

# OHARA Report







# **Editorial Policy**

The OHARA Report informs people of OHARA INC.'s initiatives regarding CSR in an effort to present a more easily accessible format to our stakeholders.

In our special features, we introduce the products of our Optical business and Electronics business, including their applications and the voices of staff in charge. We will also express the idea of roles OHARA's business activities and its products play in society through "Business Model", in addition to reporting ongoing initiatives, including self-assessments. An overview of FY 2016 is explained in "Message from Top Management" and "Consolidated Financial Highlights".

It is our pleasure if readers can become more familiar with OHARA through this Report.

## Scope of Report

This report mainly covers the activities of nonconsolidated OHARA INC.

\*The figures in the financial reports (See p.3 and p.21), however, denote numbers that include the results of the Group companies.

### **Reporting Period**

FY 2016

From November 1, 2015 to October 31, 2016 \*There are, however, some references to activities for FY 2017

## **Date of Issue**

January 2017 Previous issue: January 2016 Next issue: Scheduled for January 2018

## **Reference Guidelines**

GRI, Sustainability Reporting Guidelines 4 Edition (G4) Ministry of the Environment, Environmental Reporting Guidelines 2012

## Inquiries

General Affairs Department, Management Center, OHARA INC. TEL: (81)42-772-2101 FAX: (81)42-774-1071 E-mail: info@ohara-inc.co.jp

# Creating the Future for **People and Society**

We value trust and by using our proprietary technology and advanced materials of the best quality, we will build a sustainable future together with society, through our business activities.

# Management Philosophy

the society.

# **Vision Statement**

Company".

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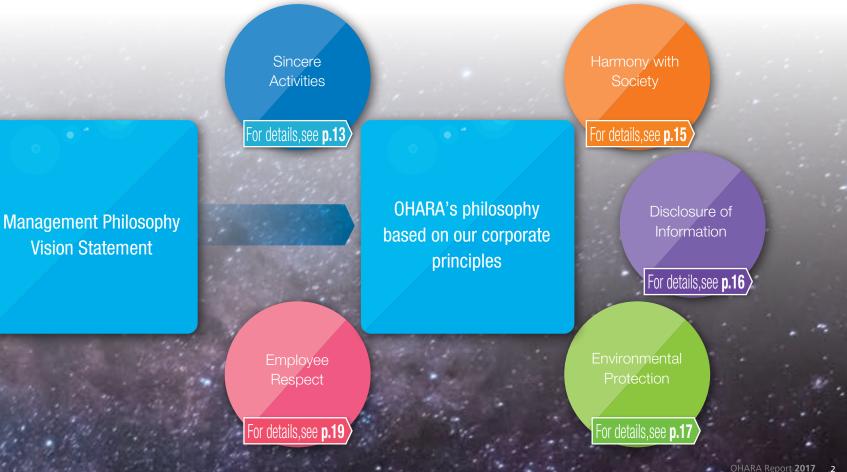
CSR as Conceived by OHARA

Realization of OHARA's philosophy based on our corporate principles

The OHARA Group is honored to keep on creating unique and new values in order to establish a strong company structure for its employees' happiness and for the prosperity of

With high aspirations for contributing to the improvement of mankind through technological advances, we will provide high quality, cutting-edge materials for use in the optical, electronics, and environmental / energy fields worldwide. Working closely with our customers, we will constantly pursue innovation and become the "Dream Fulfillment

# Philosophy Based on Our Corporate Principles



# Introduction About the OHARA Group

The OHARA Group develops global business in the fields of optical and electronics products.

# **OHARA Group Business Model**

Through these business activities and<br/>In addition, we invest efficiently toproducts, the OHARA Group provides corporate value to all stakeholders.In addition, we invest efficiently tocontribute to solving social problems, which will lead us to the provision of the next value.



# Introduction OHARA Spirit

We introduce "research and development", "quality assurance", and "production process" that support the business activities of the OHARA Group.

# Research and Development

# OHARA pursues all possibilities as we aim to provide advanced materials that can freely control optical, electronic, and other physical properties.

Since founding in 1935, OHARA has contributed to the development of Japan's optical industry as a specialized maker of optical glass. Subsequently, in 1985, on the occasion of our 50th anniversary, we transformed into a proposal-based materials manufacturer to respond to the diversification of the customer needs in the advanced information society.

In addition to making existing optical glass environmentally friendly (environmental protection measures). OHARA constantly aims to be a company that supports technology in the fields of ultra low expansion glass-ceramics, lithium-ion conductive glass-ceramics, and other special glass with various functions, and pursues all possibilities for the future of glass as we look toward the next generation, based on the technology that OHARA has cultivated over the course of our history.





Mixing Raw Material

Heat analysis

# Staff's voice

Glass is amorphous (a material state that does not hold a crystalline structure) and its physical properties and characteristics cannot be predicted by calculation. so the materials are formed through the repetition of trial and error. In addition, virtually any element can be used as a constituent, and furthermore, it has possibilities for the realization of new, superior materials with crystallization technology. We will continue to utilize the merits of materials to provide Advanced Material Product Division value with a high level of customer satisfaction.



Kazuo Ohara Advanced Material Product Engineering Department

# Quality Assurance

The "pursuit of the highest quality" is in OHARA's DNA. It leads us to technology that allows us to provide products which satisfy our customers, as well as develop and manufacture new world-class materials in the electronics field.

Our quality policy based on "customer first" states "fully understand customer's request first", thus we make it a basic concept that it is customers who judge the quality. We have built and operated a quality management system over many years, and strived to improve the quality of our products and services, by continuously improving the effectiveness of the system. The created products in such a way are analyzed and evaluated by highly accurate measurement technology, before we proudly provide them to our customers.

In addition, as we look to migrate to the ISO9001 standard revised in September 2015, we began operating under the ISO9001 2015 edition in November 2016, and aim to be certified in August 2017.





Standard prisms

Product inspection



In the measurement evaluation section, our foremost duty is to contribute to the stable provision to the market of products of the high quality that customers desire, based on the idea of "obtaining measurements for evaluation items promptly and with a high accuracy". In order to do so, in addition to keeping up the accumulated technical skills and training employees, we also continue challenging to establish new evaluation items and methods to correspond to Business Support Center advanced technological changes in the market.



Yasuhiko Niitsu Quality Assurance Department



# We handle design, manufacturing and shipping. OHARA sends out products with a consistent level of technical expertise and reliability to the world.





I consider that we should do not only designing glass melting furnaces and equipment but also making the furnace and the equipment by ourselves. We are proactive in being involved with the manufacture of our products and improving on our production. Therefore, we do act in concert with our production team and then check the quality of the products and the situation of the equipment. We give our instructions to the production team in order to do more Optical Material Business Unit precise control of the conditions of melting furnace in order Optical Product Division to improve on the yield rate at the production.

# **Production Processes**

Over 80 years, OHARA has developed manufacturing methods to constantly create products of stable quality, while also making modifications and improvements. Particularly, in optical glass, we make materials that match our target performances with few variations by conducting a two-stage melting from the raw materials.

The manufacturing of this high-quality glass is the source of our increasing customer satisfaction, as OHARA creates new physical properties that further meet the expectations of our customers through internal quality improvements with ultra-high accuracy temperate control technology (such as refractive index adjustment, crystallization adjustment and so on). In addition, we have established high-accuracy pressing using precision mold processing technology, and mold processing and pressing technology for aspherical lenses in recent years and now send out products to the world that are supported by such comprehensive technological innovation.

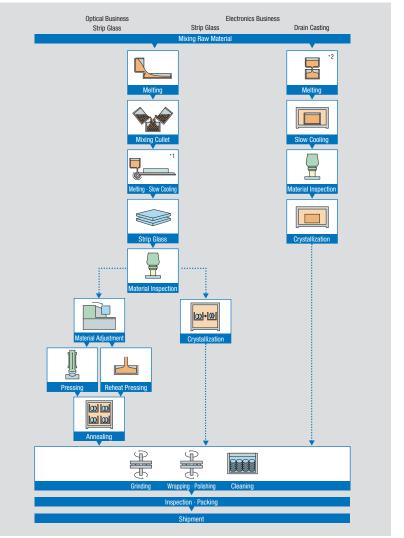


Slow cooling after melting (\*1 in the chart on page 6) Casting (\*2 in the chart on page 6)



Satoru Matsumoto

# Manufacturing Methods and Processes



We introduce the OHARA Group's Optical business.

# **Optical Business**

Optical glass is used in various optical devices such as digital single lens reflex cameras, projectors, television cameras, car-mounted cameras, security cameras and medical devices. At OHARA, we meet all optical design needs with a line-up of over 150 types of optical glasses with the characteristics that enable optical devices to attain higher performances, miniaturization and cost reduction. The cutting-edge glass materials of the highest quality that OHARA provides support people around the world in their smiles and sense of wonder.



Digital single lens reflex camera (image provided by Canon Inc.)



Microscope (image provided by Olympus Corporation)

**OHARA Optical Data Applications** 

Android version (Ver 4.0-4.3) Search for "OHARA" on "Google Play"



iOS version (iOS 7 or later) Search for "OHARA" on the "App Store"

**Optical Glass Products** 

its transmittance.

The optical parts of optical devices are

composed of combinations of optical

components, including spherical lenses, aspherical lenses, prisms and filters made of

multiple types of optical glass with

characteristics in its refractive index and/or

In order to attain optical designs for

various optical devices, OHARA deals with

over 150 types of optical glasses and meets

the needs of a wide variety of optical designs

for optical devices to enable higher

performances, miniaturization, weight

In addition, depending on requests from

our customers, we supply lens blanks in a

suitable shape to be processed, finished

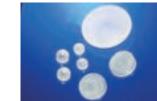
lenses and so on. OHARA provides our

customers optical glass products in a wide

variety with not only glass materials but also

reduction and cost reduction.

glass components.









# **Reheat Pressings**

Products molded in heat press to shapes suitable for spherical polished lenses and prisms

# **Polished Preforms**

This spherically polished product used as a basic material for aspheric molded lenses

## Spherical Lenses

Finished lenses produced by polishing, centering and coating

# Aspherical Glass Mold Lenses

Products fabricated by heating and softening polished preforms and transferring it in a ultra-high accuracy aspheric mold and then supplied after centering and coating

# Special Feature

Interchangeable lenses quality and compactine interchangeable lenses. In response to the req structure development a optical glass therefore s over 40mm in diameter. OHARA's GMO contril lenses.

## Staff's voice

We are a latecomer in the a advantage OHARA can provide point. As the market of comparof large diameter aspherical develop and others were also After that, OHARA succeed S-FPL51 in the special low d manufacture. Now, OHARA continues to d glass types. Also, OHARA succ fluorite-region characteristics. In future, OHARA aims to su camera, security camera, virtu and will continue to challenge lens shape designing.

# cial feature

# **Development Story of Aspherical Glass Mold Lenses**

GMO Production Process

Interchangeable lenses for digital single lens reflex camera are required both high image quality and compactness. Therefore, multiple glass aspherical lenses are used in interchangeable lenses.

In response to the request from our customers, OHARA have utilized our strengths of glass structure development and manufacturing technology development as a manufacturer of optical glass therefore started production and sales of aspherical glass mold lenses (GMO) over 40mm in diameter.

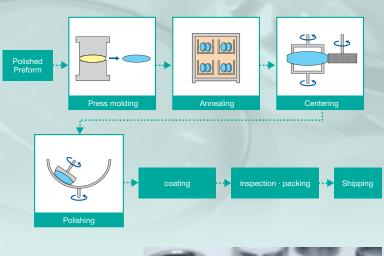
OHARA's GMO contributes significantly to improve the performance of interchangeable

We are a latecomer in the aspherical glass mold lens (GMO) business and what kind of advantage OHARA can provide to customers? Looking back now, I think there was a turning point. As the market of compact digital camera began to shrink, OHARA entered to the market of large diameter aspherical GMO for interchangeable lenses. This was difficult target to develop and others were also doing the same at that time.

After that, OHARA succeeded ahead of the industry to produce large diameter GMO of S-FPL51 in the special low dispersion area (fluorite-region) which is particularly difficult to

Now, OHARA continues to expand lens items over 40mm diameter and increase molding glass types. Also, OHARA succeeded to produce GMO of S-FPL55 with further improvement in fluorite-region characteristics.

In future, OHARA aims to supply products to the wide range of markets such as car-mounted camera, security camera, virtual-reality device, and 4K optical device for high image quality, and will continue to challenge technology development that aims to expand the flexibility of lens shape designing.





Koki Maekawa Optical Product Production Section Optical Product Business Unit Optical Product Division



Metal Molds for Aspherical Glass Mold Lenses

After softening polished glass preform at a high temperature, the shape of the mold is imprinted to the glass by applying pressure to the glass with an ultra-precision aspherical shape molding. The molding tools are also produced at OHARA.

We introduce the OHARA Group Electronics business.

# **Electronics Business**



OHARA's special glass, developed using technology acquired from optical glass, is used in a wide range of applications such as semiconductor exposure device and FPD exposure device components, cover glass, which is required to be shock resistant, optical communications filter substrates, precision measuring substrates and glass for art. In addition, OHARA provides high-quality synthetic quartz utilizing the vapor-phase axial deposition (VAD) method for quartz glass and sells lithium-ion conductive glass-ceramics that have applications as various solid electrolyte materials. OHARA will continue to develop new products and improve the quality of products for use in cutting-edge areas.

# Shock Resistant and High Hardness Clear Glassceramics (NANOCERAM<sup>™</sup>)

NANOCERAM<sup>™</sup> is glass-ceramic for which we have further evolved OHARA's nanocrystallization technology, thus far recognized in all fields, and achieved superior mechanical properties and high transmittance.

New proposals will be possible that cannot be realized with sapphire crystal glass and chemically strengthened glass, such as cover glass for optical devices and mobile devices, which requires shock resistance.

# Ultra Low Expansion Glass-ceramics (CLEARCERAM<sup>™</sup>-Z)

CLEARCERAM<sup>™</sup>-Z is a glass-ceramic with an Ultra Low Thermal Expansion Coefficient. This material was developed by OHARA based on our knowledge of the homogeneous glass melting and precision crystallization technologies. This material is produced under tightly controlled conditions and offers outstanding thermal, mechanical and chemical properties.

It is widely used in advanced fields such as precision devices. semiconductor components, and space and astronomical mirror applications.

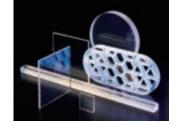
Lithium-ion Conductive Glass-ceramics (LICGC<sup>™</sup>)

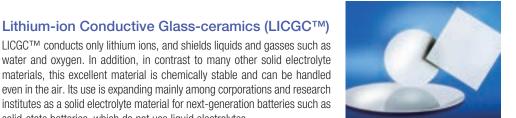
water and oxygen. In addition, in contrast to many other solid electrolyte

materials, this excellent material is chemically stable and can be handled

institutes as a solid electrolyte material for next-generation batteries such as

solid-state batteries, which do not use liquid electrolytes.





# i-Line High Homogeneity Glass

Extremely high quality glass is necessary for optical parts that employ leading-edge technology, such as manufacturing equipment for semiconductor devices and space and astronomical applications. i-line high homogeneity glass is optical glass with excellent internal transmittance. lower

solarization (coloring from ultraviolet rays), and good optical homogeneity. OHARA responds to the need for increasing size also as it is possible to obtain largerdiameter lenses.

# Synthetic Fused Silica SK1300 Series

OHARA successfully developed synthetic fused silica SK-1300 as a result of significant improvements made to the conventional VAD (vapor-phase axial deposition) method of optical fiber manufacturing technology. SK-1300 is the state-of-the-art technology in optical

characteristics because it provides a high ultraviolet transmission, no micro inclusion and a solarization resistance, in addition to heat resistance, mechanical strength, and chemical resistance.

Ohara Quartz Co., Ltd. supplies this synthetic fused silica, which is used in a wide range of leading-edge industrial fields, such as semiconductors and optical communications.







# **Unveiling Shock Resistant and High Hardness Clear Glass-ceramics (NANOCERAM™)**!

Shock resistant and high hardness clear glass-ceramics (NANOCERAM™) were developed as an alternative product to sapphire crystal glass. Compared with high-strength chemically strengthened glass, it has 20% higher hardness, and more than three times the shock resistance properties in steel ball drop impact tests. In addition, it has higher fracture toughness than sapphire crystal glass. It has realized the property in toughness, as even a scratch does not easily lead to crack that could destroy or break the glass.

Previous glass-ceramics with large crystal particles did not transmit light well, and were not used in optical applications. However, with our nanocrystallization technology (particle size approximately 6nm), we have achieved a high transmittance, and our products have been highly acclaimed following their application in high-grade lens protector products for interchangeable lenses of domestically produced SLRs, which require stringent optical performance and quality in precision. In future, OHARA will respond to demand from electronic devices such as smartphones (cover glass, camera, accessories, etc.), smartwatches, high-grade watches, and other "tough model" electronic devices for sports and specialized applications, which require shock resistance.



Adopted in liquid crystal display protection glass film for smartphones by POWER SUPPORT CO.,LTD.) \* It is described as "The strongest glass-ceramics film ever made."



Reika Koiima Processing Engineering Development Section Advanced Material Product Engineering Department Advanced Material Product Division

# Staff's voice

NANOCERAM<sup>™</sup> has excellent shock resistance, hardness, and workability. It is a new dream material which can be chemically strengthened, and formed into 3D shapes. Customers who produce mobile and wearable products such as smartphones, which are a common sight, in addition to auto-related applications are also snowing their interests in it. We will actively focus on developing unconventional processing technologies, so that we can respond quickly to the passion of our customers to create innovative products.

# Message from Top Management



# Looking to the future, going back to basics

Since immediately after our founding, OHARA has actively invested management resources in research and technical development, and has cultivated an organizational culture of pursuing the possibilities of glass-ceramics with free ideas.

The process from the research of materials and development of technology to commercialization is a difficult road that requires considerable management resources and time, but since our founding, we have continued to face up to various challenges in fields ranging from optical glass to specialized glass and glass-ceramics.

As we have continued the activities, it was the engineers and designers that have given us great "realization." They are innovators tackling changes in society brought about by technological innovation in the fields of optics, electronics, and the environment and energy.

On the "blueprint for the future" sketched by those who continue to challenge to fulfill dreams, there are materials that do not exist in the world, and materials with functions that surpass existing limits. New demands for materials, woven out of repeated trial and error, are the driving force for our activities.

As we look to fulfill dreams of those innovators that continue to challenge around the world, we will continue to create "advanced materials of the highest quality" together with our customers.

# The quality of human resources supports the highest quality

It is our greatest pleasure to be acclaimed by our customers as "OHARA of quality", and from some point, a common understanding was fostered that quality is the pride of OHARA.

Quality is people. It is most important that we improve the quality of our human resources in order to realize the highest quality.

With "One OHARA" as our motto, everyone working in the OHARA Group must take into the mission and vision of the OHARA Group into each individual role, and strive together to our best in our day-to-day work.

While this is very basic, but the accumulation

leads to an improvement in the quality of our human resources, and supports the quality of OHARA today.

# **Operating Conditions for FY 2016**

In the Optical business, we h continued to shrink, but dem year. However, amid such con improvements in the perform mounted cameras, taking adw In the Electronics business, and quartz glass increased a and sales increased year on ceramics (NANOCERAM<sup>™</sup>), o cover glass for smartphones. As a result, consolidated o (down 6.5% year on year), an addition, owing partly to foreign using the equity method repor (versus an ordinary profit of 1 the parent was 372 million year yen for FY 2015).

# Initiatives to Be Taken in FY 2017

In the Optical business, although we expect the rate of decline to slow in the digital camera market, the continue to shrink. Therefore, firstly, we aim to further optimize our scale by diverting manufacturing facilities to that for NANOCERAM™. In addition, we will focus on areas where we can utilize our superior product performance, which is a strength of OHARA, such as projectors, high-definition digital cameras, and broadcasting devices. Also, for car-mounted cameras and security cameras, we must respond to new customer needs different from those of before, so we will make concerted efforts in this area, including launching new products. In the Electronics business, expanding sales of NANOCERAM™ is our first priority. In FY 2017, we aim for its adoption as cover glass for smartphones, and if it goes smoothly, we expect to see results around spring 2017. In addition, prior to this , in December 2016, it was adopted as a liquid

In the Optical business, we had optimized the scale of production as the digital camera market continued to shrink, but demand tuned to be weaker than expected, and sales declined year on year. However, amid such conditions, the need for high-quality optical glass increased in line with improvements in the performance of devices such as projectors, security cameras, and carmounted cameras, taking advantage of OHARA's strengths.

In the Electronics business, demand for ultra low expansion glass-ceramics (CLEARCERAM<sup>™</sup>-Z) and quartz glass increased as there was lively capital expenditure related to organic EL displays, and sales increased year on year. In addition, shock resistant and high hardness clear glass-ceramics (NANOCERAM<sup>™</sup>), our new product, also received acclaim from customers for its use in

As a result, consolidated operating results for FY 2016 were net sales of 21,329 million yen (down 6.5% year on year), and operating income of 143 million yen (down 73.3% year on year). In addition, owing partly to foreign exchange losses and the share of losses of entities accounted for using the equity method reported as non-operating expenses, the ordinary loss was 84 million yen (versus an ordinary profit of 1,316 million yen for FY 2015), and the loss attributable to owners of the parent was 372 million yen (versus a profit attributable to owners of the parent of 545 million

crystal display protection glass film, an accessory for smartphones. Meanwhile, we expect demand for CLEARCERAM<sup>™</sup>-Z and quartz glass to be robust as capital expenditure related to organic EL displays remains active.

As a result of the above, our forecasts for consolidated operating results for FY 2017 are net sales of 23,000 million yen (up 7.8% year on year), operating income of 900 million yen (up 525.8% year on year), ordinary profit of 1,170 million yen (versus an ordinary loss of 84 million yen for FY 2016), and profit attributable to owners of the parent of 880 million yen (versus a loss attributable to owners of the parent of 372 million yen for FY 2016).

Furthermore, in view of the above, our dividend forecast for FY 2017 is a year-end dividend per share of 15 yen, an increase of 5 yen.

# To achieve the Medium-term Management Plan

The OHARA Group has formulated a medium-term management plan that covers three years starting from FY 2015.

Following revision in December 2015, the numerical targets are 24.0 billion yen or more in net sales, and 1.0 billion yen or more in operating income. The forecasts for operating results for FY 2017 given above are both below these targets owing to difficulties in the Optical business, but as we strengthen the Electronics business and also tackle measures for further improvement in operating results, we will continue to strive to achieve these targets by increasing their feasibility. On the other hand, we expect to achieve targets other than those above, namely ordinary profit-to-total assets ratio of 2% or more, rate of interest-bearing liabilities to total assets of 12% or less, and sales ratio of the Electronics business of 30% or more.

In addition, we are also focusing on the two points that we stated as our basic policy, "conversion of the business structure" and "building a new driver for growth," by aiming to move from being dependent solely on the Optical business to the two-pillar business structure with a strengthened Electronics business. Based on this strategy, we have increased our target for net sales in the Electronics business to 9.7 billion yen, above target of 8.0 billion yen in the medium-term plan, and will continue striving to achieve our strategic goals.

We would like to ask for the continued support and understanding of shareholders and investors, and all other stakeholders.

# Sincere Activities

We will endeavor to develop and provide useful products and services for the benefit of humanity, and to gain the satisfaction and trust of our customers. To achieve this goal, we will observe all laws and regulations. We will respect the culture, customs, and traditions of local societies. We will conduct socially suitable corporate activity through fair, transparent competition, and business dealings.

# **Basic Views on Corporate Governance**

OHARA's Management Philosophy is that "The OHARA Group is honored to keep on creating unique and new values in order to establish a strong company structure for employees' happiness and for the prosperity of the society", and we conduct our business activities in accordance therewith.

OHARA endeavors to streamline internal organizational structure and administrative schemes and take necessary measures to realize above Management Philosophy. Moreover, toward our various stakeholders including shareholders, customers, employees and local communities, OHARA strongly believes that fulfilling responsibility as a public instrument of society will maximize our corporate value, and management with transparency and soundness in line with our corporate philosophy is the best approach to corporate governance.

# **Initiatives to Enhance Corporate Governance**

# Basic Policies on Corporate Governance

Based on the intent and spirit of the Corporate Governance Code applied from June 2015, OHARA established the "Basic Policies on Corporate Governance", with the objective of pursuing the best corporate governance and its enhancement, for the sustainable growth and improvement in the corporate value of the OHARA Group.

\*For details of the "Basic Policies on Corporate Governance." see our website.

# Strengthening the Corporate Governance Structure

Based on the "Basic Policies on Corporate Governance," we conducted following initiatives.

1. Enhancing the Effectiveness of the Board of Directors

While decreasing the number of inside directors from eight to four, we increased the number of independent outside directors by two. As a result, four of eight directors are outside directors, and OHARA intends to establish a more effective corporate governance structure by further enhancing the monitoring and supervisory function

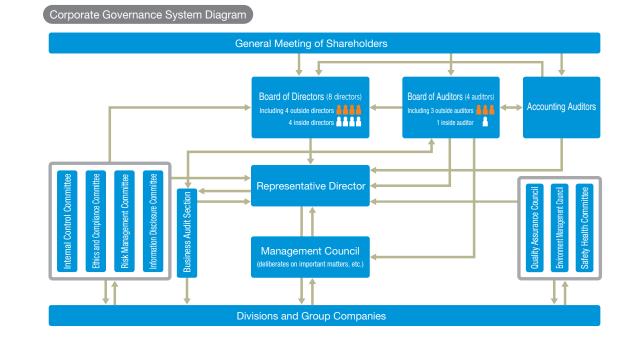
2. Introduction of Performance-based Compensation System for Directors

In order to make the link with operating results and share value clearer, and increase motivation to contribute to an improvement in operating results over the medium- to long-term as well as enhancing corporate value, we have introduced a performancebased compensation system linked to short-term corporate operating results and individual contribution, and a stock

- compensation system as a medium-to long-term incentive compensation. (Excluding directors who do not engage in business execution.)
- 3. Implementation of the Executive Officer System We newly implemented an executive officer system, for the purpose of realizing speedier and more efficient business

execution, in addition to clarifying executive responsibility, by separating managerial decision-making and supervisory functions from business execution function.

In addition, we are utilizing this system to train successors for our future officers such as CEO.



# **Initiatives to Strengthen Compliance**

## Compliance Promotion System

OHARA has established the "Guidelines of Conduct" in accordance with OHARA's philosophy based on our corporate principles. The Ethics and Compliance Committee holds a variety of in-house seminars in accordance with such Guidelines on a continuous basis in order to ensure that directors and all employees comply with laws and regulations and execute business activities with a high sense of ethics and in a fair and proper manner.



Compliance seminar for directors



Compliance seminar for all employees





# Codes of Conduct: Guidelines

Based on OHARA's philosophy given our corporate principles and the Guidelines of Conduct, OHARA has stipulated the Codes of Conduct: Guidelines, which specify major points of laws and regulations, response policies and matters of caution to be complied with in conducting business activities and has been providing educational activities for all employees using the intranet.



Codes of Conduct: Guidelines

# Ensuring Reliability of Financial Reports Based on Internal Control Audit

The Internal Control Committee was established, and primarily serves to create and maintain a structure that can ensure the reliability of financial reports, and the plans and activity results of internal control and internal control evaluation results are reported to the Committee every year.

# Ensuring Adequacy and Efficiency of Operations based on Internal Audit

Internal audits by the Business Audit Section based on auditing plans for each division and subsidiary of the OHARA Group are implemented continuously and on a regular basis. Checks are in place for criteria such as whether or not operational execution for each division and subsidiary is properly in compliance with the internal regulations, and operations are checked for appropriateness, legality and rationality.



# Sincere Activities

# FY 2016 Activity Review

Based on the intent and spirit of the Corporate Governance Code, we have compiled OHARA's views on corporate governance as the "Basic Policies on Corporate Governance", and based on this we have implemented measures such as reforms of the Board of Directors, the introduction of a performance-based compensation system for directors, and the implementation of an executive officer system. As a result of these measures, a structure has been created that can guarantee the soundness and transparency of management, and initiatives aimed at sustainable growth and improvement of the corporate value of the OHARA Group have progressed.



# Issues for FY 2017

To achieve sustainable growth and further improvement in the corporate value, we must evolve the current corporate governance structure into a more effective one. Therefore, we want to further enhance and accelerate our initiatives. such as evaluating and analyzing the Board of Directors and promoting improvements to make it more effective.

Target achievement level :  $\star \star \star = 100\% \star = 75-99\% \star = 74\%$  or lower

# Harmony with Society

We will maintain proper company activities so that a harmony with local and international societies can be sustained. As "a good corporate citizen", OHARA is determined to contribute to society.

Traffic Safety Training

Traffic safety class

Every year, in December, OHARA conducts educational activities with

an emphasis on preventing drunken driving. Furthermore, owing to

frequent bicycle accidents in the city, in summer FY 2016, we invited

a speaker from the Sagamihara Police Station, and conducted internal

training about bicycle accident prevention for all employees.

# Ties with Local Society

# Initiatives at Safe Driving Supervisors Association

As a member of the Sagamihara Safe Driving Supervisors Association, OHARA participates in local activities together with other members, watching crossings at times when children go home, as well as activities to enlighten people about traffic safety near Sagamihara Station and other areas.



Watching at a crossing

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# **Social Contribution Activities**

# Accepting Factory Tours and Allowing Experience of Working

As part of the local social contribution activities. OHARA accepts activities such as factory tours by students, mainly from nearby schools.

In FY 2016, 119 third-grade elementary school students participated in the factory tours, set their shining eyes on production processes that are normally not shown to the public, and grew their interest in glass.

Further, six second-grade junior high school students visited the Company, and there they were able to deepen their understanding of the manufacturing industry, in addition, coming into contact with those who work in it, and learning about the joy of working and taking responsibility for the work.

# Working Experience (junior high school students)

Thank-you letters for factory tours (elementary school students)



# FY 2016 Activity Review

We proactively conducted ongoing education activities for employees and participated in cleaning activities held by local communities.

However, we did not achieve our target for the maintenance and improvement of clean Company premises (landscape / aesthetics), as the participation rate in cleaning activities around factories fell short of our target.

Self-assessment … 🛨 🛨

# Issues for FY 2017

While cherishing our ties with local society, we will continue to accept factory tours and the like, mainly from nearby schools, and participate in events such as traffic safety enlightenment activities together with other companies, and deepen communications. In addition, we will promote activities to maintain and improve clean Company premises (landscape / aesthetics).

Target achievement level :  $\star \star \star = 100\% \star \star = 75.99\% \star = 74\%$  or lower

# Disclosure of Information

public.

# **Communication with Stakeholders**

# Communication with Shareholders and Investors

needed.

activities.

# Annual IR Calendar



# Dividend Policy

OHARA's basic dividend policy is to return profits to shareholders in a (ven) stable, continuous manner through a year-end dividend, while also accumulating the necessary internal reserves for strengthening management foundations and future business expansion.

To secure the understanding and support from society, we are prepared to maintain a dialogue with the community and, if necessary, to make our company information

At the annual general meetings of shareholders held in late January each year, we make efforts to explain our strategy to shareholders in a manner that is easy to understand, and we also send out the "OHARA Report", a comprehensive report, once a year.

Also, in addition to holding financial report briefing sessions twice a year for institutional investors and securities analysts, the IR department also responds to individual interviews as



On our website, we disclose various documents, including timely disclosure materials such as flash report result summaries, notices of convocation for general meetings of shareholders, and presentations of financial results materials. In addition, in FY 2016, we held briefings for individual investors at securities companies. Furthermore, information relating to opinions received at these briefings and the like is promptly shared with the management, and referred to for corporate





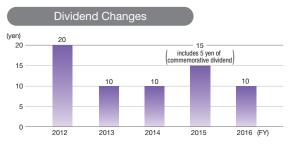
Financial report briefing session



Briefing for individual investors

# Record of IR Activities

| December 15 | mber 15 Announcement of financial statements for FY2016                       |  |
|-------------|-------------------------------------------------------------------------------|--|
| eptember 14 | Announcement of financial statements for the third quarter FY2016             |  |
| June 14     | June 14 Announcement of financial statements for the second<br>quarter FY2016 |  |
| March 16    | Announcement of financial statements for the first quarter FY2016             |  |
| January 28  | Annual meeting of shareholders                                                |  |
|             |                                                                               |  |



# Disclosure of Information

# FY 2016 Activity Review

In addition to receiving many inquiries about press releases, such as those relating to solid-state batteries, we also held briefings for individual investors at securities companies. We were able to speak with an extremely large number of investors, significantly exceeding the previous fiscal year, and received many valuable opinions.



# Issues for FY 2017

Amid preparations for the introduction of fair disclosure rules, we think it will be a year when guestions are asked again about fair and impartial disclosure. At OHARA, we conduct IR activities in keeping with the basic policies determined in the "Corporate Information Disclosure Rules", but once again we will ensure thorough awareness of its contents, and strive to release information in a fair, timely, and appropriate manner.

Target achievement level :  $\star \star \star = 100\% \star \star = 75-99\% \star = 74\%$  or lower

### OHARA Report 2017 | 16

# **Environmental Protection**

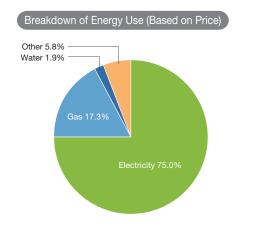
We cherish our one precious earth. In all phases of our company activities the preservation of our environment is strongly emphasized. We strive to accomplish this through independent and positive activities.

# **Environmental Management**

OHARA is promoting a variety of activities with the philosophy and policies for environmental management, aiming at harmony between corporate activities and the global environment.

# Energy and Resource Conservation Initiatives

Glass manufacturing consumes much energy (in the form of electricity and city gas). We have been making efforts to curb energy use through various improvements to the facilities, and taking measures to improve efficiency in production. We will continue to strive to make efficient use of limited resources.



# ISO14001 Self-Awareness Education

At OHARA, we are making various preparations as we aim obtain ISO14001:2015 certification, an international standard. Taking into consideration "internal and external issues" and "the needs and expectations of stakeholders", we have established a management system united with our business strategy, and at present have begun operating the system in a way that can lead to "intended results". Together with these actions, in selfawareness educational event conducted every year for the entire company, we have educated employees mainly on such topics as revisions in the 2015

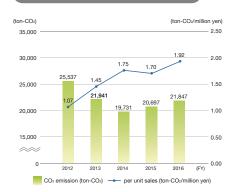
edition of the ISO14001 standard, in addition to the results of our initiatives thus far and explanations of chemicals contained in products. We will aim to obtain the certification in April 2017.

(kl/million ven



Self-awareness educational event

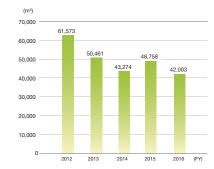
#### CO<sub>2</sub> Emissions



## ectricity and Gas Use (Crude Oil Equivale

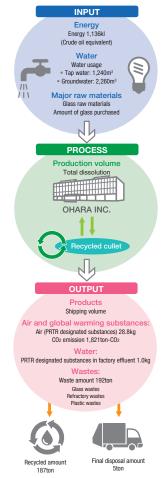






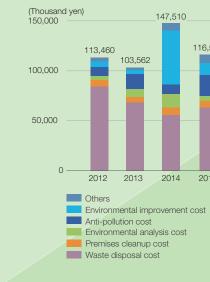
# Material Balance

OHARA develops environmental protection activities by quantitatively understanding the amount of energy and resources used in OHARA's business activities (INPUT) and products or substances that burden the environment generated from such activities (OUTPUT).



# 

# FY 2016 Activity Review



# **Environmental Protection**

# Environmental Protection Cost

Waste disposal costs make up over half of OHARA's environmental protection costs, but we also spend a certain amount each year in relation to maintaining clean Company premises. As a result, beautiful flowers bloom in the rose gardens in seasons on our premises, that it stops those passing by. In addition, we also maintain the plants regularly, and welcome customers with grounds overflowing with greenery.



## **Reducing and Recycling** of Wastes



Glass wastes increased owing to an occurrence of temporary manufacturing problems and the unit consumption significantly deteriorated, but it improved in other months thanks to stable production and the recycling of defective glass.

## **Energy Conservation**

Target achievement level ... 🛨

We were unable to achieve our target as there were long periods that could not contribute to manufacturing, owing partly to the start-up of manufacturing equipment for special glass applications and troubles of manufacturing furnaces.

## Harmony with Environment in Local Communitie



We participated in the Sagami River Clean-up Campaign, and the number of participants met our target. In addition, we participated in activities such as social contribution programs and environmental related seminars hosted by other companies.

# Contribution to Improving Target achievement level ... ★ ★ the Global Environment



🛛 Target achievement level … ★ ★ ★

In order to promote products with less environmental burden, proposalbased sales were promoted and new information obtained through customer visit exhibitions and technology assemblies was shared inside the Company.

## Enhancing Awareness of **Environmental Protection**

Newly-developed and improved products free from lead and/or arsenic have been progressed as planned.

#### Target achievement level : $\star \star \star = 100\% \star = 75-99\% \star = 74\%$ or lower

# Issues for FY 2017

The target will be to reduce unit consumption of glass wastes by 1% (compared to the second half of FY 2016), and we will continue to promote initiatives, such as efficiently change the types of products and improve product yield, etc., in order to prevent the generation of glass wastes.

We will aim to reduce unit consumption of energy by 0.01kl/ton or more (compared to FY 2016).

We will continue to encourage participation in the Sagami River Clean-up Campaign. and strive for high attendance.

We will provide feedback internally on customers' needs for lowering the environmental burden, through customer visit exhibitions, which have achieved great results thus far.

We will continue to promote newlydeveloped and improved products free from lead and/or arsenic.

OHARA Report 2017 | 18

# **Employee Respect**

The human rights and individual personalities of our employees will be observed and protected. Comfortable working conditions must be arranged.

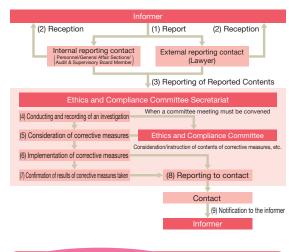
Through an open and fair atmosphere in our work place, we will be able to create solid corporate principles.

# Human Rights Initiatives

# **OHARA's Human Resources Development**

# Internal Reporting System (Helpline)

OHARA has established an internal reporting system (Helpline) in which a person seeking advice (or informer) can report directly to the Ethics and Compliance Committee. From April 2013, OHARA added a standing corporate auditor as a contact for internal reporting and put a lawyer in charge (Ms. Yukako Makino) as an external contact. In such ways, OHARA has been making efforts to create a user-friendly environment.



# Isao Sugiyama

Optical Material Development Section Optical Material Business Unit Optical Product Division

VOICE



# Utilizing the Reemployment Scheme

Since reaching the mandatory retirement age in March 2015, I have continuously utilized the reemployment scheme. My workplace is the same as before reemployment, and I feel encouraged to work as there have been no significant changes to my workplace environment or interpersonal relations, and I am able to use my experience and skills acquired thus far. Also, I want to strive to contribute to OHARA, while considering how I will spend my time after retirement and paying attention to my health.

# Concept of Human Resources Development

In order for a company to grow and continuously develop, it is necessary to continue to reform businesses and organizations by forecasting and promptly responding to changes in external environments. Such reform, however, cannot be attained only by changing businesses and organizations. In order to achieve such reform, it is important for each employee to grow and become the core of such reform.

In addition to providing training on an incremental age basis starting from new employees' training (young employees training, training for employees reaching the ages of thirty, forty or fifty years old), OHARA has in place an educational system incorporating specialized programs related to each employee (management training), with the goal of fostering independent human resources.

# Creating a Comfortable Work Environment

# Securing Global Human Resources for **Global Operations**

We are strengthening our efforts to secure international students from foreign countries, in order to respond to the spread of business fields that OHARA operates in around the world, which will exceed the level thus far. By proactively appointing students that come to study in Japan with high aspirations, we hope that they will help develop business strategies based on ways of thinking in each country for customers around the world, in addition to strengthening communication between different operating locations of the Group.

Aiming to realize a work/life balance. OHARA has been focused on initiatives to create a comfortable work environment since 2006. While work supports people's lifestyles and brings a purpose and joy to living, we think a fulfilling life is created when work and family coexist, including housework, child-rearing, caretaking and socializing with our neighbors. In order to sustain the work/life balance, we also think it is important to promote female employees to take an active role, and will formulate and implement plans.



Seconded to OPC Corporation General Affairs G General Affairs Site

# My 28th Year of Employment

Looking back now, I would not have been able to perform my work while raising children at a time when there was no childcare leave system if I had not had the understanding and cooperation of those around me. I am grateful for the fact that I have been blessed with a very understanding workplace, which enabled me to continue thus far.

There is no limit to the number of issues in future, such as creating an environment that supports women so they can be active in the workplace while also raising children, and creating a workplace where activities are fairly evaluated in line with one's roles and skills.

I think how we can pass the baton to the next generation while responding to these challenges is a significant subject.



# Utilizing the Childrearing Support System

I have taken childcare leave twice, and am now utilizing the system of shorter working hours for childcare while continuing to work.

My youngest child, who has recently entered kindergarten, is still not strong, and suddenly becomes sick, but thanks to the understanding and warm support of everyone in the workplace, I have been able to maintain both work and childcare. While I am grateful that I can utilize OHARA's substantial childrearing support system, I also want to strive every day to execute my duties efficiently without wasting my limited working hours.



# FY 2016 Activity Review

OHARA started company-wide campaigns for "Zero Overtime" and "100% Leaving Work on Time" from 2006 as initiatives to create a comfortable work environment. In addition. we have made efforts to formulate action plans based on the Act on Promotion of Women's Participation and Advancement in the Workplace, and create a comfortable work environment.

Self-assessment … ★ ★

# Issues for FY 2017

OHARA is tackling issues related to realizing a "fulfilling life" in which there is a work/life balance. Revisions to child care leave law and family care leave law will also be enacted, so we aim to create a more comfortable work environment.

Target achievement level :  $\star \star \star = 100\% \star \star = 75-99\%$ ★= 74% or lower



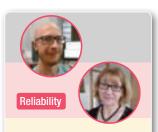


# The OHARA Group aims to create an even better company.



We think that taking responsibility for our work is the most important.

TAIWAN OHARA OPTICAL CO., LTD. / Taiwan



We will carry on offering swift and appropriate services.

OHARA GmbH / Germany



always be "KAIZEN" .and that "INNOVATION" will follow.

OHARA OPTICAL (M)SDN.BHD. / Malavsia



We will treat related people with respect and conduct our work.

OHARA OPTICAL (HONG KONG) LTD. / Hong Kong



while considering later processes.

ASHIGARA OPTICAL INC. / Japan



Our first priority is to create products satifying customers to gain their confidence.

Ohara Quartz Co. Ltd



We aspire to offer courteous service to win the trust of our customers.

**OPC Corporation / Japan** 



We think that greetings are the basis of manners, and play an important role in work

OHARA INC. / Japan



NHG-OHARA OPTICS (XIANGYANG) Co., LTD. / China



We will constantly consider better methods and improvement to achieve our targets.

Taiwan Ohara Optical Material Co., Ltd. / Taiwan



We will discover waste, and conduct our work accurately, in appropriate amount of time and proper methods.

OHARA OPTICAL (ZHONGSHAN) LTD. / China



Ohara Corporation / USA

# Consolidated Financial Highlights

| Corp | ora | ate |
|------|-----|-----|
|------|-----|-----|

|                                                     | 2012    | 2013    | 2014    | 2015    | 2016             | (FY) |
|-----------------------------------------------------|---------|---------|---------|---------|------------------|------|
| Main Financial Results (millions of yen)            |         |         |         |         |                  |      |
| Net sales                                           | 31,661  | 26,103  | 24,797  | 22,820  | 21,3             | 29   |
| Operating income                                    | 1,072   | △ 674   | △ 110   | 538     | 1                | 43   |
| Ordinary income                                     | 1,518   | 765     | 494     | 1,316   | $\bigtriangleup$ | 84   |
| Profit attributable to owners of parent             | 475     | △ 4,005 | 17      | 545     | △ 3              | 72   |
| Net assets                                          | 39,877  | 38,971  | 40,672  | 41,522  | 37,0             | 40   |
| Total assets                                        | 57,015  | 54,582  | 54,823  | 55,130  | 50,1             | 61   |
| Net cash provided by (used in) operating activities | 2,744   | 5,007   | 3,969   | 1,573   | 1,4              | 47   |
| Net cash provided by (used in) investing activities | △ 2,217 | △ 1,850 | △ 576   | △ 979   | △ 8              | 50   |
| Net cash provided by (used in) financial activities | 2,022   | △ 1,832 | △ 1,510 | △ 1,137 | △ 3              | 54   |

| Net assets | 1,625.18 | 1,582.67       | 1,650.60 | 1,706.97 | 1,522.70 |
|------------|----------|----------------|----------|----------|----------|
| Net profit | 19.55    | riangle 164.65 | 0.71     | 22.43    | △ 15.31  |
| Dividend   | 20.00    | 10.00          | 10.00    | 15.00☆   | 10.00    |
|            |          |                | A 1 1 1  | - ( ii i |          |

☆includes 5 yen of commemorative dividend

| Main Indicators (%)        |       |        |         |       |       |
|----------------------------|-------|--------|---------|-------|-------|
| Equity capital ratio       | 69.3  | 70.5   | 73.2    | 75.3  | 73.8  |
| ROA (return on asset)      | 2.6   | 1.4    | 0.9     | 2.4   | △ 0.2 |
| ROE (return on equity)     | 1.2   | △ 10.3 | 0.0     | 1.3   | △ 0.9 |
| PER (price earnings ratio) | 31.05 | _      | 809.86  | 26.36 | _     |
| Payout ratio               | 102.3 | _      | 1,402.7 | 66.9  | _     |

# Segment Data (millions of yen)

| 0                    |                  |        |        |        |        |        |
|----------------------|------------------|--------|--------|--------|--------|--------|
| Ontinal husinggo     | Net sales        | 24,437 | 19,727 | 17,693 | 16,105 | 14,418 |
| Optical business     | Operating income | 1,540  | 53     | 74     | 366    | △ 107  |
| Electronics business | Net sales        | 7,223  | 6,375  | 7,103  | 6,714  | 6,911  |
|                      | Operating income | △ 468  | △ 728  | △ 184  | 171    | 251    |

\* Beginning FY 2014, with the aim of establishing an efficient management structure, the OHARA Group changed the closing dates of consolidated subsidiaries to match that of OHARA. As a result of this change, consolidated subsidiaries with an August 31 closing date have an irregular financial year of 14 months, from September 1, 2013 to October 31, 2014, and for consolidated subsidiaries with a September 30 closing date, these will have an irregular financial year of 13 months, from October 1, 2013 to October 31, 2014.

# Corporate Profile (As of October 31, 2016)

| Company Name:        | OHARA    |
|----------------------|----------|
| Address:             | 15-30,   |
|                      | TEL: (81 |
| Established:         | October  |
| Capital:             | 5,855 n  |
| Business contents:   | Manufa   |
| Number of Employees: | 408 (1,6 |

# Stock Information (As of October 31, 2016)

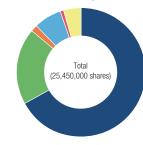
#### Status of Shares

Total number of authorized shares: Total number of issued shares: Number of shareholders:

#### Major shareholders

| Name                                              | Number of shares held | Investment ratio (%) |
|---------------------------------------------------|-----------------------|----------------------|
| Seiko Holdings Corporation                        | 4,702,722             | 19.33                |
| Canon Inc.                                        | 4,694,380             | 19.30                |
| Kyobashi Kigyo Kabushiki Kaisha                   | 4,688,400             | 19.27                |
| Sanko Kigyo Kabushiki Kaisha                      | 1,638,300             | 6.73                 |
| TOPCON CORPORATION                                | 673,600               | 2.77                 |
| Seiko Instruments Inc.                            | 610,000               | 2.51                 |
| Japan Trustee Services Bank, Ltd. (trust account) | 547,600               | 2.25                 |
| Mizuho Bank, Ltd.                                 | 400,000               | 1.64                 |
| Kentaro Matsuda                                   | 175,000               | 0.72                 |
| OHARA Employee Stockholding Association           | 146,700               | 0.60                 |

# Shareholding Composition



# Profile

## A INC.

, Oyama 1-chome, Chuo-ku, Sagamihara-shi, Kanagawa, Japan 252-5286 31)42-772-2101 (Reception) FAX: (81)42-774-1071 er 1, 1935

- million yen

acture and sale of glass materials for optical and electronics applications ,670 for the entire Group)

76,000,000 25,450,000 4,652

(1,793,400 shares)

(165,830 shares)

Treasury stock 4.42%

(1,124,538 shares)

Securities companies 0.65%

- Other domestic corporations 67.16% (17,091,402 shares)
- Individuals, etc. 19.05% (4,848,922 shares)
- Foreign companies **1.67%** (425,908 shares)

# Member of the Board

| President Chief Executive Officer          | Hirokazu Saito   | Outside Director                 | Tatsuya Koizumi*   |
|--------------------------------------------|------------------|----------------------------------|--------------------|
| Director Senior Managing Executive Officer | Hitoshi Sekido   | Outside Director                 | Seiju Uchida*      |
| Director Managing Executive Officer        | Takashi Nakajima | Audit & Supervisory Board Member | Keishi Kubota      |
| Director Managing Executive Officer        | Tetsuya Aoki     | Outside Company Auditor          | Seiichi Mikami     |
| Outside Director                           | Akihiro Okuma    | Outside Company Auditor          | Aitake Wakiya      |
| Outside Director                           | Go Tokura        | Outside Company Auditor          | Mitsuyoshi Sugita* |

Note\*: Outside Directors, namely, Messrs. Tatsuya Koizumi and Seiju Uchida, and Outside Company Auditor Mitsuyoshi Sugita are independent officers based on the regulations of the Tokyo Stock Exchange.

# Stock Information

| F | iscal year:                                      | November 1 through October 31 of the following year                                                                                                                                           |
|---|--------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| R | ecord date for dividends:                        | October 31 (April 30, in case of interim dividend)                                                                                                                                            |
| G | eneral Shareholders meeting:                     | End of January of each year                                                                                                                                                                   |
| Ν | umber of shares per unit:                        | 100                                                                                                                                                                                           |
| В | usiness Handling Office of shareholder registry: | Stock Transfer Agency Department of head office of Mizuho Trust & Banking Co., Ltd. 1-2-1, Yaesu, Chuo-ku, Tokyo                                                                              |
| N | lethod of public notice:                         | Electronic public notice. (http://www.ohara-inc.co.jp/)<br>If an electronic public notice is impracticable due to unavoidable circumstances, a<br>public notice will be posted in the Nikkei. |

|                              | For shareholders with accounts at securities companies                                                                                                                                                          | For shareholders without accounts at securities companies<br>(in the case of specified accounts)                                                                                                          |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Mailing address              |                                                                                                                                                                                                                 | Stock Transfer Agency Dept. Mizuho Trust & Banking Co., Ltd.<br>2-8-4, Izumi, Suginami-ku, Tokyo, 168-8507                                                                                                |
| TEL inquiries                |                                                                                                                                                                                                                 | Toll-free: 0120-288-324 (Domestic calls only)<br>(9:00-17:00, excluding Saturdays, Sundays and holidays)                                                                                                  |
|                              | Securities company at which you have<br>your account                                                                                                                                                            | Mizuho Securities Co., Ltd.<br>Inquiries will be handled at the head office, branches and the<br>Planet Booth (consultation counter within the Branch) nationwide                                         |
| Handling office              |                                                                                                                                                                                                                 | Mizuho Trust & Banking Co., Ltd.<br>Inquiries will be handled at the head office and branches<br>nationwide                                                                                               |
|                              |                                                                                                                                                                                                                 | *Please note that inquiries cannot be handled at the Trust Lounge.                                                                                                                                        |
| Payment of accrued dividends | Payment of accrued dividends will be handled at the head office and branches nationwide of Mizuho Trust & Banking Co., Ltd. and Mizuho Bank Ltd. (However, Mizuho Securities Co., Ltd. only acts as the agent). |                                                                                                                                                                                                           |
| Please note:                 | To request the issue of statements,<br>please apply to the "Mailing address",<br>"Phone inquiries" or "Handling office"<br>stated on the right (in the case of<br>specified accounts).                          | Specified accounts only handle the purchase or additional purchase of shares of less than one unit. Shareholders will need to open an account at a securities company and take stock transfer procedures. |

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| ARA |     |
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| 1935         | Octobe |
|--------------|--------|
| <b>1936</b>  | Novem  |
| 1944         | Februa |
| 1954         | May    |
| 1958         | April  |
| 1961         | Januar |
|              | July   |
| 1975         | August |
| 1982         | March  |
|              | March  |
|              | March  |
| 1985         | May    |
| 1987         | March  |
| CALL CONTROL | June   |
| 1988         | August |
| ·····1991    | Septem |
| 1992         | March  |
|              | March  |
| 1994         | Novem  |
| 1997         | March  |
|              | June   |
|              | Octobe |
| 1998         | April  |
| 100          | Octobe |
| ····1999     | Januar |
| 2000         | Januar |
|              | April  |
| And Descent  | Octobe |
| 2002         | June   |
| 2005         | Octobe |
| 2006         | Novem  |

- er Established OHARA Optical Glass Mfg. Co. Ltd. in Kamata, Tokyo by Jinpachi Ohara. ber Started Optical Glass Melting. Reorganized as a Joint-Stock Company. Build Sagamihara factory. Started Platinum Pot Melting. Started Production of "Lanthanum Glass". Started Production of "Strip Glass by Continuous Melting Method". Installed OHARA Glass in Apollo 11. Started Production of "Low Refractive Index Low Dispersion Glass (S-FPL51)". Installed OHARA Glass in Space-Shuttle "Columbia". Started Mass Production of "High Homogeneity Glasses". ( $\Delta nd \pm 0.5 \sim \pm 1.0 \times 10^{-6}$ ). Began Supplying "Cherenkov glass" to National Laboratory for High-Energy Physics. Introduced New Company Name "OHARA INC." Started Production of "High UV (365nm) Transmittance Glass". Began Sales of glass for art. Started Production of "Glass-ceramics". nber Started Production of "Eco-Optical Glass". Started OHARA Measurement Service. Started Production of "Ultra Low Expansion Glass-ceramics (CLEARCERAM<sup>™</sup>-Z)". ber Started Production of "Glass-ceramics for HD". Switched All 112 Recommended Glass Types at that time to Eco-Glasses. Started Production of "Glass Disk for Flying Height Tester (GD-FHT™)".
- er Optical Glass Div. and Special Glass Div. acquired ISO9002 certification.
- All OHARA Products acquired ISO9001 certification.
  - er Started Production of "Light and High Refractive Index Eve-Glass".
  - Installed OHARA Glass in Suprime-Cam in Subaru telescope.
- Started Production of "Low Photoelastic Glass".
- OHARA acquired ISO14001 certification.
- er Started Measurement service for refractive indices at Vacuum UV region.
- Started Large-scale Continuous Melting.
- er Listed on First Section of Tokyo Stock Exchange.
- Started Production of "Eco-Glasses for optical fiber (for endoscope)". 2006 November
- Completed Headquarters building. -2007 January
  - February Started Production of "Low fluorescence Glasses (for microscope)".
  - September Installed OHARA Glass in the Lunar Orbiter "KAGUYA (SELENE)".
- Installed OHARA Glass in Hyper Suprime-Cam in Subaru telescope. 2012 August
- ·2013 Mav Began Sales of "Lithium-ion Conductive Glass-ceramics (LICGC™)".
- Withdrew from the "Glass-ceramics for HD" business. 2014 February
  - March "Ultra Low Expansion Glass-ceramics (CLEARCERAM<sup>TM</sup>-Z)" was Adopted as the TMT astronomical telescope.
- 2015 March Began Mass Production and Supply of "Aspherical Lenses".
- 80th anniversary of OHARA's foundation. October
- •December Began Sales of "Shock Resistant and High Hardness Clear Glass-ceramics (NANOCERAM™)". Began Sales of "Non-Browning Optical Glass".

# **OHARA** OHARA INC.

15-30, Oyama 1-chome, Chuo-ku, Sagamihara-shi, Kanagawa, Japan 252-5286 TEL: (81)42-772-2101 (Reception) FAX: (81)42-774-1071 Website: http://www.ohara-inc.co.jp/







