEX CORPORATION

Since 2010, NGK has participated in the TABLE FOR TWO (TFT) volunteer activities advocated by NPO TABLE FOR TWO INTERNATIONAL. In fiscal 2013, we donated approximately 44,000 school meals to children in developing countries through the provision of healthy menus and other initiatives in our cafeterias. From 2013, we expanded these initiatives with the installation of seven TFT vending machines at three Group companies. A portion of TFT vending machine sales is donated to developing countries.



## CSR Objectives

### Cooperation with Local Communities, Labor Unions, and NPOs in Social Contribution Activities

## Cooperating with Maintenance of Asian Skunk Cabbage Colonies

— NGK OKHOTSK (Abashiri City, Hokkaido Prefecture)

NGK OKHOTSK helps clean up and maintain Asian skunk cabbage colonies through participation in activities conducted by the Lake Abashiri Mizu to Midori no Kai. 2013 marked the fourth year of our involvement in these activities, with 10 volunteers maintaining the water's edge, reinforcing the gutter retaining walls and collecting rubbish to maintain the scenic beauty of the Asian skunk cabbage and conserve the wetland area environment.



## Introducing Children to Science Experiments — NGK

In August 2013, NGK sponsored Christmas Lecture 2013, a British science experiment course held at Nagoya University. We also set up a booth for experiments inside the venue run by 16 employee volunteers who conducted 12 different experiments taken from the NGK Science website.

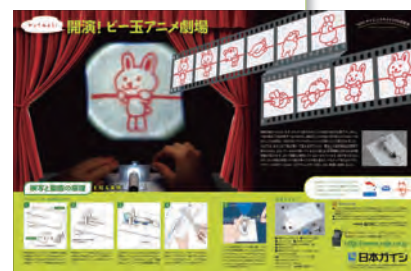


## Continuing to Convey the Fun of Science with 200 Postings

The NGK Science website was created by NGK to introduce simple science experiments that can be conducted at home. As a company engaged in manufacturing with the aim of conveying the fun of science to children who will lead the next-generation, we began placing these experiments as corporate advertisements in the science magazine "Newton" in 1997. We also post new experiments on our corporate website each month.



The NGK Science website  
<http://site.ngk.co.jp/>







# Communications with Stakeholders

Through various opportunities, the NGK Group makes an attempt to communicate with customers, suppliers, regional citizens and a variety of stakeholders in an effort to build and maintain a trusting relationship.

## Topics 2013

### CSR Objectives

CSR Talk Live (Discussions on Implementing CSR with Every Employee Class)

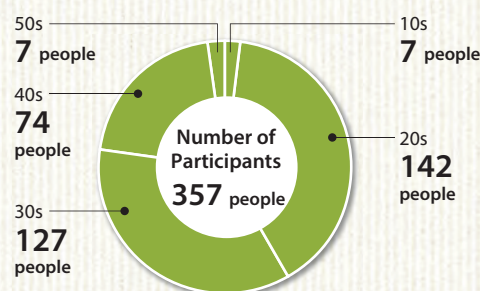
## CSR Talk Live Dialogue with Employees



### CSR Talk Live Event Schedule and Number of Participants

Nagoya Site (Aichi Prefecture)		NGK CERAMIC DEVICE Yamanashi Plant (Yamanashi Prefecture)	
September 18	51 people	October 16	50 people
September 19	51 people	Ishikawa Plant (Ishikawa Prefecture)	
September 20	51 people	September 27	24 people
Chita Site (Aichi Prefecture)		Energy Support Corporation (Aichi Prefecture)	
October 2	47 people		
Komaki Site (Aichi Prefecture)			
September 12	53 people	December 17	34 people

### Participation by Age Group



To deepen employee understanding of CSR and related initiatives, NGK conducts "CSR Talk Live," an event facilitating direct discussion with management held at all domestic sites since fiscal 2009.

Beginning at the Chita Site on September 12, this event was held eight times in fiscal 2013 at six locations, including Group company Energy Support Corporation, which participated for the first time. Approximately 360 employees attended these events. The participation of only a few dozen people at each event resulted in spirited discussions.

At each venue, senior management emphasized the importance of CSR initiatives to those in attendance, while the Environmental Management Department and CSR Office used specific examples to explain CSR Report 2013 details. Afterward, a Q&A session with employees was conducted on topics including environmental conservation, workplace safety, disaster countermeasures, business continuity planning (BCP) and welfare program activities.

### CSR Talk Live Q&A Examples

**Q.** I want to see local production for local consumption initiatives implemented in our cafeterias. Can we make our cafeterias more environmentally friendly?

**A.** NGK cafeterias already purchase vegetables and other items from local producers, but going forward, we will consider ways to support local production for local consumption whenever possible. Rather than wasting food, local businesses collect leftover food that is used to make compost, while oil used to fry tempura is collected and processed into fuel.

**Q.** Are the activities to reduce CO<sub>2</sub> emitted by individual employees conducted in Japan also being implemented as part of activities promoted at overseas plants?

**A.** While the main purport of company-wide environmental policies and action plans are shared and observed at overseas locations, we have yet to develop specific activities on an individual basis at overseas plants. However, we recommend activities that directly contribute to the reduction of CO<sub>2</sub> emitted by individual employees. We are also thinking about introducing examples overseas as awareness campaigns linked to activating these activities.



For details, please visit our website.  
[http://www.ngk.co.jp/csr/web/pdca8\\_3.html](http://www.ngk.co.jp/csr/web/pdca8_3.html)



## Ongoing Operation of Supplier Helpline

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

In fiscal 2014, we will continue to operate the supplier helpline and provide unerring supports for important inquiries and make an effort to build and maintain fair supplier relationships.

## Conducting Supplier Visitation Activities in Japan and Overseas

In order to procure from the most suitable suppliers, NGK visits suppliers around the world for a fair and impartial assessment of their CSR activities, including their financial status and environmental conservation efforts, in addition to quality, cost and delivery (QCD).

In fiscal 2013, we visited 11 new suppliers and 87 existing suppliers, a total of 97 companies. We conducted QCD audits during visits to 73 of the existing suppliers and confirmed improvements at the other 14. In addition to explaining the results of audits, we provided guidance on areas receiving a low assessment and conducted fair and impartial evaluations of our procurement partners.

In fiscal 2014, we will continue to visit new and major suppliers to conduct evaluations.



## Interacting Directly with Children and Local Residents through Support for Plant Tours

NGK attempts to interact with regional communities through plant tours and other activities. To deepen interest and understanding in NGK and manufacturing, in fiscal 2013 we conducted eight plant tours at four sites for a total of 284 participants consisting of elementary school students and local residents.

In January 2014, 22 students from Arimatsu Junior High School in Nagoya visited a plant that manufactures ceramics products used to purify automotive exhaust. The students showed a great deal of interest in the large firing furnace and ceramics of various sizes and shapes.



22 students from Arimatsu Junior High School in Nagoya taking a plant tour.

## Promoting the Creation of a Mechanism for Responding to Customer Voices

As the top manufacturer of industrial ceramics, NGK develops a wide range of ceramics products mainly for other companies and makes use of ceramics technologies to develop and sell C1 home-use water purifiers.

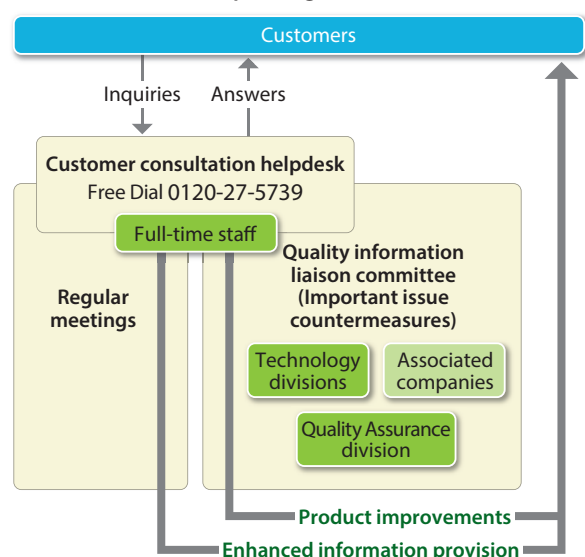
We set up a dedicated C1 customer consultation helpdesk in-house to create a mechanism for reflecting the customer's voice in our products and services.

During fiscal 2013, in department stores across Japan, we launched over-the-counter sales, conducted a monitoring campaign and held taste tests at various events to convey the appeal of purified water in an attempt to communicate actively with customers.



C1 Home-Use Water Purifier

### ▶ Mechanism for Responding to Customer Voices



# Third-Party Opinion



**Mr. Koichi Ikeda**  
Director,  
Society & Enterprise Laboratory

There is superb merit in the NGK Group CSR initiatives and report: they are easy to understand. The NGK Group CSR Report 2014 clearly conveys this ease of understanding in three ways.

First of all, it is easy to understand that the business conducted by NGK is itself directly linked to CSR. This enhances a feeling of pride and increases motivation to work among management, employees and even suppliers. Making use of their strengths in ceramics technologies, including the family of ceramic products such as CERALLEC systems and other ceramic products that remove over 99% of the particulate matter (PM) emitted by diesel generators that cause air pollution and contribute to the prevention of health problems, as well as NAS<sup>®</sup> battery systems for electric energy storage that facilitate power demand peak cut and provide stable and renewable energy, it is not going too far to say that these business areas address societal issues and needs on a global scale. Management's commitment to the "continued creation of products with value to society as a global manufacturing company" is a strong declaration on putting concrete CSR into practice primarily.

Second, it is easy to understand that NGK engages in CSR in accordance with the PDCA management cycle. This is linked to the efficiency and efficacy of these initiatives. NGK formulated eight actions for promoting CSR defined in the NGK Group Guidelines for Corporate Behavior based on the corporate philosophy "NGK products and technologies must create new value and contribute to the quality of life." Detailed CSR objectives established in accordance with these eight actions are formulated each year as an action plan. Then these activities are carried out, reviewed and used to formulate actions in the next fiscal year. As for the status of these consistent initiatives, design reviews (DR), which are positioned as the most important company-wide quality activity, and company-wide 5S (sort, set in order, shine, standardize, sustain) activities demonstrate the development of activities on solid footing.

Third, the reporting of CSR initiatives is also easy to understand. It promotes stakeholder understanding and brings the company closer to its stakeholders. With regard to specific initiatives in fiscal 2013, the special feature titled "The Challenge of Creating New Value," specific and ingenious charts and graphs illustrating each action for promoting CSR based on CSR objectives and the use of photographs result in a report that is easy to understand and deserve special mention. It feels as if this is the very embodiment of NGK's intention to convey activity details to the public that are easily understandable.

Although CSR promotion activities and objectives are not presented as targets, activities important for society are reported in the CSR Report 2014 and on the NGK CSR website. This shows the sincerity of NGK's position. That being said, I might also add that in this time of great change, I think it would be beneficial to revise these targets with the aim of realizing ongoing improvements to CSR promotion activities and objectives.

## Response from NGK

In this year's report, we have made every effort to provide content that facilitates a greater understanding of NGK Group CSR activities among all our stakeholders by increasing the number of articles showing the faces and introducing the voices of the people engaged in these various initiatives.

We will continue to come together as one Group to succeed amid intense international competition and achieve sustainable growth through the determined practical application of CSR promotion activities and objectives, as well as aggressive initiatives that carefully anticipate the future in these changing times.

Furthermore, as compliance is the basis of CSR activities, each member of the NGK Group will conduct themselves according to global standards for decision-making with a firm awareness of our connection to society, meeting expectations and earning the trust of society through sincere behavior.



**Nobumitsu Saji**  
Director and Vice President  
CSR Committee Chairman





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### Plate making:

For this report, plates were made by Computer To Plate (CTP) technology enabling the complete discontinuation of the use of sheets of intermediate materials during the page makeup process.

### Printing:

Because a waterless method was employed for printing, alkaline developers and acid fixing solutions were not necessary for the plate development, and isopropyl alcohol or other types of dampening water were not necessary for the ink transfer printing.

### Paper:

The paper used has been made from trees grown in forests approved or managed by the Forest Stewardship Council® (FSC®).

This report is printed on paper made from forest thinnings to help promote healthy forests and encourage greater use of thinnings as a material.

### Ink:

NGK has changed from using petroleum solvents to 100% use of mainly soy-based vegetable solvents. Inks used contain 1% or less volatile organic compounds (VOC).

### Design:

We have taken care to select an easily readable font-size and attractive color layout, and to employ diagrams and tables to express information clearly.

### Cover photos

**Above:** NGK's NAS® battery is useful for the stable provision of energy even on French island Réunion, a Unesco World Heritage Site located in the Indian Ocean.

**Below:** NGK's diesel particulate filters have spread to a wide range of diesel vehicles and are a great success even in Europe.