HORIBA
Explore the future

Gaiareport

HORIBA / CSR Report

2011

Analysis and measurement are the “mother tools” of industry

Many people may think that analytical and measurement technologies are unrelated to their daily lives. On the contrary, these technologies play essential roles in all areas of our lives, including energy, human health, the environment and safety.

For example, doctors in local hospitals and clinics use hematology analyzers to evaluate health conditions and assess the possibility of infection. Based on the results of such analysis, doctors provide patients with accurate diagnoses and treatment. In the automotive industry, instruments and systems for toxic exhaust emissions measurements and engine performance tests are used to develop clean engines. And, research into rechargeable batteries and fuel cells uses analyzers to evaluate structure and composition.
Analysis and measurement play important roles in a wide variety of applications—not only for environmental conservation and medical care, but also for the manufacture of many kinds of machinery and quality management. For this reason, analysis and measurement are often referred to as the “mother tools” of industry. As a company with five business segments (Automotive Test Systems, Process and Environmental, Medical, Semiconductor, and Scientific), HORIBA is deeply involved in much of our daily lives. Our greatest pride is the contribution our products and technology make to the development of a sustainable society with a prosperous future. This contribution is the root of our CSR activities.

Accomplishments of our previous Mid-Long Term Management Plan and new challenges

Our previous Mid-Long Term Management Plan was scheduled for completion in 2010. In 2007, our consolidated sales fell slightly short of our plan goals. However, we achieved our goals three years ahead of schedule for both operating income and the operating income to net sales ratio. Subsequently, with the onset of the economic recession following the financial crisis in 2009, we were faced with difficult economic conditions due to a rapid decline in demand in the semiconductor and automotive industries. Despite these difficulties, we maintained profitability thanks to the strong business performance of our overseas group companies, especially in the medical care and science markets. As a result, in 2010 we were able to make a strong recovery in both sales and operating income. We believe that these accomplishments were achieved by the well-balanced management of HORIBA’s five businesses, which we targeted in our previous Mid-Long Term Management Plan in accordance with our group management policy, “HORIBA Group is One Company.”
In our new Mid-Long Term Management Plan for the period starting in 2011, we will continue our group management policy, “HORIBA Group is One Company.” Under this policy, we will also increase the overall strengths of HORIBA Group companies in our five business segments. In addition, we will reorganize and integrate our development resources within HORIBA, Ltd., the HORIBA Group’s largest development center, for the first time in fifteen years.
Through these measures, we will pass our knowledge and “omoi” (convictions) in research and development and design engineering to the next generation. We will also strive to continue to improve the professional skills of our individual employees. HORIBA’s new management plan expresses our determination to maintain our tradition of passing down HORIBA’s greatest assets, the expertise of our employees. We believe that our tradition helps each individual improve his or her professional skills. Also, we will employ young people to become business owners in thirteen businesses and train them to become our next generation of global leaders.

Working together with our stakeholders to provide premium quality

To further promote our 2010 policy, “First Class Quality,” we will establish “HORIBA PREMIUM” as the policy for 2011 and will strive to provide premium quality under this new HORIBA Group management policy.
We will continue our efforts to improve our overall quality through our Product Quality Improvement (PQI) program for improving the quality of products, services and operations, as well as initiatives, such as the Technical Olympics and discussion sessions, which we developed in cooperation with our production partner companies to improve manufacturing and processing technologies and product quality. We will also continue to invest in education such as the HORIBA COLLEGE project which we started in January 2009 as part of our human resource development efforts.
Our goal is to foster a corporate culture throughout all HORIBA Group companies which supports the development of each individual’s professional skills. Together with our stakeholders, we will work to create a prosperous future through our products and technologies.

Striving to provide premium quality as we contribute to a prosperous future through our analytical and measurement technologies

Five business segments supporting present and future

Striving to achieve a sustainable society through analysis and measurement

Maintaining safe and healthy lifestyles, saving energy and reducing emissions, researching and developing new energy technologies, and realizing sustainable manufacturing—all these activities are founded upon accurate measurements of data using analytical and measurement instruments. As a comprehensive manufacturer of analysis and measurement instruments, our goal is to contribute to creating a sustainable society by revealing the essence of various issues facing the global environment and society, as we fulfill our mission to provide the means to analyze or measure complex substances.

Automotive Test Systems

Comprehensive support for developing environmentally friendly vehicles

HORIBA contributes to the development of high performance and high fuel economy engines with automotive emission measurement systems, designed to facilitate compliance with emissions regulations around the globe. In addition, HORIBA's engine and powertrain test systems and measurement instruments play important roles in developing the next generation of environmentally friendly vehicles that are now attracting global attention due to growing concerns about global warming. HORIBA provides vital support for developing environmentally friendly vehicles.

Motor Exhaust Gas Analyzer

Engine Test System

Process and Environmental

Providing measuring tools for environment protection and developing new energy industries

In compliance with global environmental conservation regulations, HORIBA provides analysis and measurement systems with applications ranging from air and water to soil. HORIBA's technologies play important roles in area such as monitoring gases and wastewater from chemical plants, managing water for medical applications and pure water in the semiconductor industry, and controlling water quality in the pharmaceutical, food and cosmetics industries.Our products reduce the environmental impact of operations and facilitate the monitoring of processes in order to support industrial development.

Multi-Parameter Water Quality Meter

Industrial pH Meter

Medical

Supporting doctor's evidence-based medicine

Effective and efficient medical treatment requires not only excellent medical skills but also prompt and accurate data. HORIBA offers easy-to-use hematology and glucose analyzers for medical professionals. Our medical analyzers are routinely used in facilities such as clinics, hospitals, emergency labs and NICUs. Our advanced technologies make medical examinations possible with only a small sample of blood, reducing both patient suffering and the workload on medical professionals, and thus contributing to improving the quality of people's lives.

Blood Glucose Analyzer

Automatic Blood Cell Counter plus CRP

Semiconductor

Supporting semiconductor manufacturing for realizing a prosperous and pleasant society

During the semiconductor manufacturing processes that support contemporary IT industries, products are inspected at each step by a number of measurement and control systems. HORIBA's technologies provide instrumentation to support semiconductor manufacturing processes. We also support the manufacture of flat panel displays, including liquid crystal displays used in high-definition TVs and mobile phones, and organic electro-luminescent displays, as well as solar cells and light-emitting diodes.

Mass Flow Controller

Fiber Optic Chemical Solution Concentration Monitor

Scientific

Developing nano-measurement technologies to provide solutions for analyzing a wide variety of materials

The analysis of the nano-materials required for fundamental research focuses on the nano-level behavior of molecules and atoms. HORIBA scientific instruments provide solutions for analyzing a wide variety of materials to support researchers working on the cutting edge as they explore the unknown and produce the high-technology products and new materials of the future. HORIBA's analysis systems are also applied in many other areas, including inspection and defect analysis of pharmaceutical and food products, electronic parts, criminal investigations and archaeological research.

Laser Raman Analyzer

X-ray Analytical Microscope

Analytical and measurement technologies which contribute to society

Working to realize a sustainable society that brings comfort to all

HORIBA's analytical and measurement technologies affect our lives in many ways. We at HORIBA believe that providing products and services that satisfy the needs of our customers will contribute to building a more sustainable society and improve people's quality of life.

As a company with five business segments (Automotive Test Systems, Process and Environmental, Medical, Semiconductor, and Scientific), HORIBA is deeply involved in issues related to energy, human health, the environment and safety.
HORIBA is working to realize a sustainable society that brings comfort to all by providing the analytical and measurement technologies required for industrial development.

Technologies with a variety of applications, from medical care to environmental conservation

- R&D on new materials and new energy technologies
- Productivity improvements in manufacturing and processing factories
- Next generation vehicle R&D
- Quality management
- Human health and safety
- Protection of the global environment
- Improvement of agricultural and fishing environments
- Archaeological research
- Forensics
- Veterinary medical care

R&D on new materials and new energy technologies

New materials	R&D of new materials, such as carbon nano materials and graphene
Organic electro-luminescent elements	R&D of organic electro-luminescence technology, which is expected to play an important role in the next generation of flat panel displays
Rechargeable batteries	R&D of rechargeable battery components such as anodes, cathodes, electrolytes and separators
Clean energy	R&D of natural energy technology, which is expected to play an important role in next generation energy technology

Productivity improvements in manufacturing and processing factories

Semiconductor devices	Improving device quality and yield through fluid control, chemical solution monitoring and particle detection, etc.
Flat-panel displays (FPDs)	Control and inspection of the manufacturing process of next generation FPDs
Solar cells	Development of efficient and advanced process control for the manufacture of solar cells
Printed circuit boards	High-accuracy inspection of lead-free printed circuit boards
Painting and coating	Management of ink, paint, and coating powder as well as inspections of the surface gloss of coatings
Petrochemical plants	Safety management of manufacturing processes in environments where explosive gases may be present

Next generation vehicle R&D

Ultra-low exhaust emissions	High-accuracy measurement of low-concentration exhaust gases from vehicles designed to meet the latest emissions regulations
Fuel efficiency	Support for R&D with test equipment of high fuel economy vehicles
Environmentally friendly driving	Analysis of driving conditions using digital tachographs to promote energy-saving driving
Greenhouse gases	Analysis of the greenhouse gases (CO_2, CH_4 and N_2O) emitted from the vehicles
Alternative fuels	Research and assessment of new fuels that are potential alternatives to gasoline and diesel
Engines, powertrains and brakes	Development of vehicle simulation testing environments for major automotive components
Electric motors	Performance assessment of the electric motors required for electric and hybrid vehicles

Quality management

Electronics	Detection of contamination in manufacturing to increase production yields
Cosmetics	Management of particles in foundations and skin lotions
Food products	Quality inspection for contamination of food products such as vegetables, meat, rice and cooking oil
Pharmaceutical products	Accurate analysis of high-purity pharmaceutical water

Human health and safety

Food safety	Various inspections of food products, such as checking residual agricultural chemicals and customs surveillance of imported food
Drinking water	Automatic monitoring of inspection items such as turbidity, color, residual chlorine and water pressure at water supply facilities
Medical examinations	Quick blood tests using small samples to reduce suffering of patients
Safe driving	Promoting safe driving by analyzing the causes and circumstances of accidents

Protection of the global environment

Air pollution monitoring	Detection of photochemical smog and other pollutants by continuously monitoring atmospheric conditions
Water quality monitoring for rivers, lakes and oceans	Monitoring of water quality in natural environments, including rivers, lakes and oceans
Control of factory waste emissions	Monitoring of waste gas emissions and liquid discharge
Control of wastewater discharge	Monitoring of the quality of water discharged from factories
Hazardous substances	Analysis of toxic materials, support for compliance with environmental regulations around the world
Chemical fertilizers	Monitors for soil contamination caused by chemical fertilizers
Agricultural and domestic water	Water quality monitoring of agricultural and public water supplies

Improvement of agricultural and fishing environments

Productivity improvements	Management of the water quality in fish hatcheries, live fish transportation and hydroponic cultures
Safety and security	Food safety assurance by measuring nitrate ion concentration and residual chemicals in agricultural products

Archaeological research

Protection of cultural properties	Non-destructive analysis of historical artifacts, including cultural properties and valuable objects

Forensics

Criminal investigations	Analysis to validate clues for solving cases based on small traces of evidence

Veterinary medical care

Animal hospitals	Quick and accurate medical examinations for animals

Capturing detailed data for comprehensive and fundamental research to develop the next generation of rechargeable batteries

In order to reduce the environmental impact of automobiles, worldwide automotive manufacturers are now focusing their efforts to develop electric vehicles. Rechargeable batteries are indispensable in this endeavor. We interviewed Professor Takeshi Abe of the Graduate School of Engineering, Kyoto University about the current state of rechargeable battery development, problems and his dreams for the future. Professor Abe's research accomplishments in next generation rechargeable batteries have attracted widespread attention.

Professor
Takeshi Abe
Department of Energy & Hydrocarbon Chemistry
Graduate School of Engineering, Kyoto University

Professor Abe completed his doctoral course in 1996 at the Kyoto University Graduate School of Engineering's Department of Energy and Hydrocarbon Chemistry. After working as an associate professor in the Department of Energy & Hydrocarbon Chemistry, he was appointed professor in April 2009. Professor Abe specializes in the study of carbon materials, lithium batteries, fuel cells and graphite intercalation compounds, and counts among his awards the Committee of Battery Technology Award (2005) and the Carbon Society of Japan Academic Award (2009).

The potential of rechargeable batteries to change our social system

—Rechargeable batteries are frequently called the 21st century's "bread and butter of industry" and are expected to play crucial roles in engineering. What is their appeal?

Unlike disposable primary batteries, rechargeable batteries can be recharged, which allows for reuse. Rechargeable battery technology allows us to reduce global environmental impact not only through effective use of resources, but also through the contribution of such technology to the development of a low-carbon society. Lead storage batteries appeared in 1859 and have historically been used as automobile batteries. Still, efforts have been made to reduce their size, resulting in the development of nickel-cadmium storage batteries, nickel-hydrogen batteries and lithium ion rechargeable batteries.

—Lithium ion batteries are also installed in electric vehicles and are attracting the public's attention.

Rechargeable lithium ion batteries have higher energy density, are more compact and weigh less than nickel-hydrogen batteries. Therefore, they are widely used in notebook PCs and mobile phones. Thus far, hybrid vehicles have mainly used nickel-hydrogen batteries, but the newest electric vehicles are now equipped with lithium ion batteries, leading us to expect a rapid increase in demand for these batteries.

—The competition to develop such batteries seems very intense. What research themes are you currently working on?

We are working on three major themes, the first of which is the lithium ion rechargeable batteries that I just mentioned. Second is the next generation of rechargeable batteries using magnesium and calcium. Our third theme is fuel cells that generate electric power through the reaction of hydrogen and oxygen.

—Rechargeable batteries and fuel cells are different types, right?

Some people may misunderstand this point, but rechargeable batteries do not generate power; they only store it. For example, they can store electricity generated by natural energy, such as wind or sunlight. Efficiently using such stored power for automobiles and homes in accordance with need enables us to avoid wasting generated power and to save energy. Smart grids are now being developed in Japan and elsewhere to finely coordinate the supply and demand of power with the help of computers and other instruments, and these batteries will play an important role in any new social infrastructure as well.

—You are also involved in a government research project on lithium ion batteries and other innovative battery technology.

I am working on the RISING Project*. This project started in October 2009 as a collaborative national project between industry, academia and government under the leadership of Professor Zenpachi Ogumi, my predecessor in this department. The goal of the project is to innovate in lithium ion battery technology and to develop new types of storage batteries besides lithium batteries. In order to expand the use of full-fledged electric vehicles, many issues have yet to be resolved, including reliability, performance and cost. As the leader of the Battery Reaction Analysis Group, I am focusing on studying the battery reaction mechanism.

* Research & Development Initiative for Scientific Innovation of New Generation Batteries: A program supported by researchers from fourteen institutions, including universities and other research institutions, and twelve companies, including automobile and battery manufacturers, that aims to develop next generation batteries.

—Batteries have a history of over 150 years and yet their mechanism is still not fully understood, right?

Unlike semiconductor elements which rely on physical reactions, batteries are products of chemistry. Batteries charge and discharge through the chemical reactions that occur between electrodes (positive and negative) and electrolytes. Semiconductors cause the physical movement of electrons without damaging their own structure. In contrast, batteries cause changes in their very structure. The basic mechanism of batteries is very complex and we do not yet fully understand it. In particular, we still do not know exactly how the performance of batteries deteriorates as they repeatedly charge and discharge. Of course, that makes them all the more interesting to study.

Developing intuition by independent thinking and using your hands

—So studying mechanisms is a basic research approach?

For the RISING project, like our other projects, basic research is always a top priority in our laboratory. Conducting research merely to improve battery performance is not very stimulating for university researchers. Going back to the basics and striving to seek the answers to the "Why's" leads us to discover brilliant ideas and unanticipated possibilities.

—Could you give us any recent examples?
For example, our recently announced multivalent ion battery, which uses magnesium for the negative electrode, is an outcome of our continuous efforts in basic research. The battery is innovative, as we developed it in consideration of the future of lithium ion batteries ten or twenty years hence. It uses magnesium metal for the negative electrode and oxide for the positive electrode.Lithium ion batteries move electrons one at a time, while magnesium batteries move them two at a time. In other words, magnesium has twice the energy density as the same amount of lithium. We may even be able to move three or more electrons at once in the future.

—What are the advantages of using magnesium?
First of all, magnesium reduces manufacturing costs. Magnesium is available at a lower price and in greater quantities than lithium. Magnesium also has a higher melting point and consequently provides greater safety. Led mostly by students in their fourth year, member of our lab have been studying magnesium batteries for the last few years and have made these highly valuable discoveries.

—Students sometimes make useful contributions, don't they?
They always do. In our lab, a sheet of paper has been posted that reads, "You are the boss of our lab!"—in other words, "Don't depend on your professor!" In this lab, I leave students completely to their own devices. In fact, it would make things easier for both my students, and me, if I gave clear instructions to them. But instead, I try to be patient and remain quiet for at least two years, even if there are no significant findings. I encourage my students to think on their own and use their own hands. That greatly helps them develop their abilities as researchers. After graduating from university, whether they work in companies or at research laboratories, they won't be able to do good work if they always need to be told what to do.

The "lesson" posted in Professor Abe's laboratory, as printed by the students themselves

—I see. That way, students can learn on their own through experience by performing experiments. By the way, you are using our instrument in your laboratory.
We are using HORIBA's Raman spectrometer in our laboratory. It's a very powerful tool that enables us to perform structural analysis in addition to making electro-chemical measurements while batteries are actually operating. It also allows "in-situ measurement" (see column) and is particularly suited to the reaction analysis of batteries. I tell my students that they must understand the principles of measuring instruments when using them. Otherwise, they won't be able to draw out the finer points from their data. As spectrometers like this are easy to use and one can obtain analysis results simply, it is all the more necessary for researchers to properly understand what is really going on during the process of analysis.

—What do you intend to achieve in your research from further analyzing the data obtained by analysis systems?
This is one of the fundamentals of research. I tell my students that they should save data obtained from failed experiments as well. Numerical data obtained from failed experiments may someday lead to new discoveries. Even data that looks like noise may provide valuable information if properly analyzed. Basic research, especially research in chemistry, is a repetition of routine experiments. Through routine processes, we must uncover hidden clues that will lead to major discoveries. In a sense, our success depends on luck. However, that does not mean we leave everything to chance. Important accomplishments are always supported by piles upon piles of data obtained from failed experiments. That is the unavoidable hardship that all research scientists must bear.

C O L U M N

In-situ measurement by HORIBA's Raman spectrometer
Measurement of lithium ion rechargeable batteries

In order to study the operation mechanism of lithium ion batteries, it is essential to understand how ions move inside batteries. For example, spectral analysis by a Raman spectrometer enables us to estimate how lithium ions insert the carbon material used for the negative electrode during the electrical charging process. HORIBA's Raman spectrometer is designed to make measurements during changing environmental conditions, including the electrical charging and discharging processes as well as temperature changes. Our Ramen spectrometer provides researchers with a valuable tool to obtain data under conditions that closely approximate the actual in-use conditions of batteries. In Professor Abe's laboratory, cells originally developed in-house are used to perform "in-situ" measurements of various materials.

Basic research as the anchor of battery manufacturers

—What problems still need to be resolved regarding the future development of batteries?
First of all, we need to increase the storage capacity of lithium ion batteries, and we must also improve their safety. These batteries carry the risk of developing thermal runaways from internal short circuits. We must examine the electrode materials, electrolytes and the structure of batteries in order to make further improvements. We also need to resolve problems regarding battery cycle life.

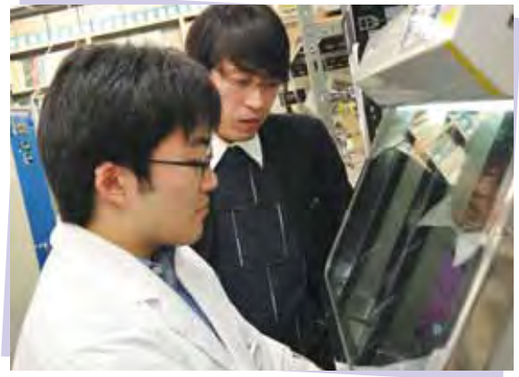
—What do you mean by cycle life?
The cycle life of a battery is the number of times the battery can be charged and discharged before the end of its useful life. Rechargeable batteries deteriorate slightly each time they are charged. Batteries for mobile phones are designed to keep their quality even after 500 charge-discharge cycles, but batteries for automobiles must be able to go through 3,000 cycles. It is also necessary to reduce manufacturing costs in order to further spread the use of these batteries.

—How about new types of batteries?
New types of batteries present even greater difficulties. We are planning to start full-scale use of electric vehicles by around 2030, but to that end, it is necessary to improve battery performance about three to five times the current level of lithium ion batteries and reduce costs to one-fortieth. Other prospective candidates for use in electric vehicles include our multivalent ion battery and the air-zinc battery. These batteries have various theoretical advantages, but many difficulties must be overcome before commercialization. These difficulties make our battery research all the more challenging.

—In the 1990s, Japan was the first in the world to commercialize lithium ion batteries. However, these days we hear that South Korea and China are rapidly catching up with Japan.
Japanese battery manufacturers have acquired an enormous wealth of knowledge over their history. They have unique overall advantages in terms of materials, construction and commercializing technologies for use in automobiles. However, Western countries, South Korea and China are rapidly stepping up R&D investments. In order to maintain its advantage, Japan needs to increase its basic research efforts for next generation and next-next-generation batteries.

—What are your happiest moments in your research on batteries?
One of my happiest moments is when an interesting idea flashes into my mind. When I hit a dead end in my research, I often try to immerse myself in thought while I make the 30-minute walk from the train station to the university campus. It is my way of performing thought experiments. Though they usually end in failure, I sometimes hit upon a good idea. In such a moment, I feel great. As a matter of fact, however, I wasn't interested in battery research as an undergraduate. I thought batteries were too complex to understand, so I decided to stay away from such research. By sheer coincidence, I found a connection between the carbon materials that I was studying and the lithium ions which play an important role in batteries, and now I can't keep myself away.

—Finally, could you tell us a little bit about your dreams for the future?
I would like to raise future leaders for industry, academia and government while continuing to research future batteries. The motto of our lab, "You are the boss of our lab!" was developed with the training of future leaders in mind. I would also like to serve as an "anchor" in battery research. There are many major battery manufacturers in the Kansai area, and I often receive questions about the fundamental principles of batteries. Even just to answer such questions, I would like to continue basic research and support the development of technology.


Professor Abe carefully watches and encourages his students to develop their individual abilities.

Promoting CSR activities

CSR promotion and management systems that exceed public expectations

HORIBA believes that the essential objective of CSR activities is to contribute to realizing a sustainable society and prosperous future through our technologies and products. However, that is not all that our stakeholders expect from us. In order to perform our duties as a corporate citizen, we believe that it is essential to create and improve our management systems for corporate governance and compliance.

CSR Promotion System

The HORIBA Group formed the HORIBA CSR Promotion Committee in April 2005. The Committee is currently engaged in CSR initiatives with the full-fledged support of Group companies, bringing together the directors responsible for CSR at HORIBA STEC, Co., Ltd.; HORIBA Techno Service Co., Ltd.; and HORIBA Advanced Techno Co., Ltd. under the chairmanship of Kozo Ishida, Dr.Eng., Executive Vice President of HORIBA, Ltd. The Committee determines CSR policies and priority challenges for all Group companies. Committee members deliberate the details of issues and approve items, seeking to reflect the results of their meetings in their workplaces through their respective CSR Promotion Committees. Further, each company prepares reports on the policies determined by the HORIBA CSR Promotion Committee. Reports are also prepared for social initiatives such as those focused on education, the environment, and local communities.

HORIBA CSR Promotion System

The HORIBA Group CSR Policy

Promoting CSR through operations

Based on our commitments to energy, human health, the environment and safety, we will pursue corporate initiatives to contribute to the realization of “a life of content for all.”

Top issues for 2010

Striving to provide First Class Quality

1. Improving total quality
   - Raising awareness of safety, ethical standards and compliance issues
   - Reducing the risks of compliance violations
   - Checking legal requirements for production lines
   - Responding quickly to resolve quality issues and problems
2. Strengthening security measures (information management, intellectual property and access to facilities)
3. Promoting measures for energy and resource conservation

Corporate Governance / Internal Controls

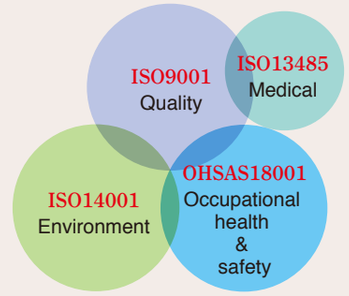
At HORIBA, Ltd., the Board of Auditors, which is comprised of three auditors (including two outside auditors), supervises and monitors the business operations conducted by the Board of Directors. HORIBA’s corporate governance system is administered by the Board of Directors, whose roles include decision-making, supervision and monitoring of business management, together with the Board of Executive Directors, the Operations Committee, the Management Committee and the Corporate Officer (Executive Officer) System, which assist the Representative Director and President. We have also established an internal auditing division that operates independently of the other divisions and is under the direct control of the Representative Director and President. The auditing division provides advice and guidance to ensure that business operations throughout all HORIBA group companies are conducted legally and fairly in accordance with laws, statutes and company regulations.
In order to maintain proper internal controls, we have adopted the Basic Policies for the Development of Internal Control Systems as a means of ensuring that the tasks of directors and employees are executed appropriately and efficiently in compliance with the relevant laws and statutes. We have developed our legal compliance and risk management systems based on these policies.

Compliance Promotion System

The Compliance Committee, which is established under the control of the CSR Promotion Committee, formulates plans to promote awareness of compliance issues, deliberates the content of internal reports and makes recommendations.
We established the HORIBA Corporate Philosophy, our Compliance Management Provisions, and our Code of Ethics to enhance our compliance framework and to prevent illegal acts. To facilitate early detection and correction of illegal acts, we also established an internal reporting system that includes a lawyer consultation service as well as an internal e-mail reporting system. Through this system, we will continue to raise employee awareness and enforce observance of laws and regulations. In addition, we will hold compliance seminars for employees in management positions and request participants to provide guidance to their staff members.

Integrated Management System

The HORIBA Group has introduced the Integrated Management System (IMS), which combines ISO9001(quality), ISO14001 (environment) and OHSAS18001 (occupational health & safety). In addition to these systems, HORIBA, Ltd. and HORIBA STEC, Co., Ltd. have also introduced ISO13485 (quality for medical devices). We plan to integrate the management systems of our five group companies in Japan in May 2011 in order to obtain the integrated management certification. In our overseas group companies, we are also stepping up efforts to obtain the ISO9001 certification for quality management and the ISO14001 certification for environmental management at major manufacturing sites.



Integrated Management System (IMS)

Overview of CSR activities

Detailed data on our CSR activities is available on our website.

HORIBA Gaiareport Search http://www.horiba.com/gaiareport/

CSR activities through daily business operations

＊On pages 15 to 18 of this report, we present some of our 2010 CSR activities. Our Gaiareport website provides more detailed information, including numerical data. Please visit our website for more information.

▶Theme	▶Activities and policies	▶Name of activity	▶Overview	Major activities in 2010 ▶Page No. (this report)	Major activities in 2010 ▶Location on the website
Working Alongside Our Customers	We provide products and services with high added value in a timely manner in order to improve customer satisfaction and earn the trust of our worldwide customers.	Improvement in customer satisfaction	We endeavor to quickly support customers by shortening the time required to respond to inquiries.	P15 Working alongside Our Customers topics 1	B-a-1
		Improvement in product quality	In order to reduce product warranty servicing costs we minimize the number of manufacturing flaws, deliver products on time and develop environmentally friendly designs for all new products. We also improve work efficiency through business operation improvement activities.	P15 Working alongside Our Customers topics 2	B-a-2
		Improvement in the quality of business operations			B-a-3
Working Together with Our Owners	We have adopted a dividend ratio policy of distributing a fixed percentage of after-tax profit every fiscal term as our basic policy to meet the expectations of our owners (shareholders).	Communication with owners and investors	We cherish all opportunities to have dialogue with our owners and investors at general shareholder meetings and IR briefing sessions. We disclose all relevant information.	P16 Working together with Our Owners topics 1	B-b-1
Working Together with Our Suppliers	We maintain relationships of trust with our suppliers based on the awareness that our activities would be impossible to carry out without all their cooperation and support.	Fair transactions	We cooperate with our production partner companies to more deeply understand first-class quality, to implement effective change management and to secure our supply chain.		B-c-1
		Partnerships with production partner companies		P16 Working together with Our Suppliers topics 1	B-c-2
Working Together with Our Employees	We consider each employee an invaluable contributor. We endeavor to establish a training system to develop each individual's potential to the fullest extent possible, as well as to provide an open and fair work environment that allows every member to contribute with a sense of security.	Communication with employees	We facilitate communication between management and staff by developing work environments in accordance with the circumstances of individual employees and by holding birthday parties for employees as well as workplace tours for their families. We also provide unique training programs for human resource development, including the HORIBA COLLEGE project.	P17 Working together with Our Employees topics 1	B-d-1
		Diversity		P17 Working together with Our Employees topics 2	B-d-2
		Work-life balance		P18 Working together with Our Employees topics 3	B-d-3
		Human resource development		P18 Working together with Our Employees topics 4	B-d-4
	We give the highest priority to human safety and health in all of our business activities and take an active part in raising individual awareness of safety and health issues.	Eliminating risk factors	Based on our annual occupational health and safety plan, we perform risk assessment, conduct health and safety patrols and undertake self-organized fire-fighting activities for a safe working environment. We also promote employee health by encouraging medical examinations and health promotion seminars.	P18 Working together with Our Employees topics 5	B-d-5
		Health management and promotion		P18 Working together with Our Employees topics 6	B-d-6
Working Together with Society	Based on the recognition that environmental initiatives are an essential requirement for validating the existence and activities of companies, we take independent and positive actions toward environmental conservation.	CO_2 emissions reduction	In order to reduce the environmental impact at each stage of our products' lifecycles, from production and distribution through to sale and use, we implement various measures, such as ensuring compliance with environmental laws and regulations, reducing the size and weight of products and developing eco-friendly products. We also take measures to conserve energy and resources as well as reduce CO_2 emissions throughout all of our corporate activities, such as turning off lights during lunch breaks, using LED lighting in guest rooms and undertaking zero-emission activities.		B-e-1
		Environmental impact reduction			B-e-2
		Energy and resource conservation		P17 Working together with Society topics 1	B-e-3
		Waste reduction			B-e-4
		Eco- friendly product designs			B-e-5
		Environmental accounting			B-e-6
	We serve as a responsible corporate citizen by performing an active and independent role in closely communicating, collaborating, and cooperating with local communities.	Dialogue with local communities and society	We actively support the development of society's next generation and communicate with residents of local communities through various programs, including clean up activities, environmental events, participation in educational forums and hosting on-site environmental seminars.	P17 Working together with Society topics 2	B-e-7
		Support for the development of society's next generation		P18 Working together with Society topics 3	B-e-8
	From our unique perspective as an analytical equipment manufacturer, we deliver messages that stimulate interest in analysis and the global environment.	Environmental activities promotion	We provide opportunities to think about the environment through the use of familiar media, such as corporate advertisements and support for the TV animation series, "Animal Conference on the Environment."	P18 Working together with Society topics 4	B-e-9

Major Activities in 2010

Detailed data on our CSR activities is available on our website.

HORIBA Gaiareport Search http://www.horiba.com/gaiareport/

"Joy and Fun," the precept of HORIBA's CSR activities

Staying true to our company motto, "Joy and Fun," we are striving to create an open and fair corporate culture. We aim to form closer partnerships with our stakeholders and improve our CSR activities.

Working Alongside Our Customers

We contribute to the development of a sustainable society and improvement in quality of life through our high-quality products and services.

Action

- Inquiry services at our customer support center
- The service system developed by HORIBA Techno Service Co., Ltd.
- Technical exhibitions in company offices
- Awards for inventions
- Product release celebrations

topics 1 Improvement in customer satisfaction

this report P7–10

Special interview

Professor Takeshi Abe, Graduate School of Engineering, Kyoto University

HORIBA's analytical and measurement systems are used in the development of new technologies that make our lives more comfortable. The demand for rechargeable batteries is expected to increase for electric vehicles and power generation systems as well as portable electric devices. We interviewed Professor Takeshi Abe of the Graduate School of Engineering, Kyoto University, about his commitment and passion for research on rechargeable batteries.

topics 2 Improvement in product quality and business operations

Technical Olympics WEB B-a-2

We held our third Technical Olympics with members from the HORIBA Group and our production partner companies. By sharing knowledge of basic manufacturing skills among all members, we are able to establish processes for eliminating manufacturing flaws and producing trusted products for our customers.

The fourth HORIBA Group PQI* competition WEB B-a-3

The competition was held at the head office of HORIBA, Ltd. and the Aso factory of HORIBA STEC, Co., Ltd. HORIBA Group companies cooperate with our production partner companies to improve product quality and to reduce the percentage of defective products.

* Product Quality Improvement

Working Together with Our Owners

We appropriately distribute profits to our owners (shareholders) and promote management transparency through fair disclosure of information and two-way communication.

Action

- Executive-lead financial briefings for institutional investors; briefings via conference phone
- Factory tours: HORIBA, Ltd.; HORIBA STEC, Co., Ltd.

topics 1 Communication with owners and investors

WEB B-b-1

Shareholder briefings and tours of our exhibition booths

We hold shareholder briefings, where shareholders can talk directly with our executives. We also offer tours of our booths at exhibitions for institutional investors hosted by securities firms.

Working Together with Our Suppliers

We at HORIBA consider our suppliers, who provide and process compornents and materials, as partner companies with whom we work and grow together.

Action

- HORIBA Group Meetings with production partner companies
- Quality study sessions with production partner companies

topics 1 Partnerships with production partner companies

WEB B-c-2

HORIBA Group Meetings with production partner companies

We hold regular meetings with production partner companies and exchange advice through co-hosting events such as the Technical Olympics* under the motto "Achieving co-evolution, harmony and coexistence."

* See page 15.

Interview with an award recipient at the 2010 HORIBA Group meeting with production partner companies WEB B-c-2

The award ceremony at the 2010 HORIBA Group meeting with production partner companies

Processing and manufacturing technology exhibition

We hold this exhibition to proactively apply our production partner companies' manufacturing technologies to HORIBA products. The 2010 exhibition was attended by more than 400 people from HORIBA Group companies and production partner companies. We will continue our efforts to develop win-win relationships by employing the advanced skills of our production partner companies.

Detailed data on our CSR activities is available on our website.

HORIBA Gaiareport Search http://www.horiba.com/gaiareport/

Working Together with Our Employees

Staying true to our company motto, “Joy and Fun,” we are making efforts to create an open and fair working environment as well as a safe, healthy and pleasant workplace for all HORIBA employees.

Action

- Workplace tour for employee families
- Support for the development of society’s next generation
- Seminars by obstetricians
- Promoting consumption of local products in company cafeterias
- Medical examinations and health guidance services
- Employment of new graduates with foreign citizenship
- Dispatch of employees for overseas training

topics 1 Communication with employees

Birthday parties for employees

To facilitate communication between executives and employees, buffet parties prepared by hotel catering services are hosted by the President and other executives for employees celebrating their birthdays each month. WEB B-d-1

topics 2 Diversity WEB B-d-2

Promotion of the employment of people with disabilities

We have provided greater employment opportunities for people with disabilities through on-the-job training. In 2010 we recruited one person under this system. We also actively participate in events such as the Abilympics.

topics 3 Work-life balance WEB B-d-3

Distinguished as a family-friendly company

HORIBA received an award from the Ministry of Health, Labour and Welfare for companies promoting equal opportunity employment and work-life balance. We continue to support childcare leave and have a unique system of awarding money to celebrate employees’ return to work after childcare leave.

[Employees who took childcare leave]
(Data on HORIBA Group companies in Japan) (Unit: person)

		2008	2009	2010
Women	No. who gave birth	20	19	28
	No. on childcare leave (No. of managers)	20(0)	18(0)	28(1)
Men	No. on childcare leave (No. of managers)	2(1)	3(0)	3(0)

topics 4 Human resource development

HORIBA COLLEGE WEB B-d-4

In 2009, we established the HORIBA COLLEGE, a company training project, to provide opportunities for all employees to teach and learn as both instructors and students. In 2010, more than 1,200 employees participated in 280 programs in total.

topics 5 Eliminating risk factors

Safety patrols WEB B-d-5

Based on the annual occupational health and safety management plan, each office implemented top priority measures, such as on-site patrols by executives to achieve its annual goals.

No accident for 1,000 consecutive days at a factory in Korea

HORIBA KOREA, Ltd.’s Bucheon factory recorded 1,000 consecutive days of accident-free operation on June 2010.
Employees continue their activities to promote occupational safety with independent safety patrols and improvement activities.

topics 6 Health management and promotion WEB B-d-6

“Eat-and-learn” nutritional guidance session

Employees received advice from licensed dieticians and nurses about how to improve their lifestyles while enjoying a nutritionally well-balanced lunch.

Working Together with Society

We are working to create an environmentally friendly production system. We are also taking an active role in supporting the development of society’s next generation by supporting educational and cultural events.

Action

- On-site environmental seminars
- Acceptance of interns
- Global environmental conservation activities
- Trash inspections during daily commutes
- Corporate advertisements
- Gaiapress, an informational website on the environment, nature, space and science

topics 1 Energy and resources conservation / Waste reduction / Eco-friendly product designs WEB B-e-3/B-e-4/B-e-5

Development and production activities

To reduce our products’ environmental impact, we design and develop products in accordance with original eco-friendly design assessment standards. All Group companies are striving to reduce emissions during production and make steady daily efforts such as turning off lights during lunch breaks and separating trash.

topics 2 Dialogues with local communities and society WEB B-e-7

Bicycle seminars for children

Members of the HORIBA bicycle club volunteered at a bicycle seminar for children held in Muko City, Kyoto.

Smiles for children in hospitals

HORIBA ABX S.A.S. (France), which provides medical products, supports an entertainment service program with volunteer clowns who visit medical care facilities to entertain hospitalized children.

Photos Copyright Hervé Hôte

topics 3 Support for the development of society’s next generation WEB B-e-8

Participation in the Kyoto 21st Century Innovative Education Forum

The forum provides an opportunity for companies, universities, primary and secondary schools, government organizations, mass media, citizens and students to learn together. HORIBA played an active role in the forum as a representative of companies assisting in the development of a new model to educate society’s next generation in Kyoto.

topics 4 Environmental activities promotion WEB B-e-9

“Animal Conference on the Environment,” a TV animation series broadcast on NHK’s education channel

The “Animal Conference on the Environment” on Gaiapress, a website hosted by HORIBA, was subsequently released on NHK*’s education channel as a TV animation series in 2010. Animals hold meetings to discuss familiar environmental problems in a fun and enjoyable manner to arouse children’s interest in environmental issues and raise their environmental awareness.

*Japan Broadcasting Corporation

HORIBA’s newspaper advertisement series receives Grand Prize

One of HORIBA’s advertisement series won the 37th Nikkei Business Daily Advertising Award Grand Prize. The theme of the advertisement series teaches that the foundation of analysis can be found in the sensing capacities of biological organisms, and the re-examination of these functions leads to an understanding of the importance of analysis.

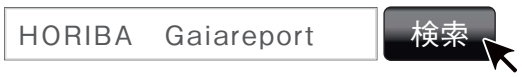
(Nikkei Business Daily, November 25, 2009)

What is the Gaiareport?

According to Greek mythology, Gaia is the maternal goddess of the Earth who ensures that the planet thrives and is capable of cleansing itself. The HORIBA Group, a manufacturer of analytical and environmental measuring instruments, contributes to the advancement of a sustainable society through our analytical and measurement business. To express this determination, we have named our CSR communications media Gaiapress (our website) and Gaiareport (the CSR report). At HORIBA, we remain committed to the global environment by focusing on environmental measurements.

See our data resources on the Web for more information

Detailed information about our CSR activities appears on the Web, making its access easier and more convenient. Searching for the subject you are interested in is made easy by using keywords or categories to take you to the web page where the relevant information is available.
For more information, access our data resources on the Web!



http://www.horiba.com/gaiareport/

HORIBA
Explore the future

HORIBA, Ltd.

2, Miyanohigashi-cho, Kisshoin, Minami-ku,
Kyoto 601-8510, Japan
TEL: (81) 75-313-8121
FAX: (81) 75-321-6621
URL: http://www.horiba.com
*Please direct all inquiries to
the Corporate Communications Office.

●Relevant websites
Environmental protection initiatives ➡ http://www.horiba.com/social-responsibility/
Investor relations ➡ http://www.horiba.com/investor-relations/
Gaiapress ➡ http://www.jp.horiba.com/sensorium/

The new Gaiareport significantly reduced paper use

From 2009 on, the Gaiareport is in leaflet and online formats, significantly reducing the use of paper compared to the previous booklet format. The essence of HORIBA's CSR activities focuses on the hope that our Gaiareport will be read by as many people as possible.

This is printed on FSC-certified paper using wood from "responsibly managed forests" and is also Lake Biwa Ecological Paper, part of the cost of which is donated to an environmental charity working to protect the environment of Lake Biwa. Also, it was printed with soy-based vegetable ink, using a waterless printing process that does not produce hazardous liquid waste. Moreover, we offset carbon dioxide emissions from the production process through the COJ (CARBON OFFSET JAPAN).

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