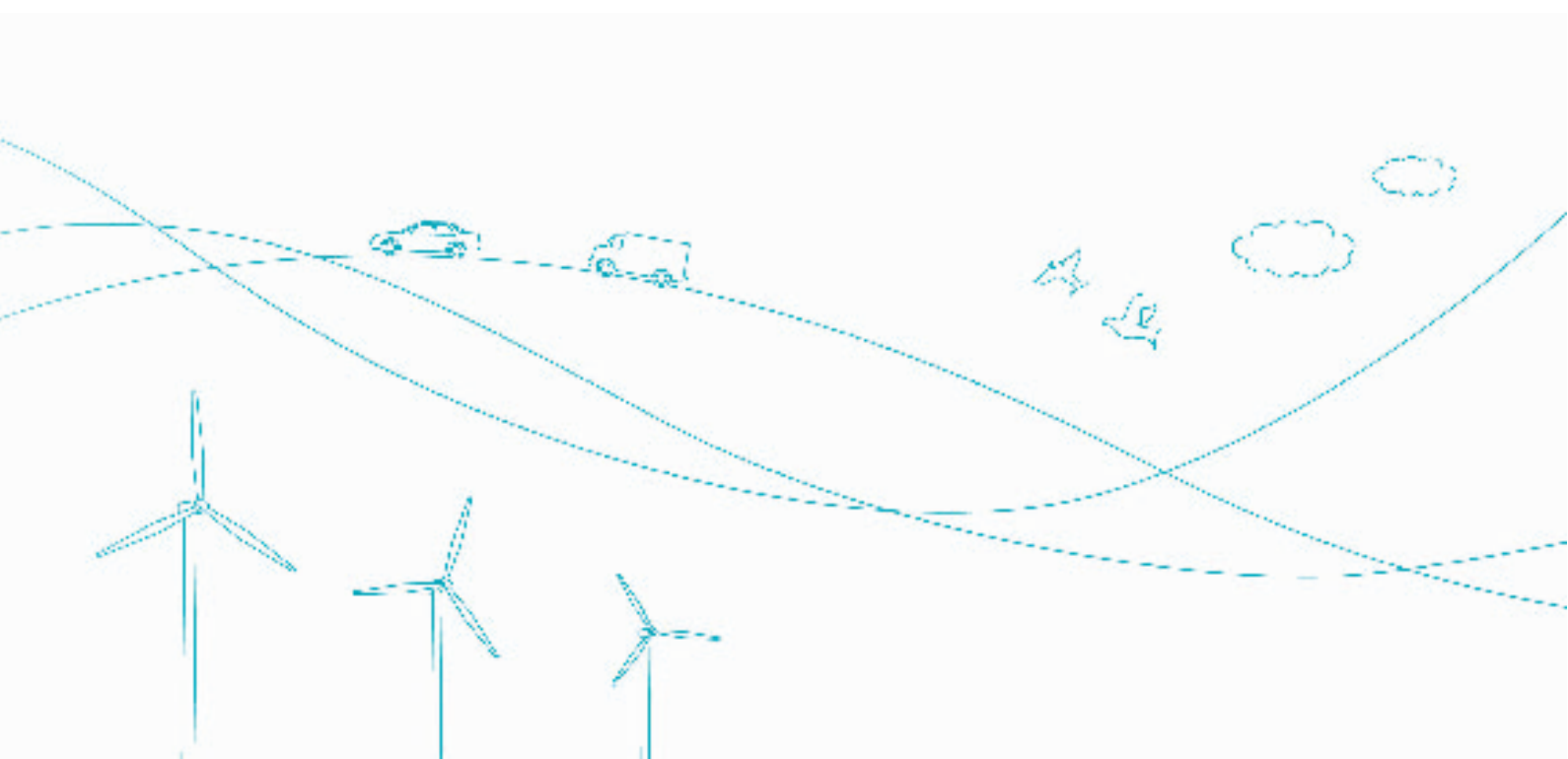




# Corporate Social Responsibility Report 2009



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## Editorial Policy

In drafting this "Corporate Social Responsibility Report 2009," reference was made to the Ministry of the Environment's Environmental Reporting Guidelines (2007) and the Global Reporting Initiative's 2006 Sustainability Reporting Guidelines.

The report covers the period from April 1, 2008 to March 31, 2009.

Reporting on environmental initiatives and data for Group companies located overseas covers the period from January 1, 2008 to December 31, 2008.

The range of companies involved differs with each initiative cited, but is clearly stated with the data. To ensure the reliability of the information contained in this report, independent audits have been conducted by Tohatsu Environmental Research Institute Ltd.

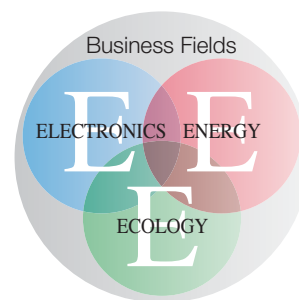
A Japanese version of this report is also available. Additional information is provided on NGK's website at "http://www.ngk.co.jp/".

## 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, 2009)  
 Employees: Unconsolidated 3,149  
 Consolidated 11,205  
 (As of March 31, 2009)  
 Business: Manufacture and sale of insulators, electric power equipment, industrial ceramic products, electronic components and special metals products; and plant engineering

## Business Fields and Segments

NGK leverages its core ceramics technology in the fields of Ecology, Electronics, and Energy (the "Triple-E" Fields) to develop its Power, Ceramic Products, Engineering and Electronics businesses. Our aim is to protect the environment and benefit society.



## [ Business Groups and Main Products ]

### Power Business

- Insulators for power lines and transformers
- Devices for power transmission
- NAS® batteries for power storage



NAS® batteries for power storage



Insulators for power lines

### Ceramic Products Business

- Ceramic products to purify automotive exhaust
- Industrial-use ceramics
- Combustion apparatuses and refractories
- Plant engineering



Ceramic products to purify automotive exhaust



Home-use "C1" water purifier

### Electronics Business

- Beryllium copper rolling and processing products
- Ceramics for semiconductor manufacturing equipment
- Metal molds
- Ceramics for the electronics industry



Beryllium copper products



Ceramic components for inkjet printers

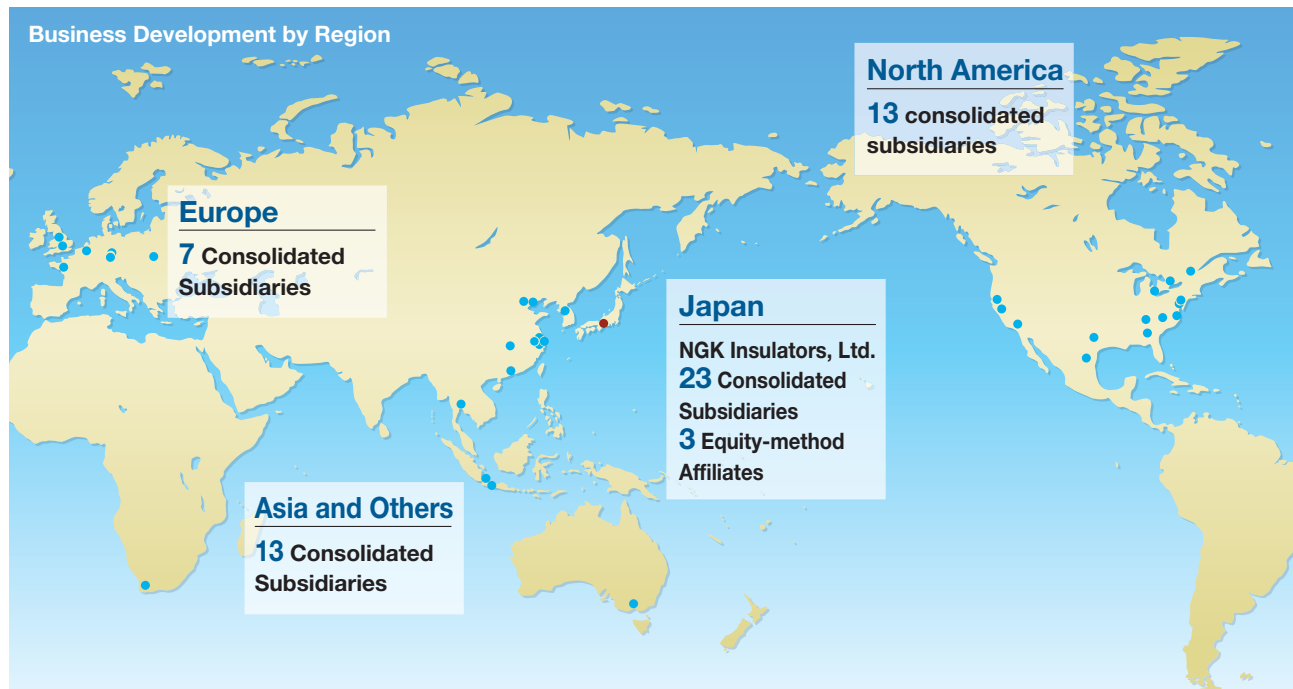
■ Next year's version of this report is scheduled to be published in July 2010.

■ This report can be viewed online at

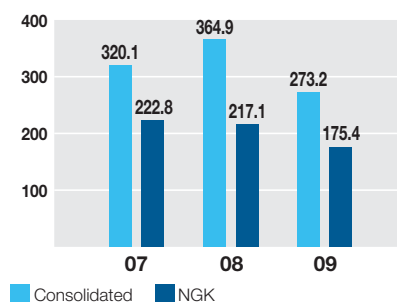
<http://www.ngk.co.jp/english/csr/>

## Business Overview

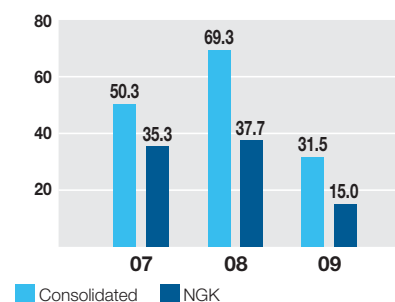
Business is growing on a global scale and changes are taking place with increasing speed. With proprietary ceramics technologies as its core technologies, the NGK Group is globally and dynamically developing its own business operations.



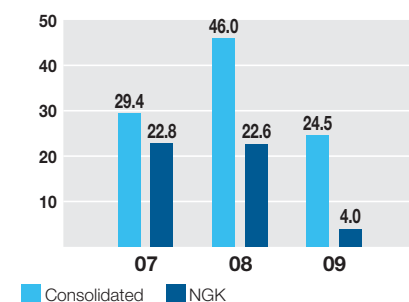
**Net Sales (Billions of Yen)**



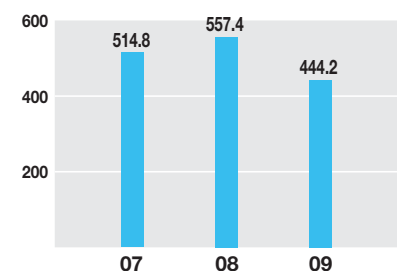
**Ordinary Income (Billions of Yen)**



**Net Income (Billions of Yen)**

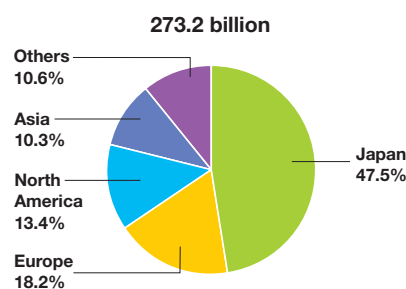


**Total Assets (Billions of Yen)**



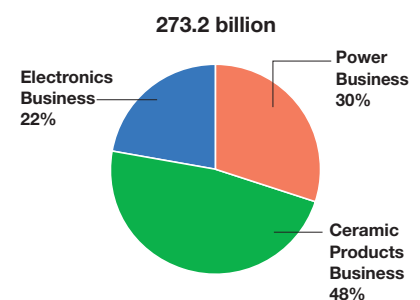
**Sales by Region**

Year ended March 31, 2009



**Sales by Business Segment**

Year ended March 31, 2009



As a company that is committed to CSR,  
we at NGK are determined to meet the  
expectations of all our stakeholders.



### NGK's Vision for CSR

In May, NGK celebrated its 90th year in business. Since its foundation, the Company has delivered products worldwide that support social infrastructure, and that are indispensable to socioeconomic development. Of course, society's needs have changed over the years, but NGK has answered these needs through a dedication to technological development, for which the Company has always earned society's trust.

In fiscal 2008, NGK regrettably saw business performance falter year on year, reflecting the adverse impact of a sharp economic downturn worldwide. Conditions are expected to worsen further in fiscal 2009. Yet even in this climate, I am convinced that constantly honing our technology, developing human resources, and addressing emerging social needs in order to spur the next stage of growth for our businesses remain the most important missions that society has entrusted to the Company.

**“NGK products and technologies must create new value and contribute to the quality of life.”**

At NGK, our fundamental objective with respect to corporate social responsibility (CSR), as this our corporate philosophy suggests, is to consistently generate new products and services of value to society through our business activities, contributing above all else to society's sustainable development.

## From Environmental Management to CSR Management

Each year, we have published a detailed account of environmental initiatives taken by NGK in the “Environmental & Social Responsibility Report.” However, beginning from this milestone year of the Company’s 90th anniversary, we have chosen to publish a “CSR Report,” offering a broader review of NGK’s actions relating to its social responsibilities beyond care for the environment. In addition to articulating NGK’s vision for the future, we hope to foster greater understanding of the Company in reporting this information to our stakeholders.

The basic aspects of CSR at NGK are the creation of new value, the environment, and compliance. Going forward, we will review annually whether our activities on each of these fronts are a suitable response to what society of the day demands. In the process, we hope to improve management of the Company to the level of CSR management.

Today, there is strong worldwide interest in reducing CO<sub>2</sub> emissions to preserve the environment and achieve sustainable social development. NGK, while supporting efficient use of energy by meeting customers’ energy efficiency needs through its products, at the same time consumes substantial heat energy and releases CO<sub>2</sub> in its manufacturing processes for ceramics products.

For a company like NGK, which handles a wide range of products that contribute to environmental performance, reducing the environmental load associated with its business activities is an imperative. Accordingly, for some time now we have been taking action to achieve this, including switching to fuels with fewer CO<sub>2</sub> emissions and minimizing energy

requirements by significantly shortening manufacturing process time. In parallel, we have developed a consolidated environmental management framework that includes overseas bases, and are enacting measures to raise the level of environmental management across the Group. Going forward, we remain committed to reducing the environmental load of our business activities by developing and adopting more efficient processes.

## Enhancing Communication with All Stakeholders

As always throughout the history of NGK, the Company’s management today must continue to earn the trust of wider society and meet its expectations.

To realize this, we must encourage greater understanding of our activities by enhancing communication with all stakeholders, including customers, shareholders and investors, employees, suppliers, and local communities. At the same time, I believe we must listen even more carefully to the feedback from our stakeholders.

Today, you are reading NGK’s first CSR Report, conceived as a step-up from the former Environmental & Social Report. When you finish, I sincerely hope that all of you will share with us your candid thoughts on NGK activities.

President and Chief Executive Officer  
**Shun Matsushita**

# CSR at NGK

## Corporate Philosophy

NGK products and technologies must create new value and contribute to the quality of life.

## Our Approach to CSR

NGK leverages proprietary technology to deliver products worldwide that are essential to social infrastructure and environmental performance. While we are committed to offering products and services that help create a better social environment and bring new value to society, we also recognize at the same time that NGK's activities are underpinned by society's expectations and trust. We believe that fulfilling our social responsibility as a company in every respect, including social and environmental preservation aspects, is essential to meeting those expectations and earning that trust.

To ensure that this approach is shared throughout the Group, NGK formulated the NGK Group Guidelines for Corporate Behavior in April 2003. The Group also strives to create a company capable of garnering greater levels of trust from stakeholders through its daily corporate activities.

Through these actions, the NGK Group seeks to contribute to society's sustainable development and to safeguard the natural environment.

## CSR Basics

A company's first corporate social responsibility is to reliably supply society with the products and services it needs, and to generate an appropriate degree of profit. The centerpiece of NGK's corporate philosophy—the creation of new value—is a prerequisite for sustaining sound corporate activities of this kind, and is the fundamental basis of CSR at NGK. Similarly, ensuring full compliance and taking adequate steps to preserve the natural environment are prerequisites to conducting all business activities.

Accordingly, the following three points make up the "CSR Basics" at NGK.

Compliance

Environment

Creation of new value

## Priorities in Promoting CSR

Provision of products that contribute to a better social environment

Protection of the natural environment

Disclosure of corporate data

Thorough compliance and risk management

Respect for human rights, maintenance of comfortable working environments

Fair, free and transparent business transactions

Promotion of social contribution activities

Communication with stakeholders

NGK pursues CSR activities in partnership with stakeholders.

With Society

With Our Shareholders and Investors

With the Environment

With Our Suppliers

With Our Customers

With Our Employees

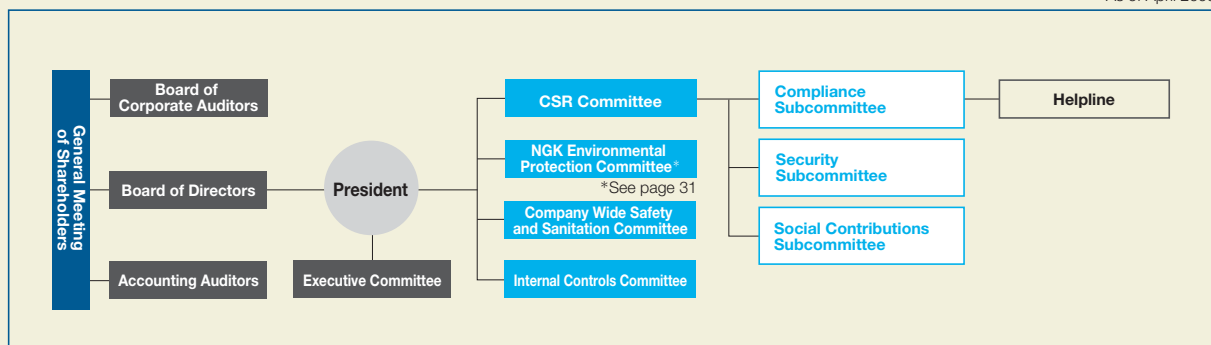
## Specific Items and Details of Priorities in Promoting CSR

Provision of products that contribute to a better social environment	<ul style="list-style-type: none"> <li>Development and provision of products and services that help to preserve the natural environment</li> <li>Development and provision of products and services that embody safety and reliability</li> <li>Realization of higher quality products and services</li> </ul>
Protection of the natural environment	<ul style="list-style-type: none"> <li>Prevention of global warming</li> <li>Promotion of resource recycling</li> <li>Adoption of environmentally friendly production processes</li> <li>Strengthening of global environmental management</li> </ul>
Disclosure of corporate data	<ul style="list-style-type: none"> <li>Enhancement of corporate information disclosure</li> <li>Consistent improvement of internal controls relating to financial reporting</li> </ul>
Thorough compliance and risk management	<ul style="list-style-type: none"> <li>Thorough promulgation of the NGK Group Guidelines for Corporate Behavior through education</li> <li>Respect and protection of intellectual property rights</li> <li>Strict adherence to the Anti-Monopoly Act, Subcontracting Act, and other laws and regulations pertaining to business transactions</li> <li>Reinforcement of the risk management system</li> <li>Construction and consistent improvement of a framework for information security</li> <li>Strict adherence to laws and regulations relating to export management</li> </ul>
Respect for human rights, maintenance of comfortable working environments	<ul style="list-style-type: none"> <li>Maintenance and consistent improvement of safe and comfortable working environments</li> <li>Utilization of diverse human resources</li> <li>Development of human capital and recruiting of human resources across the Group</li> <li>Support for better balance between work and home life/childrearing</li> </ul>
Fair, free and transparent business transactions	<ul style="list-style-type: none"> <li>Fair and honest evaluation of procurement partners, and extensive resource diversification</li> <li>Promotion of CSR procurement</li> </ul>
Promotion of social contribution activities	<ul style="list-style-type: none"> <li>Provision of scholarships and living assistance to foreign students</li> <li>Cooperation with local communities, labor unions, and NPOs in social contribution activities</li> <li>Support for volunteer activities by employees</li> </ul>
Communication with stakeholders	<ul style="list-style-type: none"> <li>Communication with customers and procurement partners</li> <li>Interaction with local communities via plant tours and open house events</li> <li>CSR Talk Live (Discussions on executing CSR with every employee class)</li> </ul>

## CSR Promotion Framework

NGK has established the CSR Committee, NGK Environmental Protection Committee, Company Wide Safety and Sanitation Committee, and the Internal Controls Committee to promote Group CSR activities.

As of April 2009





# CSR Objectives and Achievements

Priorities in Promoting CSR	CSR Objectives	Major Initiatives in 2008
Provision of products that contribute to a better social environment	Develop and provide products and services that help to preserve the natural environment	<ul style="list-style-type: none"> <li>Operated NAS<sup>®</sup> battery systems in the world's first facilities to combine storage batteries with a wind power plant (located in Rokkasho, Aomori Prefecture, Japan) and a large-scale solar power plant (Wakkanai, Hokkaido Prefecture, Japan)</li> <li>First in the world to commercialize high-precision NOx sensors</li> </ul>
	Develop and provide products and services that embody safety and reliability	<ul style="list-style-type: none"> <li>Delivered insulators for China's first 1-million volt transmission line</li> </ul>
	Realize higher quality products and services	<ul style="list-style-type: none"> <li>Enacted a campaign to eliminate customer complaints</li> <li>Began evaluation of quality activities as a group</li> </ul>
Preservation of the natural environment	Help prevent global warming	<ul style="list-style-type: none"> <li>Reduction of CO<sub>2</sub> emissions NGK Japan: Emission volume of 151,000 tons (Target: under 174,000 tons) Domestic Consolidated: Basic unit per sales value of production 7.1% reduction from 2005 (Target: reduction of 4% or higher)</li> </ul>
	Adopt environmentally friendly production processes	<ul style="list-style-type: none"> <li>Began analyzing environmental load of production processes (Commenced selection of target processes and analysis)</li> </ul>
	Promote resource recycling	<ul style="list-style-type: none"> <li>Reduction of by-products generated NGK Japan: Reduction of 20% from 2005 (Target: reduction of 15%) Domestic Group: Reduction of 13% from 2005 (Target: reduction of 9%)</li> <li>Conducted material flow analysis trial runs</li> </ul>
	Strengthen global environmental management	<ul style="list-style-type: none"> <li>Developed a consolidated environmental management framework; set targets for reducing environmental load of Group companies outside Japan</li> <li>Completed introduction of integrated environmental management database system</li> </ul>
Disclosure of corporate data	Enhance disclosure of corporate information	<ul style="list-style-type: none"> <li>Disclosed timely and accurate management and IR data (business report, annual report, briefings for institutional investors)</li> </ul>
	Consistently improve internal controls over financial reporting	<ul style="list-style-type: none"> <li>Confirmed that all control systems are functioning effectively</li> </ul>
Thorough compliance and risk management	Thoroughly promulgate the NGK Group Guidelines for Corporate Behavior through education	<ul style="list-style-type: none"> <li>Revised in April 2008; distributed pamphlets to and raised awareness among all NGK, Japan Group company employees (including dispatch staff)</li> <li>Confirmed status of formulation of policies, etc. among listed domestic and overseas Group companies</li> <li>Conducted education and training regarding content of corporate behavior guidelines through position-based training</li> </ul>
	Reinforce the risk management system	<ul style="list-style-type: none"> <li>Enacted risk response measures in every division based on NGK's first CSA (Control Self-Assessment) questionnaire</li> <li>Conducted CSA questionnaire among NGK, Japan Group companies</li> </ul>
	Respect and protect intellectual property rights	<ul style="list-style-type: none"> <li>Conducted seminars on intellectual property and patent searches</li> </ul>
	Construct and consistently improve a framework for information security	<ul style="list-style-type: none"> <li>Compiled an "Information Security Handbook" and conducted a related education program through position-based training</li> <li>Enacted measures to strengthen IT networks at Group companies (primarily in Japan)</li> </ul>
	Strictly adhere to the Anti-Monopoly Act, the Anti-Trust Act and other laws and regulations pertaining to business transactions	<ul style="list-style-type: none"> <li>Created a manual pertaining to competition laws (EU, U.S.)</li> <li>Conducted seminars pertaining to competition laws (EU, China)</li> <li>Conducted education and training regarding competition laws at seminars for staff preparing for outside Japan postings</li> </ul>
	Strictly adhere to laws and regulations relating to export management	<ul style="list-style-type: none"> <li>Developed regulations for export management (U.S. Group companies)</li> <li>Promoted education and training regarding security export control at seminars for staff preparing for outside Japan postings</li> </ul>
Respect for human rights, maintenance of comfortable working environments	Maintain and consistently improve safe and comfortable working environments	<ul style="list-style-type: none"> <li>Instituted education and training regarding practical safety for 320 managers (plant general manager to operation manager position)</li> <li>Inspected appropriate driving techniques and conducted education and training for safe driving for managers and commercial-vehicle operation managers</li> </ul>
	Develop human capital and recruit human resources across the Group	<ul style="list-style-type: none"> <li>Renewed the "NGK Global Seminar" program</li> <li>Enhanced education and training for middle management</li> </ul>
	Utilize diverse human resources	<ul style="list-style-type: none"> <li>Promoted greater employment opportunities for disabled people, women and the elderly</li> </ul>
	Support a better balance between work and home life/childrearing	<ul style="list-style-type: none"> <li>Enacted initiatives for shortening overall working hours (2008 to 2010)</li> <li>Encouraged utilization of leave system for child and nursing care</li> </ul>
Fair, free and transparent business transactions	Evaluate procurement partners fairly and honestly, and extensively pursue resource diversification	<ul style="list-style-type: none"> <li>Established a helpline specifically for suppliers</li> <li>Conducted a questionnaire regarding environmental measures taken by suppliers (approx. 400 companies)</li> <li>Explained NGK's "Green Supplier" initiatives to major suppliers</li> </ul>
	Promote CSR procurement	<ul style="list-style-type: none"> <li>Signed Memoranda of Understanding with suppliers to agree not to do business with criminal elements or organizations</li> <li>Conducted Group education and training on laws governing procurement</li> </ul>
Promotion of social contribution activities	Provide scholarships and living assistance to foreign students	<ul style="list-style-type: none"> <li>Instituted assistance for foreign students (provided scholarships to 20 students, and housing to 40 students)</li> <li>Conducted language and cross-cultural exchange classes for local residents near student housing complex</li> <li>Conducted cross-cultural exchange classes for employees</li> </ul>
	Cooperate with local communities, labor unions, and NPOs in social contribution activities	<ul style="list-style-type: none"> <li>Compiled information on specific community activities by Group companies in and outside of Japan</li> </ul>
	Support volunteer activities by employees	<ul style="list-style-type: none"> <li>Compiled information on specific volunteer activities by employees at Group companies in and outside of Japan</li> </ul>
Communication with stakeholders	Undertake communication activities with customers and procurement partners	<ul style="list-style-type: none"> <li>Held business performance presentations for major suppliers</li> </ul>
	Interact with local communities through plant tours and open house events	<ul style="list-style-type: none"> <li>Instituted explanatory meetings regarding production plants</li> <li>Accepted students for plant tours and as on-the-job trainees</li> </ul>
	CSR Talk Live (Discussions on executing CSR for employees in every job position)	<ul style="list-style-type: none"> <li>Conducted CSR-related lectures as part of position-based training</li> </ul>



**The NGK Group sets priority targets for its CSR activities and works diligently to meet them with the aim of developing a company that earns greater trust from its stakeholders.**

	Achievement Level	2009 Targets
	○	· Deliver large-scale NAS® battery systems to Abu Dhabi, UAE (Development of full-scale sales activities outside Japan)
	○	· Expand insulator production facilities to accommodate planned ultra-high-voltage transmission network infrastructure in China
	○	· Continue efforts to prevent defective products; develop and step up research into causes of defects stemming from manufacturing processes
	○	· Reduction of CO <sub>2</sub> emissions NGK Japan: Emission volume of 136,000 tons or less Domestic Consolidated: Basic unit per sales value of production 5% or more reduction from 2005
	○	· Continue and develop production process analysis
	○	· Reduction of by-products generated NGK Japan: Reduction of 20% from 2005 Domestic Group: Reduction of 12% from 2005 · Continue and develop material flow analysis
	○	· Embed consolidated environmental management system; expand setting of targets for reducing environmental load at Group companies outside Japan (4 companies) · Begin operating integrated environmental management database system
	○	· Continue to provide fair and honest information disclosure in a timely and appropriate manner (business reports, annual reports, briefings for institutional investors)
	○	· Embed systems and enhance performance levels
	○	· Thoroughly reinstate at Group companies; confirm awareness status
	○	· Conduct the second CSA questionnaire
	○	· Continuously implement training and upgrade training content
	○	· Institute education and training for all users · Enact measures to reinforce IT networks at Group companies (mainly outside Japan)
	○	· Conduct seminars regarding competition laws (U.S.)
	○	· Create regulations for export management (EU Group companies)
	○	· Institute practical safety education and training for younger employees (500 people) · Embed "Identify and Rectify" activities at existing worksites · Survey status of safety management and education for the entire Group
	○	· Establish an overseas trainee system to quickly cultivate global human resources · Develop the program to strengthen onsite capabilities and extend to all leaders · Enlarge the number of people who have taken the seminar to expand the pool of global human resources
	○	· Improve the employment rate for disabled persons; study programs to promote greater utilization of female employees · Diversify the employment options for senior workers
	○	· Work to shorten overall working hours (2008 to 2010) · Enhance leave system for child and nursing care (Study proposals for enactment in terms of time considerations and economic support)
	○	· Introduce a certification system for green suppliers
	○	· Extend Green Procurement Guidelines to Group companies
	○	· Continue and enhance assistance operations · Expand opportunities for cross-cultural exchange with local residents and employees · Study measures for creating a network of assistance alumni
	○	· Establish an information network with Group companies in and outside of Japan and seek out cooperative ventures with labor unions and NPOs
	○	· Establish an information network covering the status of volunteer activities by Group company employees in and outside of Japan
	○	· Study the idea of surveys to garner customer input and measure levels of satisfaction
	○	· Increase the frequency of explanatory meetings regarding production plants, plant tours and acceptance of on-the-job trainees by the Group
	○	· Distribute a "CSR Report Digest" to Group employees in Japan · Hold "CSR Talk Live" sessions led by senior management and employees

Note: Evaluation standards for achievement level: ○ Target achieved △ 80% or more of target achieved x Less than 80% of target achieved



From 1919 To 2009  
Feature

# 90 Years of History and New Challenges

## Linking Distinctive Technologies to Trust

### Distinctive Technologies and Products That Continue to Earn Society's Trust

#### NGK's Path from Simple Insulator Producer to the World's Leading Insulator Manufacturer

The generation of electricity began to gain momentum in Japan around the middle of the Meiji Period, at the end of the 19th Century, when it became possible to transmit high-voltage current from hydroelectric power plants. At that time, the only insulators with the capacity to withstand such high voltages were produced overseas, forcing Japan to rely on foreign imports. Using fragments from American-made insulators as a point of reference,



Insulator fragment that led to NGK's founding

Nippon Toki, the country's first modern ceramics manufacturer, began researching and manufacturing high-voltage insulators in a drive to produce special high-voltage insulators in Japan. In 1919, expansion of Nippon Toki's insulator business and vast

improvements in quality culminated in the establishment of a new company, NGK INSULATORS LTD.

As time progressed, electrical power emerged as an indispensable element for promoting both industrial development and improving the quality of everyday life. As demand for power rose dramatically, insulators had to achieve higher performance. To meet these new requirements in and outside Japan, NGK worked tirelessly to adopt advanced production equipment and bolster its research structure, developing a succession of ultra-high-voltage and ultra-high-strength insulators. In earning customers' trust, NGK has evolved over the years into the world's leading insulator manufacturer, supporting the electrical power supply networks that serve as critical social infrastructure.



High Voltage Laboratory

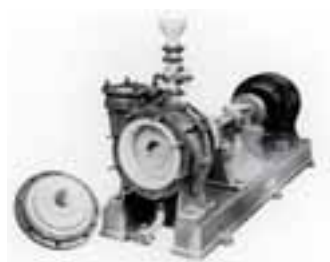
#### Diversifying a Business Developed in Tandem with a Changing and Growing Society

In step with Japan's industrialization, NGK has supplied industry with a variety of devices, including ceramic pumps, blowers and valves, that feature both high durability and corrosion resistance

90 Years of NGK	NGK Technology and Products	<div><div></div><div><b>Supporting Social Infrastructure With Outstanding Reliability</b><ul style="list-style-type: none"><li>Special high-voltage insulators</li><li>Adoption of tunnel kilns</li><li>Construction of 1125 kV high-voltage test equipment</li></ul></div></div>	<div><div></div><div><ul style="list-style-type: none"><li>Water and wastewater treatment systems</li><li>Sludge treatment systems</li></ul></div></div>	<div><div></div><div><ul style="list-style-type: none"><li>Low-level radioactive waste treatment systems</li></ul></div></div>		
		<div><div></div><div><b>Supporting the Environment, Lifestyles and Industry With Clean, High-efficiency Systems and Distinctive Technologies</b><ul style="list-style-type: none"><li>Acid-resistant devices, pumps and valves for industrial use</li></ul></div></div>	<div><div></div><div><ul style="list-style-type: none"><li>Premium fire-resistant materials</li><li>Industrial furnaces and heating systems</li><li>Glass-lined products</li><li>BEALON metal molds</li></ul></div></div>	<div><div></div><div><ul style="list-style-type: none"><li>HONEYCERAM® (ceramic substrate for purifying exhaust gas)</li><li>HICERAM® (translucent alumina tubes)</li><li>Beryllium copper wrought products</li></ul></div></div>		
		<div><div></div><div><b>Environmentally Conscious Production Processes</b><ul style="list-style-type: none"><li>Recycling of pre-sintering raw materials (Reuse)</li></ul></div></div>	<div><div></div><div><b>1953</b> Use of city gas as fuel</div></div>	<div><div></div><div><b>1963</b> Switch from supply-limited resources to plentiful resources as main raw materials for insulators (Raw material supply stability)</div></div>	<div><div></div><div><b>1973</b> Introduction of LNG for sintering fuel (Clean energy) <b>1976</b> Opening of Tajimi Country Club (Environmental beautification and effective utilization of raw material source after resource extraction)</div></div>	
				<div><div></div><div><b>1970</b> Establishment of NGK Pollution Countermeasures Committee <b>1974</b> Establishment of Environmental Protection Committee and Environmental Preservation Office</div></div>		
		<b>1919</b>	<b>1940</b>	<b>1950</b>	<b>1960</b>	<b>1970</b>
Historical Background		<b>1941</b> Pacific War <b>1945</b> End of the Pacific War			<b>1964</b> Tokyo Olympics; opening of the Tokaido high-speed rail line	<b>1970</b> U.S. Muskie Act (Clean Air Act) <b>1973</b> First oil crisis

thanks to technologies honed through activities in insulator production. These devices have been instrumental to the development of Japan's post-war heavy chemical industry.

Advanced economic growth in Japan was accompanied by urban expansion and a new need for the creation of living environments. In this context, NGK took advantage of its technology and expertise in water separation and sintering gained from insulator production, as well as plant engineering technologies, to advance into the field of environmental systems, including water and wastewater treatment



Acid-resistant ceramic pump (Developed in 1931)



Sludge incineration system

facilities and sludge incineration systems. By extending its operations into fields that support health and living comfort, NGK has developed into a company capable of meeting society's expectations across a broad spectrum of areas.

## HONEYCERAM®— Support for Worldwide Motorization

By the 1970s, the need to purify automotive exhaust had emerged as a major global concern. Leveraging distinctive ceramics technologies, NGK developed and commercialized HONEYCERAM® catalytic substrates that are essential to purifying exhaust. Since then, NGK has responded to the increasingly tight exhaust restrictions that appear nearly each year, striving to improve purification capacity and achieve lighter weight by realizing ceramic substrates with thinner inner walls. Today, NGK



HONEYCERAM® a catalytic substrate for purifying automotive exhaust gas



Diesel particulate filters (DPFs) for diesel-powered vehicles

produces ultra-thin walled HONEYCERAM® with a wall thickness of just 0.05 mm, or about the same thickness as tissue paper.

A cumulative total of over 800 million HONEYCERAM® units have been delivered to automakers worldwide. Together with diesel particulate filters (DPFs), NGK is contributing to the realization of a comfortable and convenient lifestyle for people and environmental protection on a global scale.

## Contributing to the World with Ceramics Technology Developed for Society and the Modern Age

The ceramics technology that NGK has cultivated since its first days in business has become a critical element in realizing the spread and expansion of green energy.

NGK was the first in the world to commercialize NAS® batteries. This NGK technology has garnered attention in Japan and elsewhere as a system for storing electric power from wind and other natural energy sources and supplying the power with a stable level of quality. Our large nano-ceramic separation membranes, meanwhile, are expected to allow more compact equipment sizes and help to save energy and reduce CO<sub>2</sub> emissions across a wide range of industries.

NGK's 90-year history has been one of consistently leveraging distinctive technologies to create new value that meets the demands of the day.

Going forward, we remain committed to contributing to society's sustainable development through creation and global supply of new products help to realize a better social environment.



Japan Wind Development Co.'s  
Futamata Wind Farm (Rokkasho, Aomori Prefecture)



NAS® battery system for large-capacity power storage

<ul style="list-style-type: none"> <li>• 12-meter hollow insulator</li> <li>• Line arrester for power transmission lines</li> <li>• Lightning-resistant materials for power transmission</li> </ul>	<ul style="list-style-type: none"> <li>• NAS® batteries for power storage</li> </ul>
<ul style="list-style-type: none"> <li>• Ceramic turbocharger rotor</li> <li>• Ceramic filter for precision filtering</li> </ul>	<ul style="list-style-type: none"> <li>• Micro-actuator for inkjet printers</li> <li>• Ceramic heaters and electrostatic chucks for semiconductor manufacturing equipment</li> <li>• DPF (diesel particulate filter)</li> <li>• NOx sensor for automobiles</li> <li>• "C1" water purifier for home use               <ul style="list-style-type: none"> <li>• DNA chip (micro-array for genetic analysis)</li> <li>• Nano-ceramic separation membranes</li> </ul> </li> </ul>
	<ul style="list-style-type: none"> <li>• <b>1998</b> Received ISO 14001 certification (Nagoya, Chita, Komaki)</li> <li><b>1996</b> Formulation of NGK's Core Policy on the Environment; establishment of CO<sub>2</sub> Countermeasures Commission</li> <li><b>2002</b> Began purchase of green electric power</li> <li><b>2003</b> Adoption of fuel-regenerating kilns</li> <li><b>2008</b> Establishment of Group Environmental Committee, Environmental Management Headquarters</li> </ul>
<b>1980</b> <b>1985</b> G5 Plaza Accord <b>1986</b> Act on Securing, Etc., of Equal Opportunity and Treatment between Men and Women in Employment	<b>1990</b> <b>1992</b> Rio Declaration on Environment and Development <b>1995</b> Great Hanshin Earthquake <b>2000</b> <b>2001</b> September 11 terrorist attacks on the U.S.

## Fostering Reliable and Harmonious Individuals

### Corporate Development in Tandem with Employees' Wellbeing and Growth

Since day one, NGK has clearly voiced its conviction that corporate development and the enhancement of employee happiness should be one and the same pursuit, and that improving the working environment is indispensable to business development. Accordingly, NGK has taken progressive measures in this area that



Insulator production process circa NGK's founding

include improving employee treatment, creating safe and comfortable working environments, and ensuring that employees have access to a full range of social benefits and services.

NGK established the Factory Negotiation Committee in 1924, soon after its founding. Guided by a policy of listening carefully to worker input, NGK has reflected employee feedback in company initiatives, while working to improve treatment of workers and ensure a full range of social benefit and service facilities.

Even when faced with the adverse operating conditions in post-war Japan, NGK not only maintained labor conditions that surpassed those required by labor standard laws of the time, but also kept up good relations between management and labor. In



No. 1 Tunnel Kiln (1920s)

1948, management and labor joined forces in a concerted production rationalization drive that proved critical to NGK's later development.

Similarly, NGK was among the first (1954) to devise measures targeting silicosis,

which had become a problem in many industries, enacting measures such as equipment improvements and victim care and support which other companies would later adopt. This is just one example of how NGK has worked to establish an extensive safety management structure.

### Development of Diverse Initiatives in Response to Changing Times

NGK views the human resources that support its technology and products as "human capital"—a perspective that NGK has retained since the day it was founded.

Throughout the 1970s and 80s, NGK, in promoting the creation of workplaces where employees would find meaning in their work, instituted a host of personnel-related measures in response to a new era of changes. These included a five-day working week, mandatory retirement at 60, a self-development leave and support system, and a flex-time system.

With the establishment of NGK Ceramics Europe SA in 1985, NGK's global business development began in earnest, accompanying the transfer of its advanced technology from Japan, and the cultivation of human resources capable of supporting operations outside Japan became an urgent task.

Today in addition to North and Central America and Europe, NGK's bases outside Japan have expanded to include Southeast Asia, China, Oceania and South Africa. Thanks to the collaborative efforts of officers sent from Head Office, dispatched staff, and a multitude of local employees, sales outside Japan now account for roughly 50% of net sales at NGK.

Going forward, NGK will continue to train human resources equipped to deal with the situations in each country and region to deliver superior products and technologies across the globe.



Practical training in self-directed maintenance at the Global Operations Meeting

90 Years of NGK	Employee Development					
		1919	1940	1950	1960	1970
		<b>Improvement of Human Resource Utilization, and Labor Conditions</b> 1946 Instituted monthly salary system and employee qualification system (distinction between white- and blue-collar workers eliminated)				
		<b>Human Resource Training/Capacity Development</b> 1948 Production rationalization drive (workplace association/small group activities)				
		<b>Safe and Comfortable Work Environments</b> 1946 Establishment of Occupational Health and Safety Committee				
		<b>1951 Establishment of Labor-Management Relations Committee</b> <b>1957 Appointment of women as worksite leaders</b>				
		<b>1954 Establishment of Silicosis Countermeasures Committee</b> (measures to overcome work-related causes of the disease)				
		<b>1962 Received the Minister of Health, Labor and Welfare Award as a business with outstanding occupational health and safety management</b>				
		<b>1975 Instituted five-day working week</b>				
	With Society	<b>Delivering Better Products to the World</b> 1935 Export of suspension insulators to India (NGK's first product exports)				
		<b>Coexistence with Business Partners</b> • Launch of Insulator Friendship Association and Metal Fitting Liaison Association (support and cultivation of partner companies)				
		<b>1965 Establishment of NGK America</b> (local sales companies)				
		<b>1973 Establishment of U.S.-based Locke Insulators</b> (start of local production overseas)				



## Always with Society

### Valuing Our Bonds with Local Communities

Over the years, NGK has placed great value on its bonds with local communities, as expressed through its assistance in building better societies and communities, and through NGK's support for music, the visual arts and other artistic activities.



NGK acquired naming rights to the Nagoya Civic General Gymnasium

Since the 1950s, NGK's senior management team, as one of the community's local economic leaders, has proactively pursued activities designed to promote local economic development. Among other actions, these activities have included declaring a future vision for the community where NGK operates and addressing to central business communities on its behalf.

In 1998, the NGK Foundation for International Students was established, which supplies housing and scholarships to foreign students studying at universities in Japan's Aichi Prefecture. In addition



Award ceremony for presentation of NGK scholarships

to aiding human resources that can contribute to the development of their home countries and the international community, the foundation seeks to deepen the students' understanding and friendship with Japan, in the hope that they will one day become bridges between their countries and Japan.

### Aiming to Become a Global Corporate Citizen

NGK's bond with communities is not limited to Japan. In parallel with the global expansion of its business operations, NGK has pursued a range of activities in each region where it operates as a good corporate citizen.

Over the years, individual Group companies have continued to conduct social contribution activities that dovetail with the needs of their communities. As part of these activities, Group companies have been involved in programs that include donations to support children and universities in impoverished areas, support for local sports teams, and assistance to disaster victims. At the same time, employees have continued to take part in an array of volunteer activities, among them programs designed to assist children from impoverished homes and the disabled.

Going forward, NGK remains committed to establishing itself as a corporate citizen that communities can trust by promoting activities tailored to the characteristics and needs of local communities.

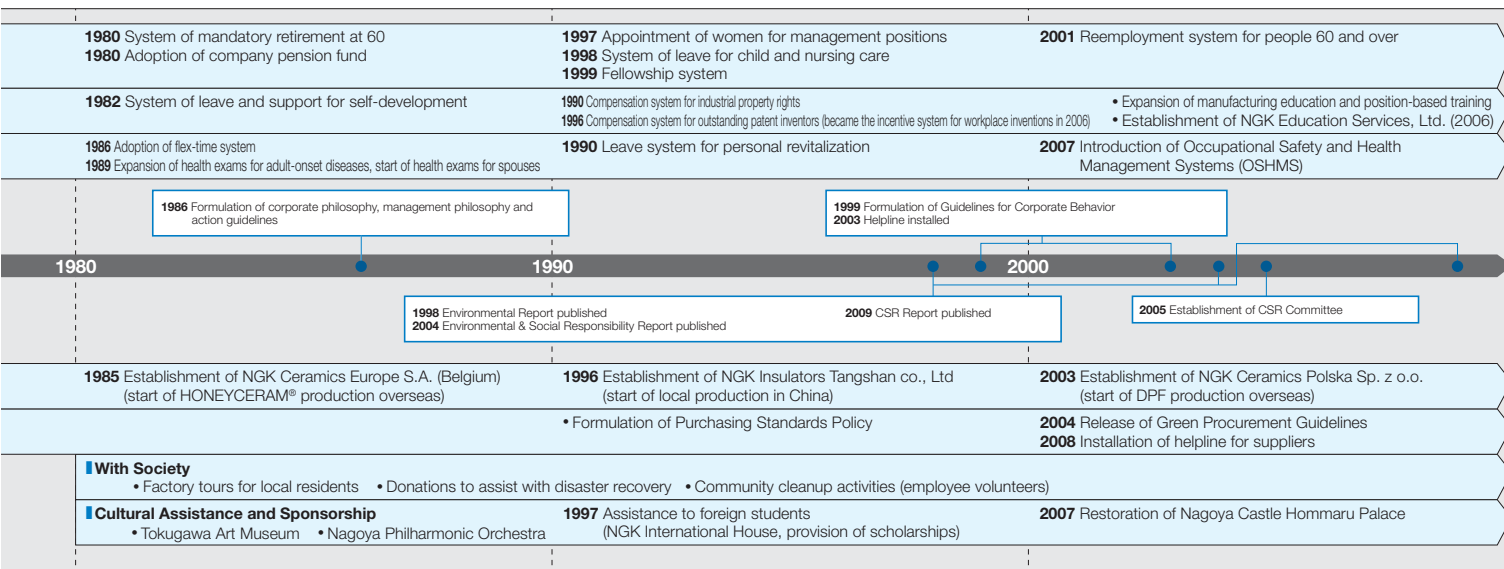


Cultural exchange with Japan (NGK Ceramics, U.S.A.)

## Start of a New Decade Approaching 100 Years in Business

In 2009, NGK celebrates its 90th anniversary. This is an important time as we embark on a new step toward NGK's 100th anniversary and its development beyond. While continuing to cherish the Company's long history, we intend to further hone NGK's distinctive technologies to dynamically develop our business.

Furthermore, as a global corporation NGK will continue to create new value and to become a company that earns even greater trust from all stakeholders.



# Corporate Philosophy

## Corporate Philosophy

“NGK products and technologies must create new value and contribute to the quality of life.”

NGK formulated its corporate philosophy, the most fundamental corporate objective of the NGK Group, in 1986. This philosophy ascribes meaning to the continued existence of the NGK Group and indicates the business domains into which the Company should channel its efforts.

Based on this corporate philosophy, the NGK Group provides new products and services through its business activities, while fulfilling its social responsibilities as a company on every front, including social behavior and preservation of the natural environment. Accordingly, the Group promotes initiatives aimed at transforming itself into a corporation that earns greater trust than ever before from all of its stakeholders.

## NGK Group Guidelines for Corporate Behavior

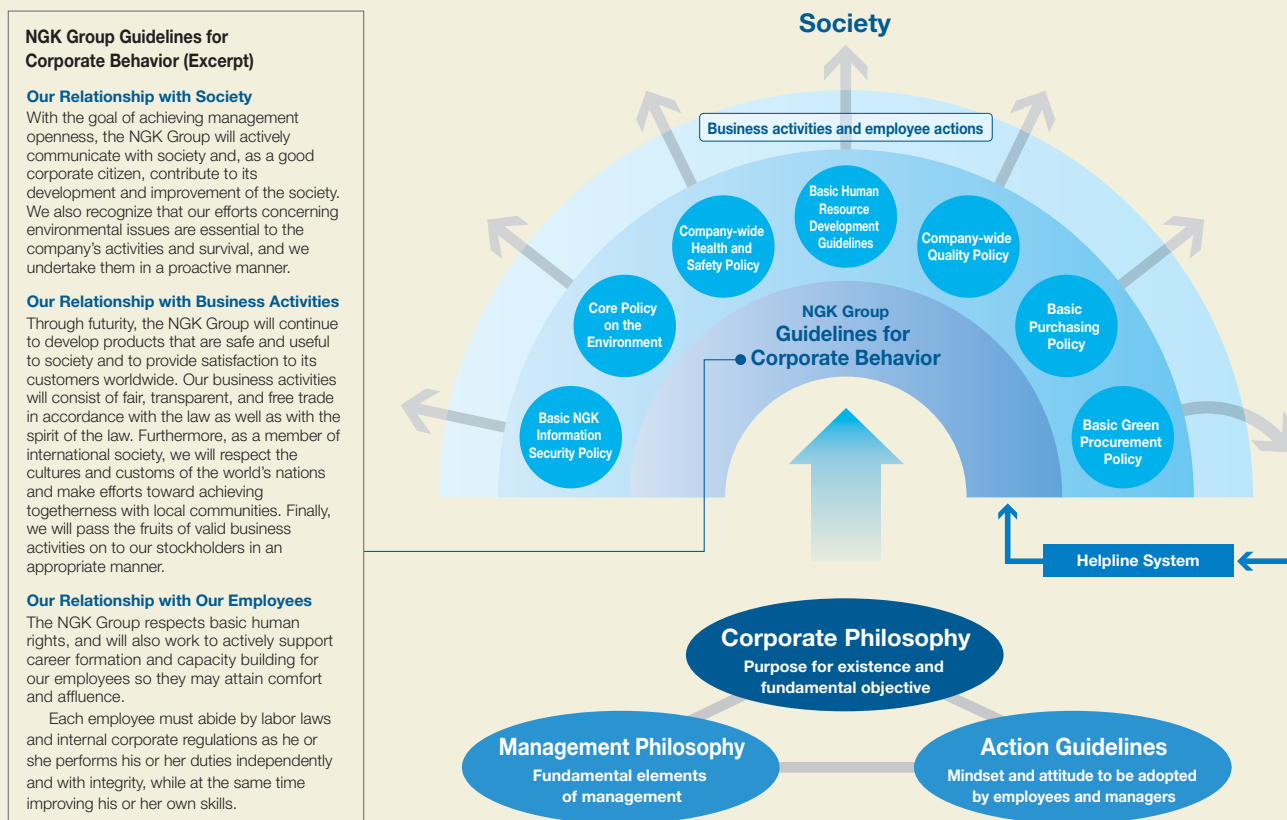
Established in April 2003, the NGK Group Guidelines for Corporate Behavior is a set of guidelines for putting the NGK Group's corporate and management philosophies into practice, and a policy for actions taken by the Group. Along with the pursuit of economic efficiency through fair and free competition, the

guidelines specifically indicate the fundamental stance that Group business activities, officers and employees should adopt to ensure that the Company's existence also remains a beneficial one for society.

In April 2008, we revised the NGK Group Guidelines for Corporate Behavior to bring them in line with changes in social trends. Leaflets to this effect were distributed to all employees at NGK and Group companies in Japan. Moreover, knowledge of the Group's corporate philosophy is thoroughly entrenched thanks to efforts by each division to periodically reconfirm the details of the Group's corporate behavior guidelines.

## Seven Policies and Guidelines

Based on the NGK Group Guidelines for Corporate Behavior, the Group has seven policies and guidelines that form a system for asserting its stance and approach both within and outside of the Company. These policies and guidelines are the “Basic NGK Group Information Security Policy,” “Core Policy on the Environment,” “Company-wide Health and Safety Policy,” “Basic Human Resource Development Guidelines,” “Company-wide Quality Policy,” “Basic Purchasing Policy,” and the “Basic Green Procurement Policy.”





# Corporate Governance

## Basic Policy on Corporate Governance

The NGK Group has developed and maintains an organizational structure capable of ensuring the legality of business activities and transparency of management while quickly accommodating changes in the operating environment. The Group has also established and maintains management systems capable of the appropriate disclosure of information required by shareholders.

The corporate governance system consists of the General Meeting of Shareholders, the Board of Directors, and the Board of Corporate Auditors as well as the Executive Committee, which assists the president with decision-making, and various committees under the Executive Committee (see the chart below). The Company increases the effectiveness of governance through the discussion and consideration of important matters.

## Development of Internal Control Systems

In fiscal 2006, the NGK Group moved quickly to establish a dedicated organization to prepare for the application of an internal control reporting system established in accordance with the Financial Instruments and Exchange Act and proceeded with systems development.



Confirmation of the state of internal control development at NGK Europe (Germany)

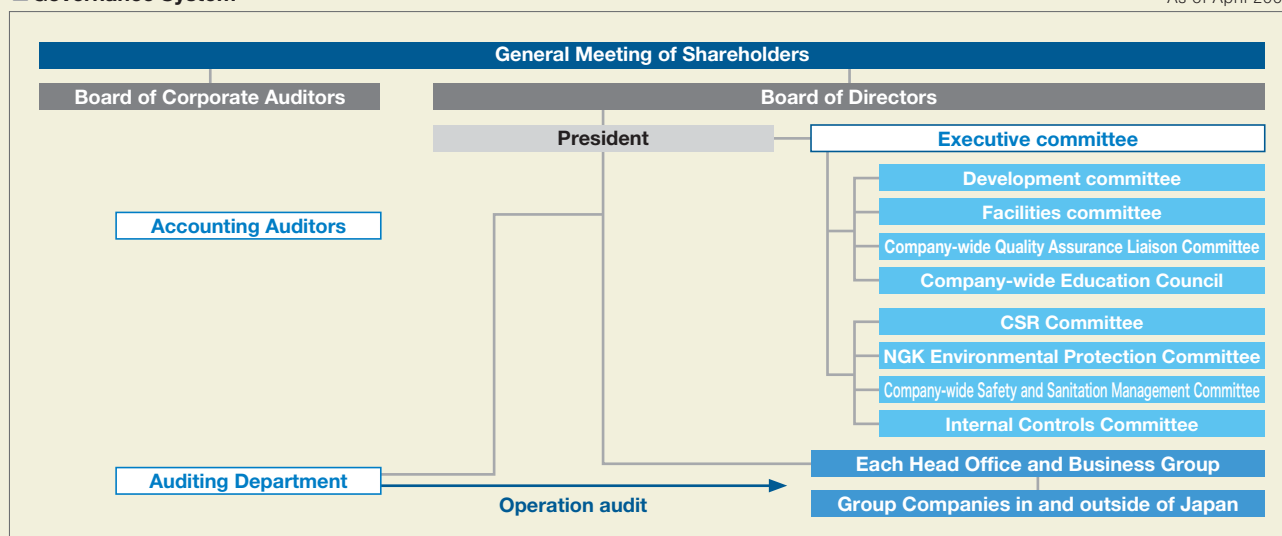
A characteristic of the NGK Group's internal control measures, including measures at overseas business sites, is that the personnel onsite who actually perform the business operations received assistance from specialists to analyze their operations and develop and verify a framework for the effective functioning of internal control systems. This approach was adopted to ensure that development was not limited to one year, since it is necessary to upgrade internal control systems to increase efficiency and reliability by means of improvement of business operations themselves on a daily basis. Also, the responsible head office divisions systematically developed the necessary regulations at all organizational levels and created a new framework for risk management, completing most of this task in fiscal 2007.

In fiscal 2008, the first year of operation of the internal control systems, each division completed a self-assessment by the end of September in accordance with a schedule decided by the Internal Controls Committee. The Auditing Department then conducted independent internal audits. Workplaces having inadequacies identified in the audits corrected them and once again conducted self-assessments. As of March 31, the final assessment date, it was confirmed that all controls are functioning effectively.

In fiscal 2009, the second year of implementation, the NGK Group, including Group companies in and outside of Japan, will steadily implement activities to firmly establish and upgrade the internal control systems.

## Governance System

As of April 2008



# Compliance

## Compliance Education

The NGK Group considers the establishment and implementation of a compliance system to be an important management policy, and the CSR Committee's Compliance Subcommittee plays a central role in compliance education and awareness efforts. Principal among these efforts are Anti-monopoly Law lectures attended by employees as well as executive managers and Legal Compliance Liaison Meetings, where legal explanations are provided and case examples introduced to workplace managers from a wide range of Group organizations. The Group also conducts position-based training programs for new hires, regular employees and middle managers to inculcate a compliance mindset, and enable them to acquire required knowledge.

Training in the European Community Competition Law was conducted in Germany in September 2008. Frontline sales managers and sales representatives from Group companies in the U.K., France, and Germany participated to gain a deeper knowledge of these laws.



A company seminar about the European Community Competition Law (Germany)

## Legal Risk Assessment at Group Companies Outside Japan

To consolidate legal risk management in Group companies outside Japan in concert with international sales expansion, from fiscal 2007 through fiscal 2008, the Company conducted a fact-finding study of legal affairs management at each company. In this way, the Company defined the roles Head Office and the local Group companies should play in various legal affairs and instituted periodic reporting to Head Office on the state of legal risk management. The Company will continue to promote cooperation between Head Office and local Group companies and enhance systems for appropriately and promptly responding to legal risks.

## Helpline System

To deal with violations of laws, internal regulations or corporate ethics that cannot be resolved within the organization, the NGK Group has established a helpline system as a compliance aid for directly accepting consultations and reports from concerned parties.

To ensure effective operation of the helpline, the Company has arranged to provide protection for those seeking consultation, guarantee fairness of procedures, and facilitate access by preparing five points of contact, including an outside lawyer and someone who specializes in consultation with women.

In November 2008 the Company conducted a Compliance Awareness Questionnaire Survey, which covered all officers and employees of NGK and Group companies in Japan (including temporary workers, part-time workers, and employees seconded to overseas Group companies). We have aggregated and analyzed the results and are using the findings to develop measures for future helpline operation and compliance assurance.



A helpline card



## Security Export and Specified Export Control

To contribute to the maintenance of international peace and security and prevent the spread of weapons of mass destruction, the NGK Group has organized the Security Export and Specified Export Control Committee and strives to reliably comply with laws and regulations related to export security. In fiscal 2008 overseas Group companies further strengthened their export security posture by preparing compliance manuals, providing more rigorous education for employees taking up new posts, and other measures.

In December 2008 the Company obtained authorized exporter approval from Nagoya Customs. This authorization is granted to business operators that have put in place integrated security controls covering operations, sales, and exports and established compliance systems. This authorization has made it possible to perform export application procedures at NGK warehouses and other locations and to rapidly and smoothly load export cargo. These efficiency improvements can be expected to reduce lead times and logistics costs.

# Risk Management

## Development of Risk Management Systems

As NGK's business expands, the risks it faces continue to globalize and diversify. To minimize these risks, NGK is putting in place a risk management system.

For instance, the Company avoids and prevents the materialization of operational risks, such as sharp fluctuations in demand or impediments to the facilities investment plan, by discussing budgets and plans at strategy meetings and management meetings or comprehensively considering and analyzing risks in the implementation decision process. Moreover, the Central Disaster Prevention and Control Headquarters and CSR Committee are in place to deal with wind or flood damage, natural disasters, major transportation disasters, and other emergencies.

The Company has introduced control self-assessment (CSA)\* as part of developing internal controls to counter day-to-day risks that may occur in the routine performance of duties. These CSA processes identify risks, to which each organization implements individual countermeasures in addition to Group-wide countermeasures implemented by the Human Resources Office, Information Technology Department and other Head Office organizations responsible for risks.

\* Control self-assessment (CSA) is a technique by which the personnel responsible for control activities in business operations subjectively verify and assess their own activities with respect to the effectiveness of control activities relating to risk management or internal control.

## Information Security System

At a time of increased globalization of business, information exchanged over IT networks and security control of such information are becoming more important. In the NGK Group, the CSR Committee's Security Subcommittee oversees overall information security across the Group, including security management of IT networks and PC terminals, development of security systems for paper and electronic documents, and management of personal information, and supports the activities of the Information Technology Department and the General Affairs Department.

The use of IT networks entails risks such as virus infection, unauthorized access, and information leakage. The NGK Group has systematically developed its physical network to enhance security levels by establishing a wide-area Ethernet network and shared file server operation.

The Group will continue to steadily reinforce protection against information risks, including further security level enhancement at business sites outside of Japan.

## Information Security Education

In addition to systems development, another extremely important aspect of information security is dealing with risks arising from the people who actually prepare, use and manage information. NGK ensures reliable operation of information security systems by periodically conducting user surveys and audits, and has also upgraded the electronic information security education component of new employee training and principal position-based training programs.

Furthermore, in response to an increase in the number of PC users and newly emerging IT risks, in December 2008 the Security Subcommittee oversaw preparation of an Electronic Information Security Handbook to ensure the reliable functioning of internal controls. The Company has distributed the handbook to all employees who use NGK PCs, including temporary staff from outside agencies, and plans to use it as a core instructional material to enhance user education.



The Electronic Information Security Handbook

# Creation of New Value

In this section we introduce examples of initiatives for “creation of new value” — the foundation of CSR in the NGK Group.

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## New Product and New Technology Development

### The World's First High-Precision In-Vehicle NOx Sensor

NGK has become the first company in the world to mass-produce and commercialize an in-vehicle NOx sensor that detects the concentration of nitrogen oxides (NOx) in vehicle exhaust in real time with high precision. The sensor is used for control and failure diagnosis of exhaust purification systems. The sensor complies with stringent exhaust gas regulations planned for introduction in the U.S., Europe, and Japan in future.

Highly acclaimed as an innovative, original technical development contributing to the realization of clean diesel

vehicles, the NOx sensor won the Japan Fine Ceramics Association's Award for Technical Advancement in May 2008 and the Minister of Economy, Trade and Industry Prize, the highest award in the Chunichi Industrial Technology Awards (sponsored by Chunichi Shimbun Co., Ltd.), in December 2008.



A NOx sensor

### The World's Most Efficient Fuel Cell

Fuel cells, which generate electricity from hydrogen and oxygen, are attracting attention as a next-generation electric power source. NGK has taken full advantage of advanced ceramics technologies to develop a uniquely structured solid oxide fuel cell (SOFC), achieving world-class power generation efficiency of 63% and high fuel utilization of 90%.

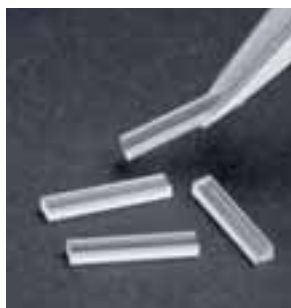
An SOFC stack has been provided to a major oil company and is currently being evaluated for power generation performance. NGK will undertake further improvement in SOFC performance with the aim of commercialization at businesses and homes, promising sites for fuel cell installation.



A SOFC stack

## Wavelength Conversion Device That Generates Green Laser Light

Red-light and blue-light semiconductor lasers have already been commercialized, but the low-cost production of green laser light and other colors was considered difficult. NGK has developed a wavelength conversion device (PPLN\*) that has overcome this obstacle and is now aiming to achieve commercial application of compact, low-power-consumption blue and green lasers. The device is expected to find application in miniaturization of industrial testing equipment and in new image display devices such as laser televisions and micro-miniature projectors.



PPLN (Periodically poled lithium niobate)



A laser television that uses PPLN

\* PPLNs are elements with a ridge-shaped five-micrometer-wide light channel formed on a single-crystal substrate made of doped lithium niobate. It is possible to efficiently convert infrared light into blue light and green light by passing it through a PPLN.

## Intellectual Property Strategy Underpins Product and Technology Development

The NGK Group Guidelines for Corporate Behavior express the Group's respect for intellectual property that is created, including that of third parties. The Group considers intellectual property to be an important corporate

strategic asset and a source of competitive strength and is stepping up active patent applications in Japan and in other countries.

These days, patents in Japan and other countries have been compiled in databases that allow instantaneous searching and analysis of enormous volumes of technical information. NGK has introduced a state-of-the-art system that offers superb search capabilities to manage important intellectual property rights such as patents, designs, and trademarks. This system allows NGK to employ intellectual property information in technical development and in formulating business strategies. It has also increased efficiency and speed in research and development, while enabling NGK to prevent others from infringing on its patents and avoid infringing on patents owned by other parties.

Since fiscal 2007 the NGK training center has also engaged in more practical education to develop engineers who can create robust patents and experts in information analysis. NGK also offers incentives to researchers and developers, having established an incentive system for workplace inventions to pay rewards to inventors of excellent patents.



An intellectual property training seminar

### Receipt of the Medal with Purple Ribbon for Zirconia Development

In the Medal of Honor ceremony in the spring of 2008, I was awarded the Medal with Purple Ribbon for the development of zirconia. Zirconia is a ceramic material used in a wide range of applications, including in oxygen sensors for purifying automobile exhaust and the ferrules of optical fiber connectors. I became involved in development in 1979, soon after joining NGK, and devised an experimental method of accelerated deterioration. I tested various materials under different firing temperatures and composed of different raw materials, and in 1980 succeeded in developing tetragonal zirconia having unprecedented high strength and durability and applied for a patent. It gives me great pride as a developer to consider that oxygen sensors produced using zirconia contribute to environmental protection and that optical fiber connectors support today's IT society.

It would have been difficult to obtain the patent without the steadfast support of the Patent Department of the time, and without the patent I would not have received the award. I am deeply grateful for NGK's intellectual property protection activities.



**Tadashi Odagiri**  
General Manager New Products  
Development Center  
Corporate R&D Division



# With Our Stakeholders

A look at the NGK Group's initiatives in the area of stakeholder relations

## [Activities Covered]

NGK Insulators, Ltd. Group companies in Japan and around the world

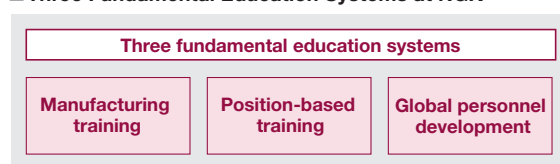
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## With Our Employees

### Diverse Initiatives for Human Resource Development

In the ongoing process of globalizing business, NGK has created three fundamental education systems of manufacturing training, position-based training and global personnel development. NGK is applying these systems in a Group-wide initiative to further personnel development.

#### Three Fundamental Education Systems at NGK



### Manufacturing Training

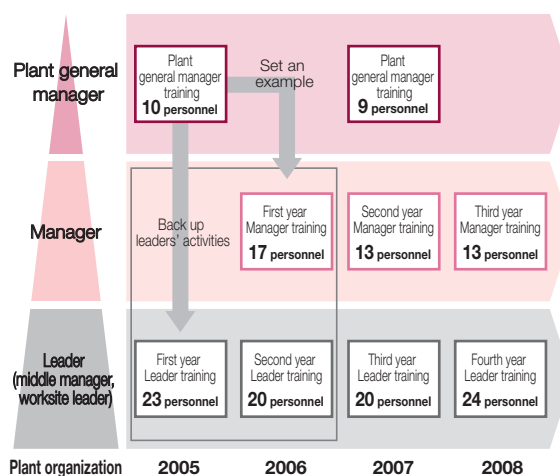
The purpose of manufacturing training is to safely pass on NGK-specific manufacturing skills and techniques to the next generation of workers.

The program to strengthen onsite capabilities is the main feature of the manufacturing training system, and has been run since 2005. The program focuses on nurturing key personnel who will take the lead as innovators at manufacturing sites.



Leaders receiving training to strengthen onsite capabilities

#### Structure of Program to Strengthen Onsite Capabilities and Number of Personnel Who Have Taken the Course





At the end of fiscal 2008, there were still a number of middle managers and workplace leaders who had yet to take this course. Our aim for fiscal 2009 is to have all such personnel complete the course, and going forward, to develop this initiative into autonomous activities involving all personnel connected with worksites led by the key personnel. We aim to achieve robust and active worksites in this way.

### Position-Based Training

For position-based training in fiscal 2008, we focused particularly on increasing the number of middle managers that had taken a seminar in management principles and fundamentals. The purpose of the seminar is to remind participants of the importance of “people management,” which in practice tends to be overshadowed by “work management.”

In position-based training for new hires, we underlined the importance of morals and social manners, emphasizing that as NGK employees, they are expected to behave as adult members of society.

Important goals of position-based training are to encourage participant's self-awareness of the responsibilities associated with a given job position based on their career path and to promote the acquisition of basic knowledge. However, a deeper purpose of position-based training is to promote mutual understanding and awareness through discussions across divisions and job types.

Going forward, we will continue to view position-based training not simply as a means to heighten the awareness or motivation of individual employees, but as an opportunity to cultivate a sense of solidarity with colleagues of all generations working at the Company.

### Grooming Global-Oriented Personnel

NGK's business operations are globalizing at an accelerating pace, further highlighting the need to expand the pool of human resources with the skills and sensibilities to support this trend.

The “NGK Global Seminar” was launched in fiscal 2007. Each year we have continued to update the program categories and improve the practicality of course credit offerings. In fiscal 2009, we plan to set up a new overseas trainee system to help participants gain experience abroad in the early stages of their careers. Previously, only human resources involved in clerical work and sales have been fortunate enough to have opportunities to work abroad from relatively early on. Today, however, we recognize that grooming globally viable human resources from an early stage is equally important for personnel involved in technology and manufacturing, where greater emphasis on the depth of practical experience is expected. This is another area where we believe the trainee system has an important role to play.

### Supplemental Programs

Respecting the desire for personal improvement, NGK has complemented its three fundamental education systems with skill enhancement programs that employees can select from according to their individual needs. Furthermore, to foster and improve operational specialization, we periodically conduct programs under direct divisional control run by safety management and intellectual property management divisions.

With these programs, NGK offers employees with the desire to improve their skills a diverse range of learning opportunities through which to do so.

### Fostering Human Resources to Support Global Expansion

As I am scheduled for posting overseas in fall of 2009, I took a six-month global training program focused primarily on compliance, communication and safety.

One area we considered of particular importance was the improvement of cross-cultural communication skills. Through the program, participants learned the importance of taking a hard look at themselves from a completely opposing standpoint.

The thing that I found most challenging, however, was giving presentations in English. Watching recordings of my performance, however, encouraged me to approach the presentations much more seriously.

On the ground overseas, I will make good use of what I learned at the global training program, but I also intend to try and give feedback in Japan on what I have learned. Once our work overseas begins, the other seminar participants and I hope to play a big part in supporting NGK's future global development.



**Takuki Matsui**  
Accounting Group  
Finance & Accounting Dept.  
Administration Division

## Employment and Human Rights Initiatives

NGK endeavors to employ personnel based upon our policies of stability and equal opportunity in employment. We also encourage independence and autonomy among our employees, and have adopted an equitable results-based compensation system weighted on an employee's contribution to the Company, along with the personnel systems this requires.

Furthermore, in addition to respect for employees' basic human rights, we strive to create comfortable and safe working environments where employees will find it easy to perform their duties.

### Employment Diversity and Equal Opportunity

NGK employs personnel without regard for race, nationality, belief, gender, or disability, and is striving to achieve an equal opportunity workplace.

As of March 31, 2009, women accounted for roughly 12% of NGK's workforce, and this figure includes six women in management positions, out of the 719 people in such positions. Over the five-year period since 2004, of the 229 people hired with a college education or higher, 24 were women (16 of whom hold master's degrees). While this number remains small relative to our overall employment figures, the fields in which women are active at NGK are gradually expanding. Going forward, while taking personal ambition and suitability into account, we intend to continue to push forward with recruitment practices based on rational standards without regard to gender.

Where employees with disabilities are concerned, the percentage of employees with disabilities throughout fiscal 2008 was 1.66%. As this figure falls below the legally mandated ratio of 1.8%, we are working to broaden the job types for which applicants with disabilities can be hired, and remain committed to expanding employment opportunities in the spirit of laws covering employment of people with disabilities.

#### Receipt of THP "Progress Award" for Assisting in Good Mental and Physical Health

NGK's Nagoya Office and Energy Support Corporation were awarded the THP "Progress Award" at awards presented by the THP Promotion Council of the Japan Industrial Safety & Health Association in fiscal 2008.

THP (Total Health Promotion Plan) is a comprehensive mind-body health promotion drive applicable to Japan's entire working population. Eight business sites across Japan have received the "Progress Award" in recognition of their progress in THP standards for more than five consecutive years.

NGK draws up its own personnel plans that focus upon issues such as business trends, including within Group companies, and effect on increasing productivity. Striving for employment stability, we carry out a policy of recruitment from a medium-term perspective. In manufacturing divisions, we have introduced a manufacturing contract employee system, and as of March 31, 2009, there were approximately 470 personnel employed under this system. In fiscal 2008, we hired about 70 of these staff as regular employees during the year.

### Optimal Job Allocation and Skill Improvement Support

To open the way for employees to take full advantage of their individuality and skills, NGK operates an internal job application system and the internal Free Agent (FA) system. The internal job application system is a mechanism whereby the Company discloses to employees the positions that it requires and appoints suitable applicants. The internal FA system enables employees to publicize experience and skills that they have acquired themselves, and register for positions and duties that they wish to perform.

In fiscal 2008, 16 positions were advertised through the internal job application system. In addition to these two systems, NGK has set up a career tracking system and a follow-up system for younger employees to support employee growth.

### System for Rehiring Employees after Retirement

In an effort to present employment opportunities for senior workers, since April 2001, NGK has adopted a system for rehiring ordinary, regular employees after their retirement. As of March 31, 2009, we had 237 rehired employees, accounting for 6.0% of the total workforce. Furthermore, NGK has rehired middle management staff after retirement on a Company-wide basis since fiscal 2007, making active use of the abilities of middle management that wish to be rehired.

### Supporting Mental and Physical Health and Work-Life Balance

NGK is committed to helping employees maintain good mental and physical health and a good balance between work and home life. Out of this commitment we are striving to lower total hours worked during the period to fiscal 2010. Specific measures include promoting a reduction in overtime of 5%, encouraging employees to take paid leave, and increasing vacation time. We also continue to set each Wednesday as a "refresh day," meaning that all employees leave the Company at the designated time.

Where work and home life balance is concerned, we called for a change of employee consciousness by posting feature articles on the subject in our in-house bulletin.

With respect to mental healthcare, in fiscal 2008 we conducted a questionnaire targeting all NGK employees in an effort to discover and care for any issues that might emerge ahead of time. An industrial health specialist, meanwhile, visits our major business sites as part of follow-up.



In-house bulletin with feature on work and home life balance

In fiscal 2008, the Company initiated a review of health-related issues for employees posted to Group companies overseas from Japan, beginning first with a check of the local medical system and sanitation conditions in China. In the future, we plan to perform the same check for employees at other bases in Europe, the United States, and Asia.

### Increasingly Utilized Child and Nursing Care Leave System

Our leave system for child and nursing care is a measure to assist those employees with childcare or family nursing care responsibilities. In fiscal 2008, a total of 15 NGK employees, including one male employee, utilized this system for childcare leave. Furthermore, the ratio of employees who continue from maternity leave into childcare leave is a high 93%.

NGK is dedicated to developing an environment that helps employees take part in childcare and nursing care based on the spirit of laws passed to support the development of Japan's next generation.

### Respect for Human Rights and Preventing Harassment

The NGK Group prohibits harassing behavior (for example, sexual harassment or power harassment) by employees, which is injurious to individual dignity and interferes with workplace order and business execution, and takes disciplinary action in response to any violations. We have concluded a labor-management agreement regarding prevention of harassment and we have established a grievance reconciliation committee comprising representatives from both labor and management. We are also implementing various other measures in this area, such as incorporating a harassment prevention lecture as part of our in-house training program in an effort to raise awareness.

### Labor-Management Relations

NGK is building labor-management relations founded on mutual trust where both labor and management fulfill their respective responsibilities. We have also established various consultative bodies to provide opportunities for communication between labor and management, such as the Labor-Management Advisory Board, the Office Advisory Board and the Regular Labor-Management Council, where both sides actively and constructively exchange opinions based on a mutual relationship of trust.



The Labor-Management Advisory Board

### A Corporate Culture of Free Thought and the Will to Challenge

Since the summer of 2008, I have been responsible for overseas sales activities for NAS<sup>®</sup> battery systems, products which have garnered a great deal of attention today. My work encompasses everything from presentations to familiarize our customers, usually power companies, in North America, Europe and the Middle East with the superior functionality and potential of NAS<sup>®</sup> battery systems, to marketing activities.

Similarly, I was involved in an order from the Abu Dhabi Water and Electricity Authority in the UAE for a 50 MW NAS<sup>®</sup> battery system, a big project we received at the close of 2008. Even now, we are moving steadily forward in our negotiations with customers and adjustments being made ahead of delivery and the start of system operations.

I have been involved in overseas sales operations from the moment I joined the Company, including a posting in North America. Thanks to opportunities at NGK that have always come regardless of my age or gender, I have been able to take on any challenges that I have set my mind to. Because of this, I always approach my job with fresh enthusiasm. I am proud to be a part of helping to promote NAS<sup>®</sup> battery systems, which have the potential to contribute to the environment everywhere in countries across the globe.



**Kayoko Tokino**  
Supervisor  
NAS Overseas Sales Dept.  
Power Business Group

## Occupational Safety and Health Initiatives

Safety and health form the foundation of a company's existence, and ensuring safety and health is one of a company's fundamental responsibilities.

NGK strives to minimize hazardous risks and prevent occupational accidents by obeying laws and regulations and by partnering with employees to conduct activities in line with our Occupational Safety and Health Management Systems (OSHMS<sup>\*1</sup>). In this way we are working to ensure truly safe and pleasant workplaces.

### OSHMS Adoption and Development

In fiscal 2007, NGK simultaneously implemented OSHMS at its Nagoya, Chita and Komaki Plants as a mechanism for systematic and ongoing safety and health initiatives to fully prevent work-related accidents. In fiscal 2008, we instituted these systems and ensured that they were in

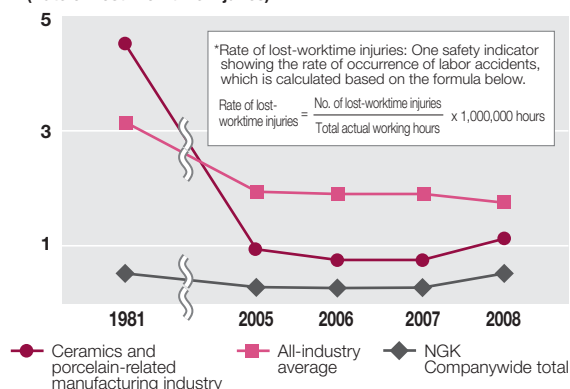
extensive operation. In particular, as our activities in line with OSHMS guidelines have gained momentum and systems have been developed, risks that previously went unnoticed have become more visible, enabling more thorough risk assessment. As part of this, we have promoted Companywide traffic safety measures to prevent accidents related to business operations, including analyzing the cause of such accidents, and performing aptitude testing of commercial vehicle drivers.

Through fiscal 2008, the Nagoya Plant obtained outside certification<sup>\*2</sup> as a qualified OSHMS business site. The Chita and Komaki Plants are set to acquire similar certification in fiscal 2009.

Group companies in Japan also comply with laws concerning occupational safety and health, with every company taking proactive steps to create safe and pleasant working environments tailored to the characteristics present at each worksite.

#### Changes in Rate of Lost-Worktime Injuries\*

(Rate of Lost-Worktime Injuries)



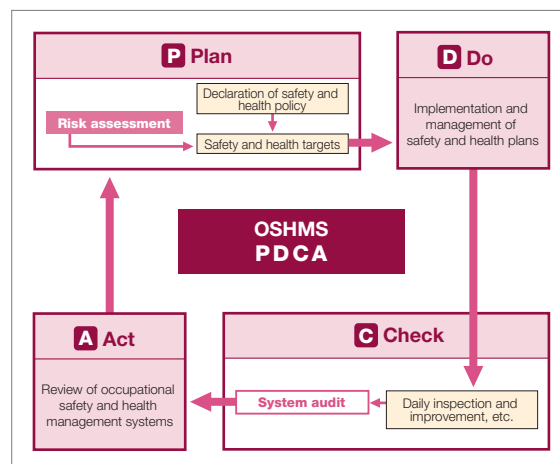
#### Changes in Work-related Accidents

(Number)



Outside OSHMS assessment by the Japan Industrial Safety & Health Association

#### Structure of Occupational Safety and Health Management Systems



<sup>\*1</sup> OSHMS: These are safety and hygiene management systems that aim to contribute to a rise in the level of safety and health at factories and offices by endeavoring to reduce the potential risk of labor accidents, promote the health of workers, and encourage the formation of a comfortable workplace environment.

<sup>\*2</sup> Outside certification: JISHA-qualified certification conducted by the Japan Industrial Safety & Health Association.

## Enhancing Safety and Health Education

Education that gives employees a sense of accomplishment is critical to efforts to promote and further improve levels of safety and health. In fiscal 2008, we increased the number of opportunities to improve existing awareness of safety and health issues by having employees experience firsthand, and in a controlled manner, the safety risks that are present in business operations. During fiscal 2008, 320 employees,

mainly managers and supervisors involved in current operations, took part in our experiential safety education program.

One of the priorities of the OSHMS systems is to minimize overt risks and latent risks before they materialize into visible accidents. We will continue to work in fiscal 2009 to promote the penetration, uptake and entrenchment of OSHMS systems by expanding and enhancing safety and health education opportunities.

### Company-wide Activities

Category	Fiscal 2008		Fiscal 2009
	Targets	Actions Implemented	Targets
<b>OSHMS</b>	· Obtain external OSHMS certification for Nagoya Plant	· Obtained external certification	· Obtain external certification for the Chita and Komaki Plants
<b>Risk prediction drills/ "Identify and Rectify" activities</b>	· Introduce "Identify and Rectify" activities	· Enacted in locations within production plants where residual risks remain	· Embed "Identify and Rectify" activities in business operations through risk prediction drills
<b>Experiential safety education</b>	· Institute experiential safety education for employees at the Company for 2 years or less	· Conducted program for 320 employees at or below plant general manager level	· Institute experiential safety education for employees at the Company for 2 years or less
<b>Risk assessment</b>	· Extend risk assessment to all operation type worksites	· Instituted risk assessment at all operation-related worksites	· Continue revised risk assessment · Enact risk assessment for chemical substances
<b>Upper management's declaration on safety</b>	· Declaration by upper management regarding safety at their own worksite	· Creation and display of roughly 200 panels by employees at or below business site health and safety manager level	· Continue same
<b>Health management</b>	· Thoroughly track employees requiring health maintenance · Strongly promote mental health education	· Mandated that departments found in violation report to the Health & Safety Committee · Enacted in all internal position-based training programs	· Continue same · Monthly rounds by industrial health specialist · Continue same
<b>Traffic safety</b>	· Enact driving aptitude tests for all new employees · Traffic near-miss incidents	· Enactment completed · Enactment completed	· Driving aptitude tests for all new employees · Traffic risk prediction drills
<b>Outside construction</b>	· Eliminate the three major types of accidents · Introduce and run risk assessment on a trial basis	· Achieved zero accidents in outside construction · Completed adoption and trial run	· Eliminate three major types of accidents · Embed risk assessment

### COLUMN

## Raising Safety Awareness Company-wide Through Experiential Safety Education

In previous years, safety education took place mainly in classrooms, which made it hard to convey to new employees with little actual work experience the reality of the dangers present. To overcome this, we introduced an experiential safety education program, where we use real machinery to simulate actual dangers that employees can experience for themselves. With this training, you get a feel for the risks that are present every day at production sites, including the potential for accidents that are all too common, such as getting pulled into or crushed by machinery, or the massive impact of being struck by it. Trainees also experience what it feels like to work in high places, as well as the effects of electrical shocks and short circuits. As a first step in spreading the meaning and concept of experiential safety education, 320 plant general managers, general managers, managers and middle-managers took part in this training program in fiscal 2008. We have confirmed that this program has indeed been effective.

In fiscal 2009, we plan to conduct this program for 500 employees, including all those just joining the Company. Heightening safety awareness among the younger generation should lift baseline safety awareness across NGK as a whole. By continuing to expand the employees who will take this training, we remain committed to doing our best to create safe and comfortable worksites.



**Kokichi Inagaki**  
Assistant Manager  
Occupational Safety and Health  
Management Group  
Human Resources Dept.



Simulated experience of being pulled into machinery as part of experiential safety education program



# With Our Customers

## Quality-Related Initiatives

With a fundamental philosophy of putting customers first, the NGK Group considers the provision of products that contribute to better social environments to be one of its most important missions.

Where quality is concerned, each year we set quality targets for the business term and promote related activities. These efforts are based on a Corporate Quality Policy that reads: "NGK is dedicated to quality and committed to providing valuable products and services that are trusted by our customers and respected by society."

## Quality Activities System

NGK has ISO-based quality assurance systems optimized at the business division level, where it promotes quality assurance, management and improvement activities. From the product development and design stage to production launch, relevant departments review and confirm that sufficient levels of quality have been secured in terms of product safety, functionality and durability. After production begins, quality is maintained or improved through quality meetings, quality committees and other mechanisms. We also respond in detail to customers through a system in which Quality Assurance departments work in coordination with other relevant divisions.

Furthermore, a Company-wide Promotion Committee of Quality Improvement Activity develops inter-divisional quality-related initiatives, which include establishing policies and goals that apply to the entire Company, as well as providing support and follow-up for activities conducted by each division. The committee also regularly reports on these activities to upper management. At the same time, the committee is addressing quality improvement through "QuiC (Quality up innovation Challenge)" activities in which all employees take part.

## Company-wide Quality Activities in Detail

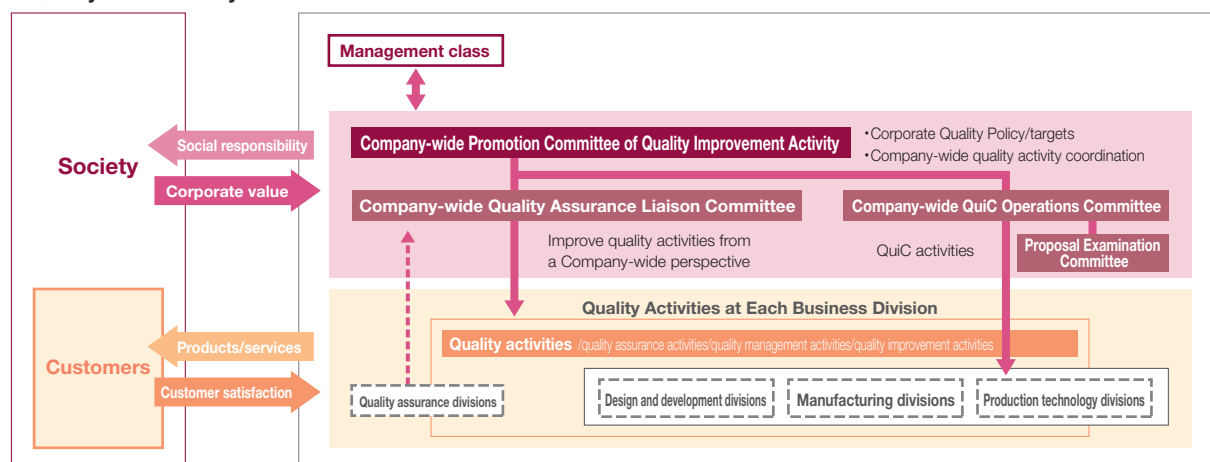
In addition to the pursuit of quality that satisfies customers (in terms of product quality, cost and delivery), NGK carries out activities aimed at improving a comprehensive conception of corporate quality that includes the creation of products that appeal to customers, recognizing this as one of its social responsibilities as a corporation.

In fiscal 2008, our drive to eliminate customer complaints in particular yielded tangible benefits, resulting in a substantial reduction in product defects. Having declared a new Company-wide target for fiscal 2009 of realizing dramatic improvements in quality levels through fundamental reforms, we will continue to strengthen activities designed to prevent defective products. Similarly for defects that emerge from manufacturing processes, we will work as a rule to develop efforts to identify and target causes of defects more aggressively than ever before, as we promote activities aimed at creating resilient and efficient manufacturing sites.

Given the demand for quality assurance activities in step with the Company's global business development, Group companies in and outside Japan will work in unison to maintain and improve quality further, with the goal of becoming an excellent corporate group in terms of quality as well. In fiscal 2008, we embarked on quality assurance activities on a consolidated basis by extending quality evaluation activities to Group companies outside Japan.

These activities will be enhanced further in fiscal 2009.

## Quality Assurance System





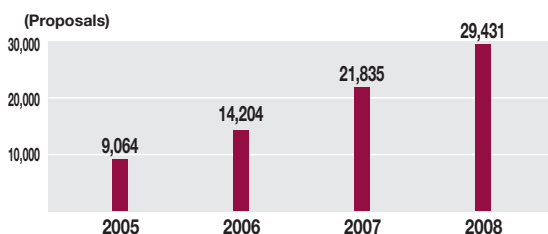
## Quality Improvement Activities

QuiC activities refer to the promotion of a range of improvement activities, including organizational improvements, small group improvements, and enhancing onsite capabilities, as well as proposal activities derived from successful actions in these areas. We are seeing greater momentum around these activities than ever before, including an increase in proposals, thanks notably to training programs launched three years ago designed to strengthen onsite capabilities. These programs have helped improvement methods to gain traction and use at worksites.

**Proposal Activities:** These activities seek to contribute to the Company's development by harnessing the imagination and ingenuity of employees in the pursuit of quality improvements, productivity improvements, health and safety improvements, and reducing the environmental load. Individuals and groups who offer proposals are rewarded based on the success of the solution proposed.

**Small Group Activities:** Small group activities are activities where teams improve the quality of products, services, and work by making use of the rationale and methods of quality control. Each year, Company-wide presentations conducted by teams selected from each department take place as part of these lively small group activities.

### Changes in Number of Proposals



## Quality-Related Education

Human resource development is becoming increasingly important in efforts to develop quality activities. Accordingly, we are conducting fundamental education and training on quality through our "Manufacturing training" and "Position-based training" programs. (See page 18).

In the quality-related education that forms part of manufacturing training, participants including leaders at manufacturing sites, learn quality improvement steps through onsite practice in the program to strengthen onsite capabilities. For quality-related education that forms part of position-based training, NGK provides quality training about quality management methods and quality assurance for each job position level. We also conduct a practical training component compiled from individual quality-related issues, as well as seminars designed to raise awareness regarding quality.



Presenters at the Companywide QuiC Activities Conference in fiscal 2008

## COLUMN

### Raising Customers' Evaluation of NGK Products

Since NAS<sup>®</sup> batteries operate as large-scale power storage facilities, the evaluations we receive from the customers are extremely important. Accordingly, while quality management at the stages of raw material procurement, design and manufacturing is very important, it is also important in terms of responding quickly to customer inquiries as a point of contact, and offering customers optimal solutions. We uphold the quality of NAS<sup>®</sup> batteries throughout the entire flow of the process, from system adoption proposals to design, installation, operation, maintenance and inspection, and evaluation.

I have been involved with NAS<sup>®</sup> batteries and related quality management since the initial development of these products. With the start of full-fledged shipments overseas in recent years, foreign customers have begun requesting third-party quality certification. I hope to be part of efforts to research certification options in this area going forward in order to meet this demand.



**Masayoshi Muramoto**  
Manager  
NAS Quality Assurance Group  
Quality Assurance Dept.  
Power Business Group

# With Our Shareholders and Investors

## Investor Relations Activities

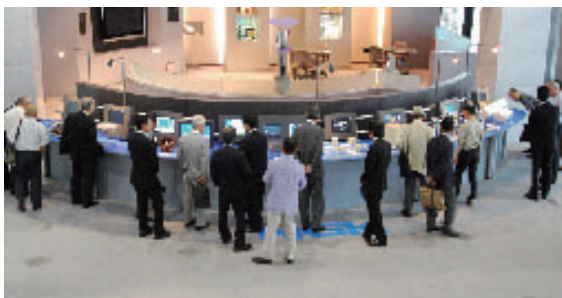
The NGK Group promotes shareholder-oriented management that emphasizes capital efficiency across the entire Group, and strives to improve corporate value with the goal of realizing sustainable growth.

As well as providing impartial and fair information to shareholders and investors in a timely and appropriate manner, NGK garners valuable input from shareholders and investors by encouraging open communication between both sides.

## General Meeting of Shareholders

NGK endeavors to hold open shareholder meetings that its shareholders will feel welcome in attending.

In fiscal 2008, we used visual displays at the general meeting of shareholders to show an outline of NGK's business operations and TV commercials to introduce shareholders to current developments at the Company.



Product displays at the general meeting of shareholders (June 2009)

## Investor Briefings on Financial Results

Investor briefings on financial results are held twice a year in Japan, primarily for the benefit of institutional investors. NGK also makes individual visits to institutional investors in Japan and in other countries in addition to issuing management information relating to corporate value.

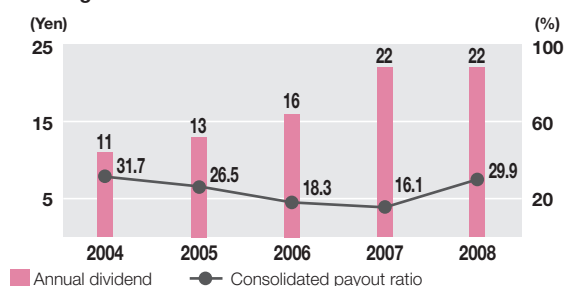


An earnings results presentation for investors (October 2008)

## Measures for Returning Profits to Shareholders

To boost shareholder profits and further enhance capital efficiency, we acquired a total of 10 million shares (approx. ¥13.36 billion) of treasury stock in two separate installments in fiscal 2008. Over the last 13 years, we have acquired a cumulative total of 93.58 million shares of treasury stock, valued at ¥104.7 billion.

### Change in Shareholder Dividends

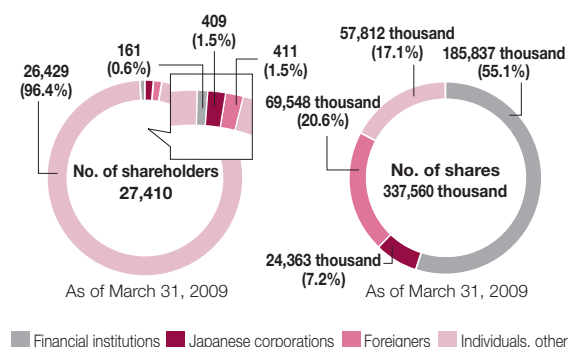


## Shareholders Information

### Status of Shares (as of March 31, 2009)

Total number of shares authorized:	735,030 thousand
Total number of shares issued:	337,560 thousand
Number of shareholders:	27,410

### Share Distribution



## Information Disclosure

NGK utilizes business reports, annual reports, and a variety of other tools for the timely and accurate disclosure of business information. In recent years, we have upgraded and expanded the IR information available on our website in response to requests by shareholders and investors.

**IR Top Page** <http://www.ngk.co.jp/english/ir/>

# With Our Suppliers

## Initiatives Related to Suppliers

NGK procures raw materials and components guided by a basic policy centered on three principles: "Open and Fair," "Partnership," and "Relationship with Society." In addition, together with the supplier companies that constitute our supply chain, we are actively working to ensure thorough legal compliance, disclose information, and promote green procurement.

### ■ Illustration of Basic Policy



## Fair and Impartial Procurement Activities

In procurement activities we endeavor to comply with laws and ordinances related to procurement (including laws and regulation relating to export management and those relating to environmental conservation) and to maintain the social environment and social order.

As part of this commitment, in fiscal 2008 we signed a Memorandum of Understanding with every supplier company that states that each company pledges not to do business with antisocial forces or organizations. Furthermore, we strive to raise the level of transparency and fairness in procurement in order to prevent possible illegal actions on our part as the ordering party. Our efforts here include steps to ensure fair business practices through compliance with the Act against Delay in Payment of Subcontract Proceeds, Etc., and establishment of a helpline specifically for suppliers.

## Procurement-Related Education and Training

In its Purchasing Department NGK conducts education and training on laws pertinent to its relationships with suppliers. Departments responsible for purchasing at Group companies in Japan receive the same guidance through a liaison committee.

## Certification of Green Suppliers

In a bid to reduce environmental load across its entire supply chain, NGK conducted a survey of environmental measures by suppliers in fiscal 2008. The survey targeted roughly 400 companies that have yet to obtain third-party environmental certification.

As a result of this survey, we learned that of our network of approximately 850 suppliers, some 560 companies including suppliers that have already acquired third-party certification, are promoting initiatives at or beyond the set baseline level.

In light of these results, we have decided to establish green supplier certification criteria and introduce a certification system in fiscal 2009. Suppliers failing to meet these certification criteria will be required to address issues necessary for certification, including the formulation of their own environmental policies, after consideration of their respective business characteristics, track record as suppliers and corporate size.

Furthermore, NGK drafted Green Procurement Guidelines in accordance with European chemical regulations and similar directives governing the handling of specified chemical substances. NGK requires suppliers to have a thorough awareness of these guidelines and is studying the uniform application of the guidelines for all Group companies going forward.

## Communication

We hold regular explanatory meetings covering NGK's earnings forecasts, our procurement initiatives (environmental and legal aspects) from a CSR viewpoint, and other pertinent matters for the benefit of our major suppliers.

At an earnings results presentation held in May 2009, we offered an explanation of NGK's upcoming initiatives regarding green suppliers.



Earnings results presentation for suppliers (held in May 2009)

# With Society

## Social Contributions and Initiatives with Communities

Conscious of the need to be a good corporate citizen, the NGK Group conducts social contribution activities and pursues initiatives in partnership with communities, with internationalization, employee participation and community as keywords.

### Operation of the NGK Foundation for International Students

Since April 1997, NGK has been providing assistance to international students, mainly in the form of accommodations and scholarships, with the goal of developing human resources who will contribute to the development of international society. In March 1998, we established the NGK Foundation for International Students, and have been developing the operations of this foundation.

In providing accommodations, NGK has established the NGK International House. Exclusively for the use of international students, the facility accommodates 40 students enrolled at universities in Aichi Prefecture, Japan. As of the end of fiscal 2008, the NGK International House has accommodated a total of 284 residents. NGK also provides scholarships to 20 students per year, including both undergraduate and graduate students. By the end of fiscal 2008, a total of 154 students had received these scholarships.

Additionally, to create opportunities for exchange between international students supported by the foundation and local residents, the foundation sponsors non-Japanese language



NGK International House



Halloween event with a local children's group



Cross-cultural exchange class on Taiwan at NGK

classes and cross-cultural exchange class, with international students as the teachers. In fiscal 2008, we began offering these cross-cultural exchange classes in-house at NGK as a means of deepening understanding of the Company's support for international students among NGK employees and encouraging interaction with the students.

## Employee Volunteer Activities

The following are some of the volunteer activities in which employees take part.

### Encouraging the Spread of Marathons for the Visually Impaired

Employees involved in Nagoya Rakusokai, a group that works to encourage and promote the spread of marathons for the visually impaired, continue their activities, such as serving as companion runners to marathoners with visual impairments.



Scene from the Hanahasu Socho Marathon (Town of Minamiechizen, Fukui Prefecture, Japan)

### Hosting of Science Experiment Booths at Science Fairs

Approximately 20 employees volunteered to serve as lecturers and conduct experiments at NGK-sponsored science booths at Science Fair 2008 (held at the Advanced Science and Technology Experiment Center, Mizunami, Gifu Prefecture, Japan) and the Youngsters' Science Festival 2008 in Nagoya (held at the Nagoya City Science Museum). NGK has participated for the past 11 years in these events which aim children to experience the wonder of science for themselves.



Youngsters' Science Festival 2008 in Nagoya (Nagoya City Science Museum)

## Initiatives by Plants and Group Companies in Japan

Our plants and Group companies in Japan conduct activities tailored to the local features and unique character of their respective communities.

### Komaki Plant



This Komaki Plant (Komaki, Aichi Prefecture) holds a summer festival each year to which local residents are invited.

### Soshin Electric



Employees from the Chikuma and Asama Plants (Saku, Nagano Prefecture) planted flowers along local roads to commemorate Soshin Electric's 70th anniversary.

### Energy Support



This subsidiary has sponsored the "Energy Support Cup Women's Volleyball Tournament" in Inuyama, Aichi Prefecture, every year since 1993.

### NGK Ohtsk



Employees take part in volunteer cleanup activities around Moyoro Beach in Abashiri, Hokkaido.



## Initiatives by Group Companies outside Japan

Below are some of the corporate citizenship activities that Group companies outside Japan pursue in their respective regions.

### NGK Insulators of Canada

- Sponsorship of local sports teams
- Assistance to underprivileged children
- Donations to job training funds for young people
- Support for the visually and hearing impaired



Local ice hockey team sponsorship

### FM Industries

- Donations to local universities
- Food donations to the Alameda County Food Bank
- Christmas presents for underprivileged children

### NGK Berylco France

- Purchase of handmade Christmas cards from institutions for the disabled
- Assistance to underprivileged children

### NGK Ceramics Polska

- Donations to local elementary schools, orphanages, and schools for disabled children
- Acceptance of students from local technical colleges for on-the-job training
- Plant tours for students from local technical colleges and junior high schools



Plant tour for students from a local technical college

### NGK Ceramics USA

- Donations to local school districts, YMCA, and United Way
- Operational support for The Japanese Language School in Charlotte
- Donation of profits from sales of recipe books featuring recipes provided by employees
- Golf tournament sponsorship and donations to cover tournament entry fees and operation
- Presents for underprivileged children
- Food donations to the Mooresville Christian Mission Food Drive
- Blood donor drives

### NGK-Locke Polymer Insulators

- Donations to a police volunteer group
- Support for The Japan-Virginia Society

### NGK Metals (US)

- Christmas presents for underprivileged children
- Donations to local fire departments

### NGK Automotive Ceramics USA

- Donations to the Japanese School of Detroit
- Donations to local elementary schools (voluntary contributions from employees)

### NGK Europe (Germany)

- Purchase of cleaning supplies from an institution for people with disabilities

### NGK Deutsche Berylco

- Ad placement in educational books on traffic safety for children published by local police
- Purchase of handmade cleaning supplies from an institution for people with disabilities
- Donations to NGOs assisting orphans

### NGK Berylco U.K.

- Donations to local children's hospitals

### NGK Ceramics South Africa

- Donation of materials to build homes in impoverished areas

### NGK Insulators Tangshan

- Donation of relief funds to earthquake survivors in Sichuan Province
- Participation in singing competition sponsored by the Investment Promotion Agency
- Blood donor drives

### NGK Ceramics Suzhou

- Donation of relief funds to earthquake survivors in Sichuan Province
- Events and activities at local Japanese school (summer festival)
- Donations to the local disabled persons federation

### NGK Insulators Suzhou

- Donation of relief funds to earthquake survivors in Sichuan Province

### NGK Technocera Suzhou

- Donation of relief funds to earthquake survivors in Sichuan Province
- Events and activities at local Japanese school (summer festival)
- Donation of winter clothing to elementary schools in Shaanxi and Yunnan Provinces
- Food preparation assistance at homes for elderly people



Donation of relief funds to assist survivors of the massive earthquake that struck China's Sichuan Province in May 2008 (total of ¥10 million donated by NGK and four local Group companies)

# With Our Environment

## A Report on NGK's Environmental Activities

### [Activities Covered]

NGK Insulators, Group Companies in Japan (13 manufacturing companies), and Group Companies outside Japan (17 manufacturing companies)

(Note) The activities of 17 Group companies outside Japan were covered within the scope of this report in fiscal 2008, one more than in fiscal 2007.

## Highlights of 2008 Environmental Activities

To enhance consolidated environmental management, we have introduced an integrated environmental data management system, set targets for activities at Group companies outside of Japan to reduce environmental load, and initiated activities to reduce our own environmental impact.

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Visit our website for environmental reports from each business site and other detailed information.  
<http://www.ngk.co.jp/english/csr/>

# Environmental Vision

## 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.

### Environmental Philosophy

NGK's positive approach to the environment begins with its basic corporate philosophy: "NGK products and technologies must create new value and contribute to the quality of life." In particular, we focus on the "Triple-E" areas of Ecology, Electronics, and Energy. Through our work in these areas, we seek to develop solutions to some of the critical challenges facing the next generation.

### Environmental Action Guidelines

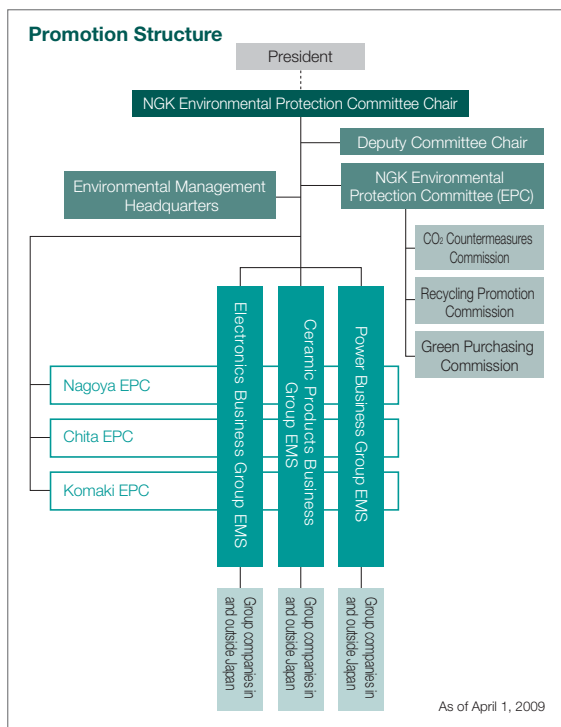
- 1 Strive toward the development, design, and manufacture of products that are environmentally friendly, and that have a low impact on the environment.
- 2 Work toward decreasing the environmental impact of our business activities.  
Use design review methods to scientifically study and evaluate the environmental impact of our business activities.
  - 1) Promote energy conservation in processes and equipment, and work toward curbing CO<sub>2</sub> emissions.
  - 2) Promote resource savings and recycling, and work toward the reduction of by-products.
  - 3) Reduce risks through the appropriate usage and management of chemical substances.
  - 4) Give priority to the procurement and purchasing of environmentally friendly materials, parts, products, and equipment. Furthermore, strengthen partnerships with suppliers of these materials.
- 3 Enhance environmental management systems from a global viewpoint, and implement continuous reforms in order to reduce the impact on the environment.
- 4 Strictly adhere to laws, regulations, and other requirements. Furthermore, establish voluntary standards, and work toward increased environmental conservation.
- 5 Disclose environmental information outside the Company, and continue discussions with all interested parties. Actively develop community relations activities. Furthermore, carry out training and publicity activities in order to increase employee awareness of environmental issues.

## System for Promoting Consolidated Environmental Management

In addition to environmental management systems at its Nagoya, Chita, and Komaki Plants, the NGK Group is promoting environmental management on a consolidated basis, encompassing Group companies both in and outside Japan, using a management system led by the Company's business groups.



A distinctive feature of separating environmental management systems by business group is that it enables the Group to promote environmental management by working in unison to address issues such as CO<sub>2</sub> reduction, the curbing of by-products, and tighter control over chemical substances. We intend to enhance these efforts further going forward.



## Promoting Integrated Control of Environmental Data

Under the Second Five-year Environmental Action Plan, NGK is promoting integrated management of environmental data across the Group through a unified database. We are taking steps to enhance this database with the goal of raising the level of environmental management Group-wide through accelerated collection and processing of global environmental data, as well as increased information sharing and visibility.

As a follow-up to our fiscal 2007 launch of a database for measurement data pertaining to by-product control, gas emissions and wastewater emissions, in fiscal 2008 we completed building a database relating to activities for limiting environmental loads, such as reducing CO<sub>2</sub> emissions and curbing the generation of by-products. The latest database will help to mitigate environmental risks through information sharing and efficiently promote programs for lessening our environmental impact.

## Acquiring ISO 14001 Certification

The NGK Group is working to acquire ISO 14001 certification, or an equivalent, in order to promote environmental conservation activities at an organization level in line with our Core Policy on the Environment on an ongoing basis. In addition to NGK's three plants, as of March 2009, all 13 Group companies in Japan (15 sites), and 15 sites at our 17 Group companies outside Japan have acquired certification. In order to further promote consolidated environmental management, we intend to progressively implement environmental management systems at Group companies outside Japan.

## Determined to Assist in Protecting the Natural Environment

As NGK has increased production outside Japan, the environmental load generated outside of Japan has come to account for roughly 60% of the Group's entire environmental burden. Accordingly, along with its initiatives in Japan, the Group is being called upon to step up its promotion of activities to lessen its environmental load globally.

To address this, in setting targets for reducing the environmental load of Group companies outside Japan in fiscal 2008, we created guidelines for an approach to developing reduction measures, and devised mechanisms that make it easier for managers outside of Japan to tackle reducing their environmental impact. At the same time, we made consolidated environmental management more efficient by introducing an integrated system for managing environmental data by creating the environmental information database.

Efforts to protect the environment are a critical component of corporate management, which makes the job that I do very worthwhile to me. Looking ahead, I plan to raise the level of environmental management at the NGK Group up a notch as we strive to make an even greater contribution to protecting the natural environment.



**Koji Matsuzaki**  
Sub-manager  
Environmental Management Dept.

# Management

## Overall Perspective of Environmental Impact

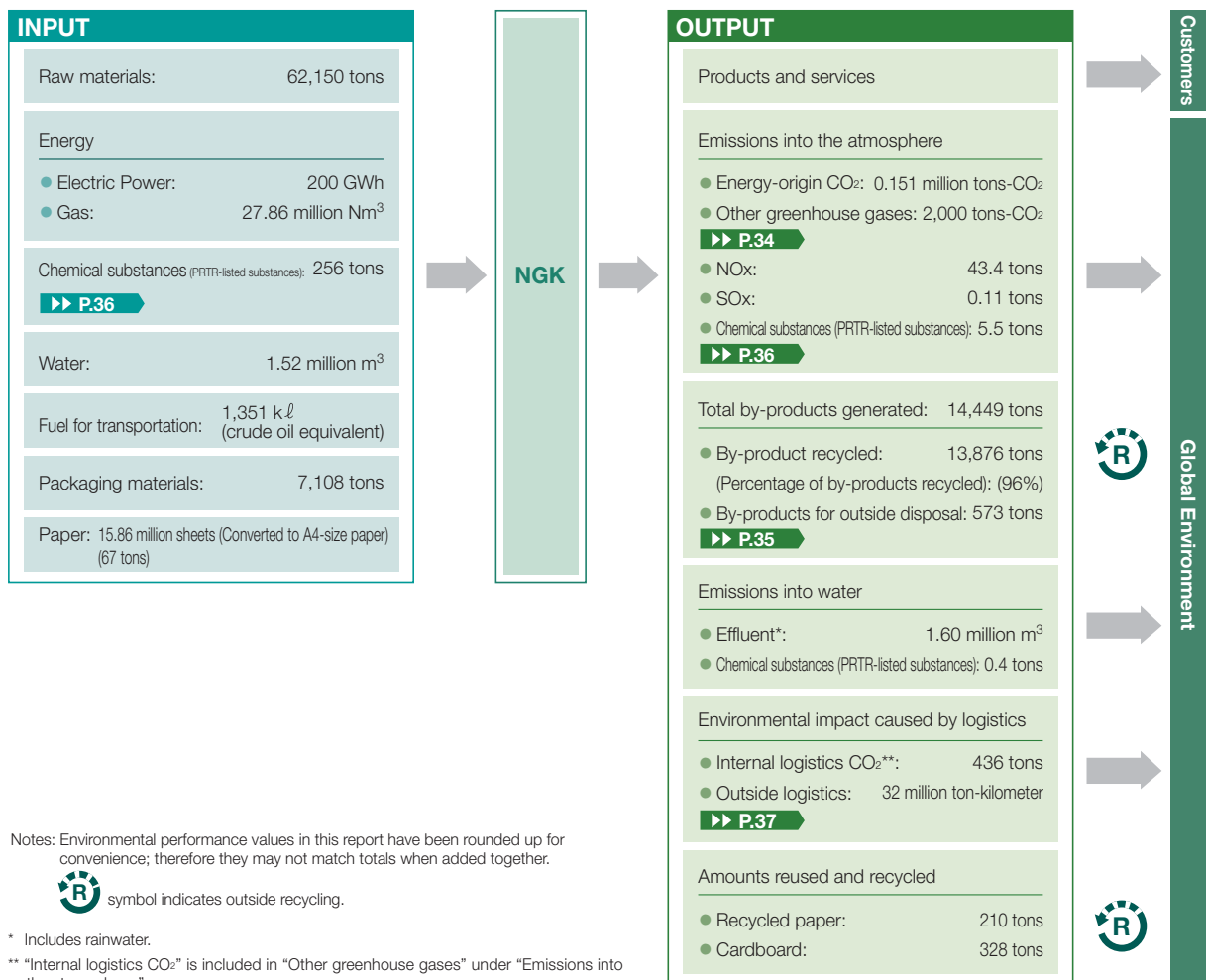
The diagram below shows inputs and outputs in business activities conducted by NGK. It shows inputs of raw material and energy and outputs in the form of manufactured products and services, as well as substances that are discharged into the atmosphere and into water, at the stages of product development and design, procurement, product manufacturing, and sales and transportation.

In fiscal 2008, resource and energy input volume, as well as the output volume of substances impacting the environment, were lower relative to the previous fiscal year. This outcome primarily reflected a decrease in mass production due to changes in the economic climate.

**Input Overview:** Input consists mainly of raw materials and energy channeled into production activities, most of which are utilized for the production of ceramic products. Chemical inputs are properly managed via our Chemical Substances Management System.

**Output Overview:** Output includes products and services, as well as CO<sub>2</sub> emissions and wastewater from production plants, accompanying production activities. We are pursuing initiatives to reduce our environmental load further, including efforts to reduce the discharge of CO<sub>2</sub> into the atmosphere and curb the generation of by-products, along with resource recycling.

## Input and Output of NGK's Three Plants



## Environmental Action Plan

Based on its Second Five-year Environmental Action Plan, which got under way in 2006, NGK is taking steps to curb CO<sub>2</sub> emissions, and reducing by-products to help in the prevention of global warming and the development of a recycling-based society.

In fiscal 2008, we focused on reducing the volume of by-products generated, after falling short of our targets for fiscal 2007. As a result, we successfully met our objectives in all the areas outlined in the Second Five-year Environmental Action Plan.

Category	Targets of Second Five-year Environmental Action Plan (2006 to 2010)	2008 Environmental Action Achievements			2009 Targets
		Target	Achievement	(Note) Self-Evaluation	
Management	Environmental CSR activities Introduce environmental management indicators (CO <sub>2</sub> , by-products, environmental efficiency, third-party audits, environmental ratings, etc.)	Establish environmental management indicators (CO <sub>2</sub> , by-products) Respond to surveys and invite third-party audits	Established environmental efficiency* (CO <sub>2</sub> , by-products) Third-party audits carried out	○ ▶ P.39	Use environmental efficiency indicators
	Promote consolidated environmental management	Introduce mechanisms for consolidated management outside Japan	Developed consolidated environmental management system, set targets for reducing load at Group companies outside Japan	○ ▶ P.31	Embed consolidated environmental management system and expand establishment of load reduction targets to Group companies outside Japan (4 companies)
	Promote integration of environmental management data	Complete introduction of an integrated system for managing environmental data	Completed introduction of integrated system for managing environmental data	○ ▶ P.31	Launch operation of integrated system for managing environmental data
Factories	Reduction of CO <sub>2</sub> emissions NGK: 7% reduction from 1990 Consolidated in Japan: Basic unit per sales value of production 7% reduction from 2005	NGK: Under 174,000 tons Consolidated in Japan: Basic unit per sales value of production 4% decrease or more from 2005	NGK: Emission volume of 151,000 tons Consolidated in Japan: Basic unit per sales value of production 7.1% decrease from 2005	○ ▶ P.34	NGK: Emissions volume of less than 136,000 tons Consolidated in Japan: Basic unit per sales value of production 5% decrease or more from 2005
	Reduction of by-products generated NGK: 25% reduction from 2005 Consolidated in Japan: 15% reduction from 2005	NGK: 15% reduction from 2005 Consolidated in Japan: 9% reduction from 2005 Establish and pursue targets for enhancing zero emissions at NGK Conduct trial run of material flow analysis	NGK: 20% reduction from 2005 Consolidated in Japan: 13% reduction from 2005 NGK: Concluded establishment of targets and commenced activities Commenced trial run of material flow analysis	○ ▶ P.35	NGK: 20% reduction from 2005 Consolidated in Japan: 12% reduction from 2005 Promote zero emissions enhancement at NGK Continue and develop material flow analysis
	Reduction of atmospheric emission of PRTR solvents NGK: 10% reduction from 2005 Consolidated in Japan: 10% reduction from 2005 Promote better chemical substance management	NGK: 6% reduction or more from 2005 Consolidated in Japan: 6% reduction or more from 2005 Respond to REACH regulations Promote soil remediation	NGK: 9% reduction from 2005 Consolidated in Japan: 22% reduction from 2005 Concluded advance registration of REACH regulations Executed in line with remediation plan	○ ▶ P.36	NGK: 8% reduction from 2005 Consolidated in Japan: 8% reduction from 2005 Prepare to comply with revised PRTR Law
Products	Step up level of environmentally conscious design	Promote provision of environmentally friendly products and products with low environmental load Institute load analysis for production processes Investigate holding workshops for each business group	Promoted provision of environmentally friendly products and products with low environmental load Identified and initiated analysis of target processes Commenced workshops	○ ▶ P.37	Promote provision of environmentally friendly products and products with low environmental load Continue and develop analysis of production processes Study ways to quantify environmental contribution of products
	Reduce the environmental impact of procurement Minimize emissions from logistics	Study formulation and introduction of green supplier standards 1% reduction in basic unit for energy consumption in freight transport	Conducted survey of environmental efforts by suppliers 1.1% reduction in basic unit for energy consumption	○ ▶ P.37	Launch green supplier certification 1% or more reduction in basic unit for energy consumption
	Promote activities that benefit local communities	Carry out local cleanup activities Expand keeping of household environmental accounting ledgers Hold summer festivals (see P.28)	Conducted cleanup activities at Jingu Higashi Park (Nagoya), the vicinity of plants (Chita), and Ohyama River (Komaki) Expanded household environmental accounting ledger to 1,300 participants Took part in lights down campaign by Japan's Ministry of the Environment	○ ▶ P.38	Carry out cleanup activities in various areas Continue household environmental accounting ledger program Take part in various environmental activities
Stakeholders	Enhance disclosure and two-way communications	Enhancement of environmental and social responsibility reports Enhancement of Environmental Partnership Organizing Club (EPOC) activities Promote activities by the Subcommittee on Global Warming and Energy Efficiency	Start of CSR Report Enhancement of EPOC activities Research on use of recyclable exhaust heat within communities Guest lecturers and acceptance of JICA trainees	○ ▶ P.38	Publish CSR Report and disclose environmental data on the Web Promote EPOC activities
	Enhance environmental education	Introduce practical education and training based on job position and department Add more departmental environmental education programs (awareness-raising, chemical substances, etc.)	Instituted practical environmental education by job position and department Enacted special training on chemical substance regulations	○ ▶ P.38	Promote practical environmental education by job position and department Enhance environment-specific education and education on legal compliance

Note: Evaluation standards for self-evaluation:

○ Target achieved

△ 80% or more of target achieved

x Less than 80% of target achieved

\* Environmental efficiency: An indicator of environmental and economic efficiency, calculated as net sales divided by environmental load.

# Factories

## Curbing CO<sub>2</sub> Emissions

As a producer of many ceramic products, NGK cannot entirely avoid the generation of CO<sub>2</sub> inherent in the sintering process. For this reason, we have worked to convert to alternative fuels, introduce efficient sintering processes and promote the recovery and reuse of exhaust heat. We have also taken steps to make production more efficient and improve energy usage through EMS activities.

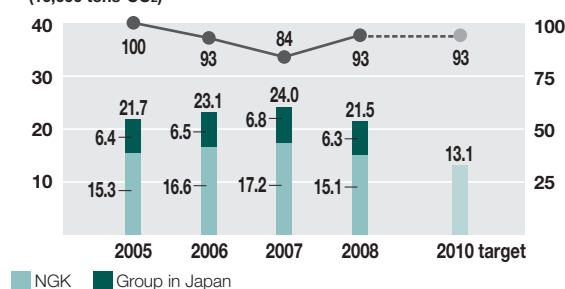
## CO<sub>2</sub> Emissions (Japan)

NGK's total CO<sub>2</sub> emissions in fiscal 2008 amounted to 151,000 tons, a 12.2%, or 21,000 tons, decrease from fiscal 2007. This figure, however, was 7.5% higher than in fiscal 1990.

CO<sub>2</sub> emissions by Group companies in Japan totaled 63,000 tons, a decrease of 5,000 tons, or 7.4%, from fiscal 2007. In terms of basic unit per sales value of production in Japan, emissions in fiscal 2008 declined by 7.1% from the reference year of fiscal 2005.

Going forward, we will select the best reduction measures in a bid to boost energy efficiency further by analyzing the relationship between production volume and energy usage for every process linked to each product, and so forth.

### ■ Energy-origin CO<sub>2</sub>\*<sup>1</sup> Emissions (Consolidated in Japan) (10,000 tons-CO<sub>2</sub>)



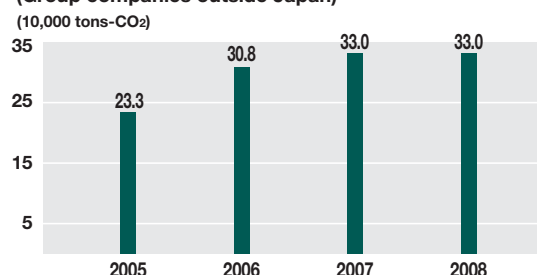
■ NGK ■ Group in Japan  
● Basic unit per sales value of production  
(Displayed as an index with fiscal 2005 as 100)

## CO<sub>2</sub> Emissions (Outside Japan)

The CO<sub>2</sub> emissions of Group companies outside Japan have grown in tandem with increased production volume in these countries, rising to 330,000 tons in fiscal 2008.

From fiscal 2008, we have established and are working to meet CO<sub>2</sub> reduction targets for our main production bases among Group companies outside Japan.

### ■ Energy-origin CO<sub>2</sub>\*<sup>1</sup> Emissions (Group companies outside Japan) (10,000 tons-CO<sub>2</sub>)



## Reducing Greenhouse Gas Emissions\*<sup>2</sup>

Together, carbon dioxide and sulfur hexafluoride (SF<sub>6</sub>) account for nearly all of the greenhouse gases emitted by NGK. Accordingly, we are seeking to switch to alternative gases to replace SF<sub>6</sub> as we strive to reduce our greenhouse gas emissions. In fiscal 2008, emissions of SF<sub>6</sub> totaled 300 tons-CO<sub>2</sub>, a reduction of 83% relative to fiscal 2007.

Since 2002, we have utilized green energy generated by wind power, a renewable energy source. In fiscal 2008, we purchased 1.898 million kWh of green energy. The power was used to help reduce\*<sup>3</sup> CO<sub>2</sub> emissions at the Chita Plant, where business targeting markets outside Japan is expanding, by approximately 800 tons.

## COLUMN

### Achieving Greater Energy Efficiency and CO<sub>2</sub> Reductions for a Beryllium Copper Melting Furnace

At NGK's Chita Plant, we closely analyzed a phenomenon we observed in which the amount of energy used to melt the same volume of metal each time in our melting furnace for beryllium copper would change. This analysis clarified the relationship between production methods, time and energy usage. In fiscal 2008, our efforts to improve input methods for raw materials and adjust energy usage based on furnace conditions resulted in a 2.3% reduction in the volume of energy used.

From fiscal 2009, we will try to cut carbon dioxide emissions by over 1,000 tons by remodeling the furnace and reviewing operation methods.



Internal view of melting furnace

\*<sup>1</sup> 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 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 2008 energy-origin CO<sub>2</sub> emission volume for NGK on a non-consolidated basis is 161,000 tons when using the CO<sub>2</sub> conversion factor provided by the Law Concerning the Promotion of Measures to Cope with Global Warming (revised in April 2006).

\*<sup>2</sup> Greenhouse gases are gases that trap thermal radiation reflected from the surface of the Earth, resulting in a greenhouse effect in which the overall temperature of the Earth rises. Carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), dinitrogen monoxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>) are designated as greenhouse gases. The greenhouse effect of SF<sub>6</sub> is approximately 24,000 times as strong as that of CO<sub>2</sub>.

\*<sup>3</sup> The CO<sub>2</sub> conversion factor used for calculation was 0.42 kg-CO<sub>2</sub>/kWh.

## Reducing and Recycling By-products

In fiscal 2005, NGK succeeded in achieving zero emissions by keeping outside disposal volume down to less than 1,000 tons a year. In our Second Five-year Environmental Action Plan, we aim to curb the total volume of by-products to further promote the effective use of resources.

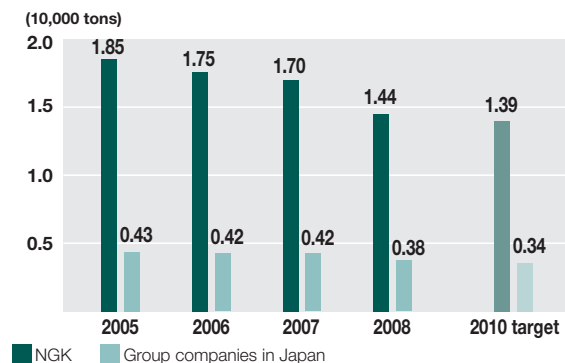
For those by-products that we do generate, our aim is to reduce the volume slated for landfill and encourage the reuse of by-products as resources in order to step up our efforts to achieve zero emissions.

### Changes in Volume of By-products Generated (Japan)

In fiscal 2008, the total volume of by-products generated by NGK amounted to 14,400 tons, or 15% less than in fiscal 2007. The volume generated by Group companies in Japan was 3,800 tons; 12% less than the previous fiscal year.

To achieve our targets for 2010, the final year of our latest five-year plan, we intend to boost yields, improve our production technologies, and review our production processes.

#### ■ By-product Generation (Group Companies in Japan)

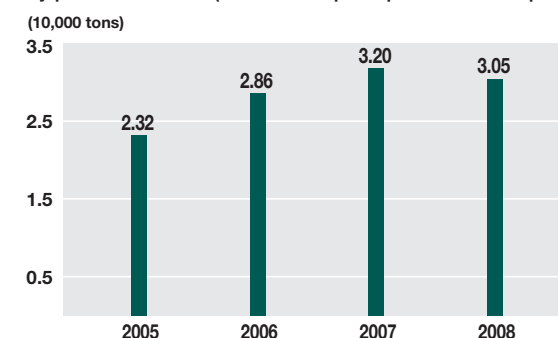


### Changes in Volume of By-products Generated (outside Japan)

The total volume of by-products generated by Group companies outside Japan in fiscal 2008 amounted to 30,500 tons, or 5% less than in fiscal 2007.

As part of steps to curb the generation of by-products, from fiscal 2008, we also established uniform targets for Group companies outside of Japan.

#### ■ By-product Generation (NGK and Group Companies Outside Japan)



### Encouraging Recycling as Resources

NGK is cooperating with outsourcing partners in an initiative to recycle by-products as resources. Furthermore, we are developing new routes for processing by-products, including material and chemical recycling, in a bid to realize effective use of by-products as resources.

In fiscal 2008, outside disposal volume was 573 tons, down 28% from the previous fiscal year. The recycling rate for by-products was 96%, an improvement of one percentage point from fiscal 2007.

Going forward, we will work to raise the recycling rate and improve our effective use of resources. Efforts here will include better sorting and developing additional processing routes for by-products.

### By-Product Management Initiatives at NGK Ceramics Europe

At NGK Ceramics Europe in Belgium, our recycling rate is 99%, the highest rate among Group companies outside Japan. This success stems from extensive sorting mechanisms and our system for managing by-products.

First, in our sorting method, we prevent sorting errors by setting up info boards for every type of by-product bearing color-coded names of the companies that collect these materials. In our storage methods we keep oil in locked containers and we were attentive enough to create a sump to ensure no outside oil leakage in the event of a spill. We owe our high recycling rate to steady progress in enacting measures of this kind.



Sorting containers for by-products



## Management of Chemical Substances

At NGK, we properly manage chemical substances used in our products and production processes through a chemical substances management system and an in-house Chemical Substances Safety Committee.

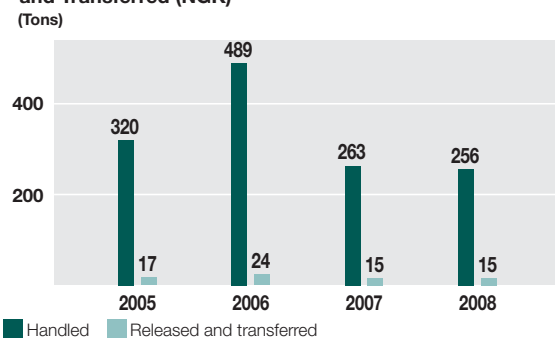
We are also continuing to implement initiatives to reduce environmental impact caused by hazardous chemical substances, by limiting release of substances regulated by the PRTR Law\*<sup>1</sup> and using alternative substances when possible.

### Handling, Releases and Transfers of PRTR-Listed Chemical Substances

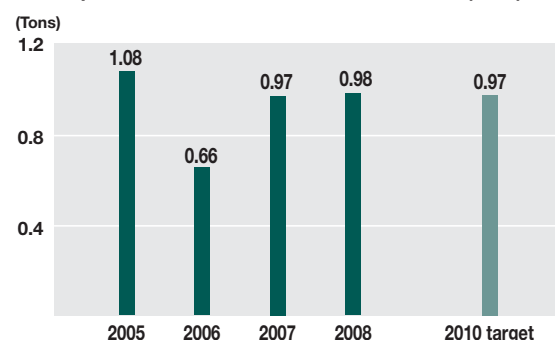
The PRTR Law specifies 354 Class 1 chemical substances. NGK handled 61 of these substances in fiscal 2008 and the total volume handled was 256 tons, down 7 tons, or 2.7%, from fiscal 2007. Total releases and transfers amounted to 15 tons, the same as in the previous fiscal year.

NGK has set a goal of reducing atmospheric emissions of PRTR-listed solvents. On a non-consolidated basis, atmospheric emissions of solvents in fiscal 2008, which include toluene, xylene, dichloromethane, etc., totaled 0.98 tons, representing a slight increase over the previous fiscal year.

#### ■ Amounts of PRTR-Listed Substances Handled, Released, and Transferred (NGK)\*<sup>2</sup>



#### ■ Atmospheric Release of PRTR-Listed Solvents (NGK)\*<sup>2</sup>



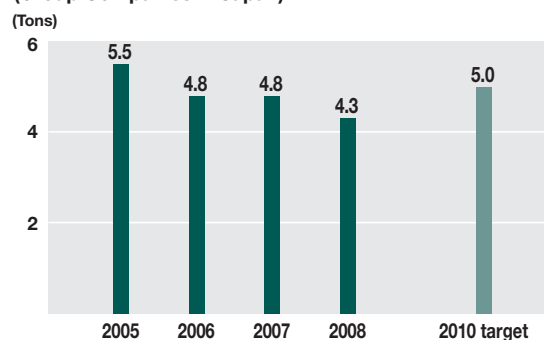
\*<sup>1</sup> PRTR Law: The Pollutant Release and Transfer Register Law

\*<sup>2</sup> Due to improved precision in data compilation, the Company conducted a review going back to fiscal 2005.

\*<sup>3</sup> REACH Regulations: Registration, Evaluation, Authorization and Restriction of Chemicals

Atmospheric emissions of PRTR-listed solvents in fiscal 2008 by Group companies in Japan totaled 4.3 tons, a decrease of 0.5 tons from the fiscal 2007 figure. This decline stemmed largely from measures that included a switch to alternative solvents that do not contain toluene.

#### ■ Atmospheric Release of PRTR-Listed Solvents (Group Companies in Japan)



### Promoting Chemical Substance Management

Beginning fiscal 2008, we have established management targets for chemical substances at Group companies outside Japan as well in a drive to curb emissions across the entire Group. Furthermore, to comply with the revised PRTR Law, we conducted a survey of our usage of chemicals on the expanding inventory of PRTR-listed substances, and are preparing to register these substances internally.

### Compliance with REACH Regulations\*<sup>3</sup>

In fiscal 2008, we sorted out all chemical substances in use at our production plants in Europe, and completed preliminary registration of substances requiring compliance action at local plants or upstream suppliers in our supply chain.

Along with carrying out preparations locally to register chemical substances, in fiscal 2009 we will verify compliance with REACH regulations among upstream suppliers in our supply chain.

In order to properly cope with the ongoing announcements of substances requiring notification and approval that are expected going forward, we are working hard to gather information, and related divisions will coordinate to reliably handle customer inquiries.

# Products

## Development and Design Initiatives

### Development of Sintering Kilns That Consume 70% Less Energy

The adoption of renewable energy is becoming an increasingly vital element in efforts to reduce greenhouse gas levels. One such source of renewable energy is solar cells, for which further market growth is expected in the years ahead.

As a product to support solar cell manufacturers in their expanding business, NGK has developed a sintering kiln for fusing the cell electrodes found in solar cells. In developing and designing the kiln, we performed heat simulations to find the most efficient means of heating the products, creating an optimal design around kiln furniture and heater positioning in a bid to boost energy efficiency.

As a result, the new sintering kiln consumes 70% less power than a conventional mesh kiln with identical production volume, a savings equivalent to 220 tons of CO<sub>2</sub> per year.

This energy reduction was made possible by replacing the conveyor belt system used in conventional mesh kilns, which has a large heat capacity, with a “walking beam” system that uses ceramic NEWSIC® beams for kiln furniture. This new system dramatically reduces heat capacity, resulting in lower energy requirements for sintering.



Sintering kiln for fusing electrodes in solar cells  
(Walking beam kiln)

### ■ Comparison of Mesh and Walking Beam Kilns

(Note: For identical production volume)

		Mesh kiln	Walking beam kiln
Energy efficiency	Power usage	100 kw	35 kw
Equipment space	Kiln length	12 m	6 m
Temperature distribution	Widthwise	±5°C (Four rows)	±3°C (Four rows)
	Cell surface/ rear temperature difference	50~100°C	Actual measurement 15°C
Rapid heating/ rapid cooling	Heating speed	max60°C/sec	max100°C/sec
	Cooling speed	40~50°C/sec	60~70°C/sec

## Environmental Activities Related to Procurement and Logistics

NGK promotes green procurement for the purchase of all raw materials and parts, manufacturing equipment, auxiliary materials, services, and office supplies required for business activities. At the same time, we take steps to lessen our environmental load with respect to logistics.

### Green Procurement

Green procurement at NGK is conducted based on our Green Procurement Guidelines. We are making progress with green supplier certification for the Company's key suppliers. (Refer to P.27)

### Reducing CO<sub>2</sub> in Logistics

NGK is considered as a “specified consigner” under the Act on the Rational Use of Energy. Accordingly, we have made regular reports concerning energy used in transportation based on the law since April 2007.

In fiscal 2008, annual transport volume\*<sup>1</sup> was 32 million ton-kilometers, or roughly 10% lower than in the previous fiscal year. Our fuel usage ratio was 0.0422 liters/ton-kilometer, a reduction of 1.2% from 0.0427 liters/ton-kilometer in fiscal 2007.

For fiscal 2009, we intend to further promote a modal shift\*<sup>2</sup> in transportation, particularly for large projects, as we work to reduce our fuel usage ratio by more than 1%.



Transport of insulators for power transmission by ferry

\*1 Annual transport volume (ton-kilometers) is equivalent to cargo weight (tons) multiplied by transport distance (kilometers)

\*2 Modal shift refers to using rail and ocean liners instead of trucks for main transport routes owing to their better efficiency in order to lower environmental impact and improve logistics efficiency.

# Environmental Communications

Along with its disclosure of information on the environmental impact of its business activities and its environmental protection activities, the NGK Group is also working to expand and deepen environmental communication with stakeholders.

## Employee Volunteer Activities

As part of environmental education sponsored by the Environmental Partnership Organizing Club (EPOC), in January 2009, NGK employees volunteered as guest lecturers for 160 elementary school students in Toyota, Aichi Prefecture, conveying to the pupils the fun and excitement of science.



An NGK employee volunteers as a guest lecturer

## Participation in Megawatt Solar Joint Utility Model Project



Solar panels installed on the roof of the Asama Plant

Soshin Electric is a member of Saku Saku Himawari, a limited liability partnership responsible for operating Japan's Ministry of the Environment's "Megawatt Solar Joint Utility Model Project." A 140 kW solar power genera-

tion facility is installed at Soshin Electric's Asama Plant in the city of Saku, Nagano Prefecture.

The Megawatt Solar Joint Usage Model Project aims to develop a business model in which area companies and organizations within a local area install and jointly utilize large-scale solar power generation facilities. The project reached its goal of a total of 1 MW in power generating capacity in fiscal 2008. That same year, Saku Saku Himawari was awarded the Minister of the Environment's Prize for Activities to Prevent Global Warming.

## Participation in Light-Down Campaign

NGK takes part in the "CO<sub>2</sub> Reduction/Light-Down Campaign" sponsored by Japan's Ministry of the Environment. The campaign promotes efforts to prevent global warming by encouraging the public to shut off unnecessary lights used to illuminate facilities or in the home. In fiscal 2008, from June 21 to July 7, we turned off lights in the landscaping around our head office building. Following the campaign's conclusion, we have continued to leave off a total of seven illuminated signboards at our Nagoya, Chita and Komaki Plants.

## Environmental Training Sponsorship

To raise environmental consciousness among employees, NGK implements a variety of environmental training and awareness-raising activities on an ongoing basis. In fiscal 2008, we conducted a special training course on chemical substance regulations, with an emphasis on EU regulations. We also held specialized training sessions on exhaust gas and wastewater treatment systems specifically for personnel responsible for operating environmental facilities at each production plant. These courses were attended by a total of 180 people.



Special training course on the environment (March 2009)

## Household Environmental Accounting Ledgers

NGK employees and their families produce household environmental accounting ledgers as a means of nurturing greater environmental awareness in daily life.

Ledgers were produced three times in fiscal 2008, during summer (July to September), autumn (October to December) and winter (January to March). The number of employees and families participating has now grown to over 1,300 people. This program has helped to throw further momentum behind energy conservation activities in the home.

## Eco Test Initiatives

NGK is providing support for employees to take the Certification Test for Environmental Specialists®, also known as the Eco Test.

The Eco Test seeks to deepen knowledge of environmental prob-



Employees who have passed the Eco Test

lems, while developing the human resources who will take the lead in tackling these problems. To date, 59 employees have passed the test, raising the level of environmental awareness in the workplace and contributing to growth in eco-action by employees.



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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).

### 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.