



# **Kuraray Report 2019**

In order to make today better than yesterday, and tomorrow better than today, we at Kuraray have made completely new and unique things by harnessing the power of chemistry. Many industries and people around the world now choose Kuraray's technologies, products, and services. We take pride in this fact and are deeply grateful to our customers around the world for making this possible.

Since our founding, we have valued the pioneering spirit. We continually ask ourselves what we can do for the world of tomorrow and the people living in it.

**"For people and the planet—to achieve what no one else can."**

Passed down through the generations, this has been our constant motivation.

We still maintain this mission firmly today. It is Kuraray's value and our driving force.

We continue to cultivate our unique traits, in order to benefit society and the environment.

Our goal is continual corporate growth, and we have already taken the next step forward.

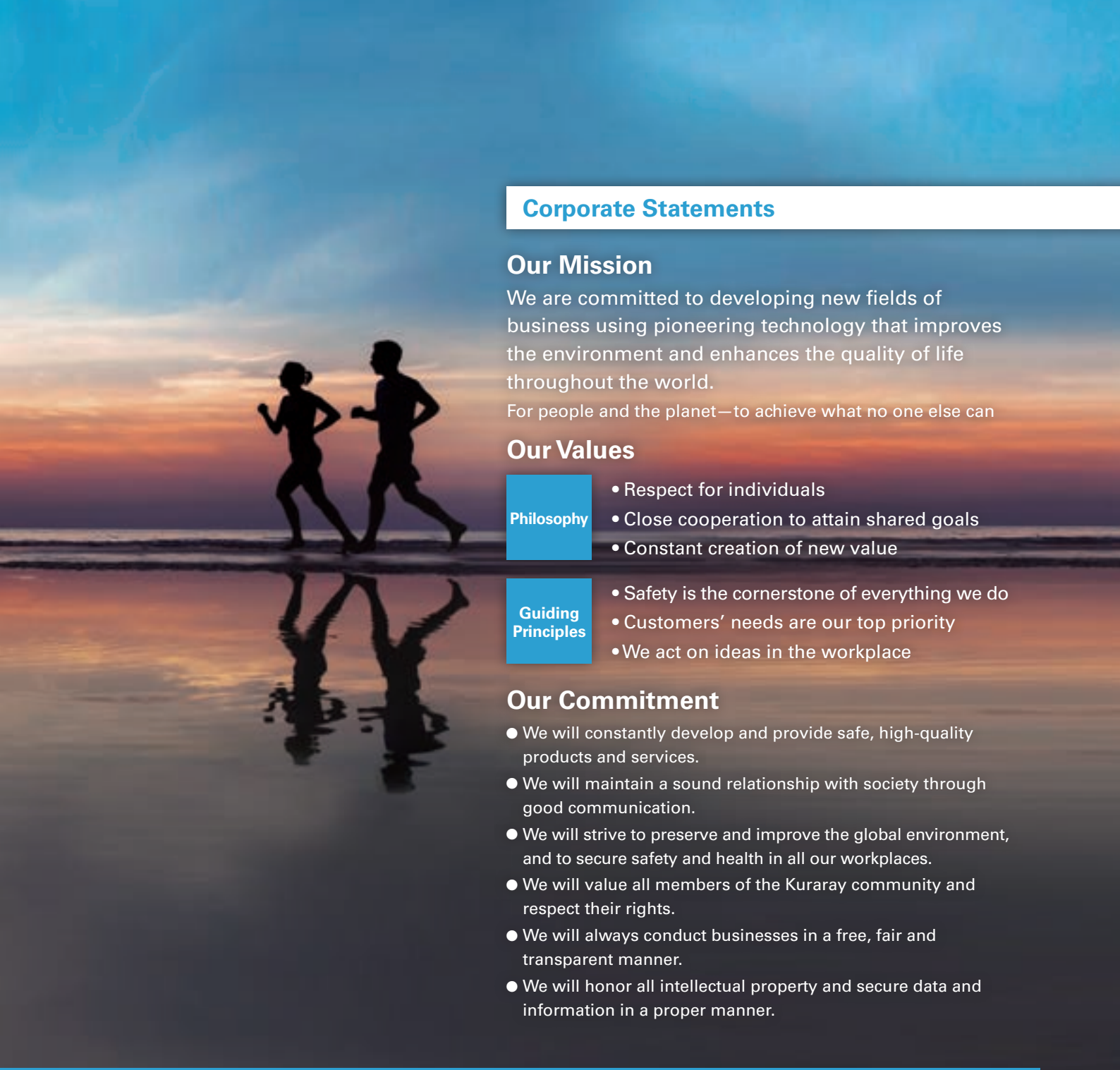
## CONTENTS

### Introduction

- 03 The Kuraray Group's History
- 05 The Kuraray Group's Strengths
- 07 The Kuraray Group's Aims
- 09 Financial and Non-Financial Highlights
- 11 TOP STATEMENT

### Value Creation Report

- 15 Overview of Our Long-Term Vision and the "PROUD 2020" Medium-Term Management Plan
- 16 Business Overview
- 19 Key Person Interview
- 19 **1** Aiming for Greater Growth through Technological Development as the Global Leader in Water-Soluble Films
- 21 **2** Transforming Carbon Materials Into One of Kuraray's Core Businesses: Toward True Leadership in Activated Carbon
- 23 **3** Aiming to Create Economic Value by Applying our Technological Prowess



## Corporate Statements

### Our Mission

We are committed to developing new fields of business using pioneering technology that improves the environment and enhances the quality of life throughout the world.

For people and the planet—to achieve what no one else can

### Our Values

#### Philosophy

- Respect for individuals
- Close cooperation to attain shared goals
- Constant creation of new value

#### Guiding Principles

- Safety is the cornerstone of everything we do
- Customers' needs are our top priority
- We act on ideas in the workplace

### Our Commitment

- We will constantly develop and provide safe, high-quality products and services.
- We will maintain a sound relationship with society through good communication.
- We will strive to preserve and improve the global environment, and to secure safety and health in all our workplaces.
- We will value all members of the Kuraray community and respect their rights.
- We will always conduct businesses in a free, fair and transparent manner.
- We will honor all intellectual property and secure data and information in a proper manner.

## Foundation for Value Creation

25	Corporate Governance
33	Sustainability Management
35	Advancing Resources That Support Sustainable Growth
35	Technological Development Capabilities
37	Human Resources
39	Safety Activities
41	Environmental Management
43	Trust
46	Corporate Data

#### Editorial Policy

Starting from 2018, the Kuraray Group has issued the Kuraray Report so that all the stakeholders, including shareholders and investors, can gain a deeper understanding of the Group's efforts toward value creation over the medium to long term.

Kuraray Report 2019 uses the GRI Standards (2016) as references. Comparison between them is shown on our website. (<https://www.kuraray.com/csr/report2019/guidelines>)

The Report also concisely conveys the Group's financial information as well as the important non-financial information that affects its corporate value, with reference to the International Integrated Reporting Framework from the International Integrated Reporting Council (IIRC), the "Guidance for Integrated Corporate Disclosure and Company-Investor Dialogue for Collaborative Value Creation" (Guidance for Collaborative Value Creation) from the Japanese Ministry of Economy, Trade and Industry, and other sources. For detailed information on our products and businesses, please visit our website.

#### Reporting Period

January 1 to December 31, 2018  
(Some information after January 2019 is included.)

#### Scope of the Report

Kuraray Co., Ltd. and the Kuraray Group companies

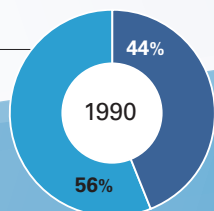
# The Kuraray Group's History

## Moving Through Shifts in Business Structure to Become a Specialty Chemical Company

Kuraray was founded in 1926 for the purpose of commercializing regenerated cellulose fiber rayon, which was cutting-edge technology at the time. The company has expanded ever since, with a focus on fibers and textiles. Following the eventual transition of fiber and textile production moving overseas and other changes to the business environment, and drawing on its accumulated base of unique technologies in polymer and synthetic chemistry, Kuraray has continued to expand in the field of chemical products. This includes playing a leading role in the global vinyl acetate-related business, as well as strengthening its business portfolio.

Sales Ratio

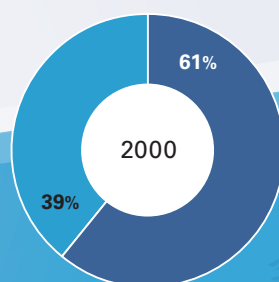
● Fibers and Textiles  
● Chemicals



### Creating Highly Functional Synthetic Fibers

Promoting diversification of our business has yielded highly functional synthetic fibers ideal not only for clothing —developing the industrial materials KURALON™ and VECTRAN™ has opened the doors to other areas of business, too.

- 1983  
Commercialized KURALON™ short fiber for reinforcing concrete
- 1989  
Commercialized the meltblown non-woven fabrics
- 1990  
Commercialized VECTRAN™

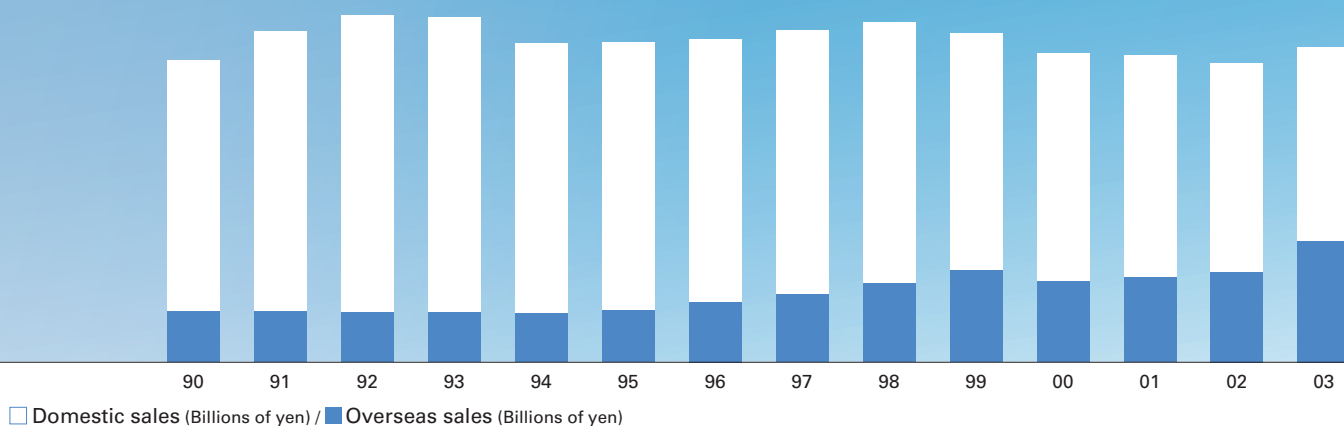


### Overseas Expansion in the Chemicals Business

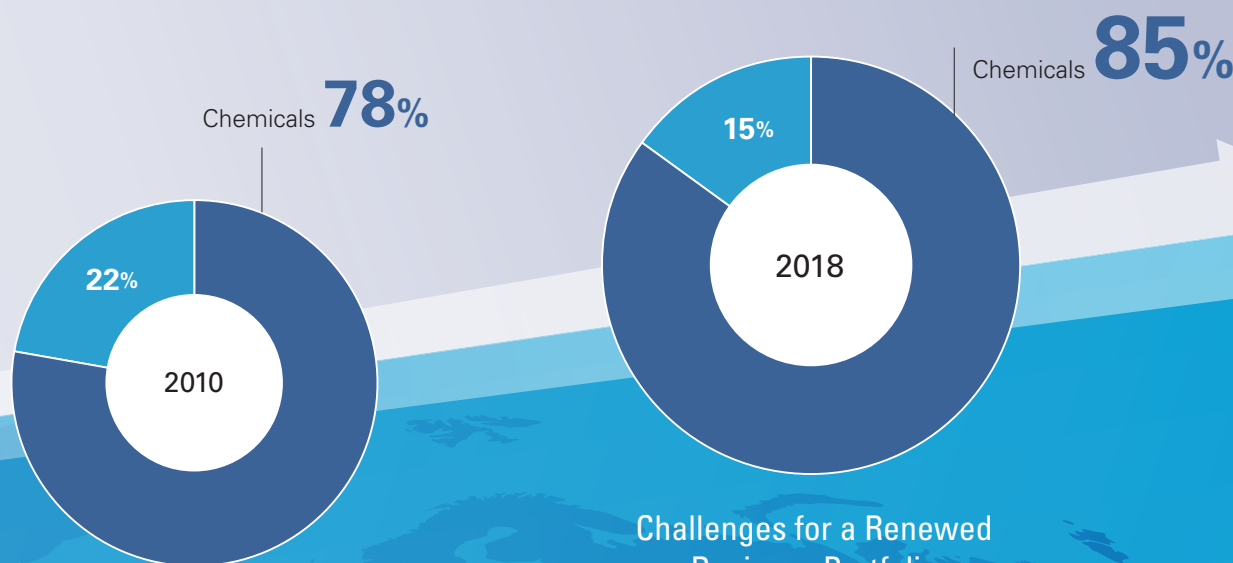
We have been reducing and withdrawing businesses from the multipurpose fiber and textile market due to decreased market competitiveness.

On the positive side, however, we have achieved increased sales overseas in the chemicals business owing to a high market share, and have constructed production systems at overseas locations.

- 1986  
Eval Company of America began production of EVAL™
- 1996  
Established a PVA resin manufacturing facility in Singapore
- 1999  
Eval Europe began production of EVAL™
- 2001  
Withdrew from the rayon business



# Shifting the Focus from Fibers and Textiles Business to Chemicals Business



## Expansion in the Vinyl Acetate-Related Business through M&As

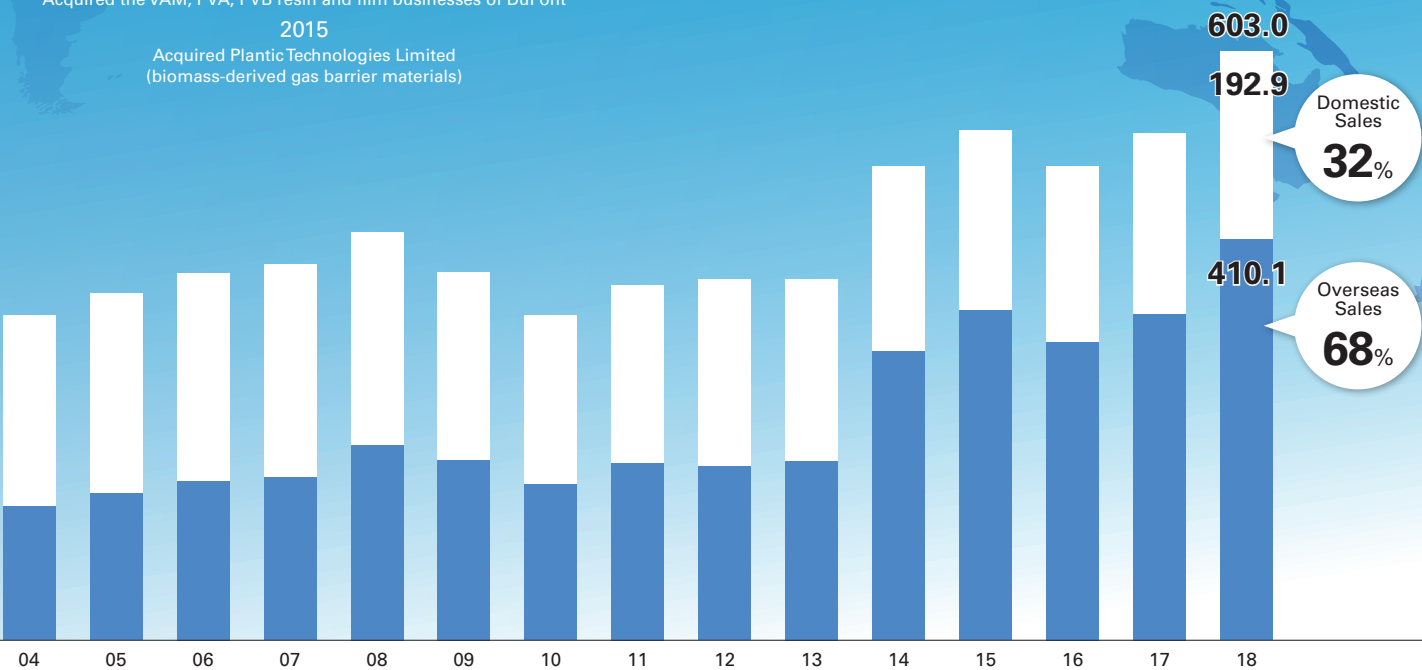
Since 2001, we have been actively pursuing overseas M&As in the vinyl acetate-related business to advance downstream developments and business expansion, as well as to strengthen our business portfolio.

- 2001  
Acquired the PVA- and PVB-related businesses of Clariant AG
- 2004  
Acquired HTTrotplast GmbH (PVB film)
- 2012  
Acquired MonoSol LLC (water-soluble poval film)
- 2014  
Acquired the VAM, PVA, PVB resin and film businesses of DuPont
- 2015  
Acquired PlanticTechnologies Limited (biomass-derived gas barrier materials)

## Challenges for a Renewed Business Portfolio

To maintain sustainable growth as a chemical company, we are developing and expanding the next pillars after the Vinyl Acetate Business.

- 2016  
Established a PVA resin brand in the U.S.A.
- 2017  
Merged Kuraray Chemical, Co., Ltd. (activated carbon)
- 2018  
Acquired Calgon Carbon Corporation (activated carbon)
- 2018  
Decided to invest in a plant in Thailand for elastomers, GENESTAR™, and isoprene chemicals





# The Kuraray Group's Strengths

## The Source of Competitiveness That Creates Unique Products

We at Kuraray have used our unique technical strengths to create products that the world had never seen before. We were the first company in the world to commercialize KURALON™ (PVA fiber), the first synthetic fiber produced using made-in-Japan technology. Other businesses we have created include poval resin (PVA resin), which is a raw material of KURALON™; PVA film, which is essential for LCDs; EVAL™ (EVOH resin), which features excellent gas barrier properties; and a lineup of various commercialized chemical products that use the world's first industrialized synthetic isoprene monomers as materials. We have also launched a wide range of products that have become an integrated part of people's lives, such as CLARINO™ (man-made leather), which recreates the structure of natural leather, and MAGICTAPE™ (hook-and-loop fastener).

Sales of products having the highest global market shares\* that we have created using our unique technologies account for more than half of the Kuraray Group's total sales in FY2018.



## Kuraray Group Products with Top Market Share Worldwide\*



### PVA resin

PVA resin was industrialized as a raw material for the synthetic fiber KURALON™. It has a number of characteristics: it is water soluble, emulsifiable, resistant to oil and chemicals, and easy to form into film. It is used in a wide range of applications such as paper processing agents, adhesives, and as a stabilizer for the polymerization of vinyl chloride resin.



### Optical-use PVA film

Used in a wide variety of applications such as polarizing film, which is vital to LCD displays such as large flat-panel TVs and tablets.



### Water-soluble PVA film

Water-soluble PVA film is used for individual packaging for detergents, cosmetics, food, agrochemicals, pharmaceuticals, and other products.

This film is expected to contribute to solving the problem of microplastics because it is made of a material that dissolves completely in water and has a low environmental impact.



### EVAL™ (EVOH resin)

EVAL™ provides excellent barrier properties against the permeation of gases, superior to those of any other plastics. It is used widely in food packaging materials to block out oxygen and preserve the flavor and quality of foods. It is also adopted in automotive plastic fuel tanks, as it provides a highly effective barrier against fuel vapor permeation. It is being used increasingly in a wide variety of applications, such as vacuum insulation panels for large refrigerators, in order to improve energy efficiency.



### KURALON™/KURALON K-II™ (PVA fiber)

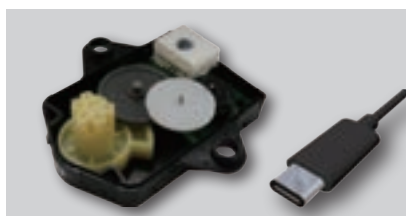
KURALON™ is a synthetic fiber based on polyvinyl alcohol (PVA) with several unique properties, including high tenacity, low elongation, and hydrophilicity. It is widely used in various industrial fields for applications that include as a substitute for asbestos in cement reinforcement and as a separator for alkaline manganese batteries. KURALON K-II™ is another PVA fiber made by new production technologies. Water-soluble fibers with different dissolving temperatures and high-tenacity fibers can be obtained.



### Isoprene chemicals

We apply our unique synthesizing technologies to produce a cleaner MMB that is highly safe and easy to handle, as well as diols, aroma chemical and cosmetic ingredients, pharmaceutical and agricultural intermediates, and more.

\*One-of-a-kind products derived from synthetic isoprene (MMB, MPD, etc.)



### GENESTAR™

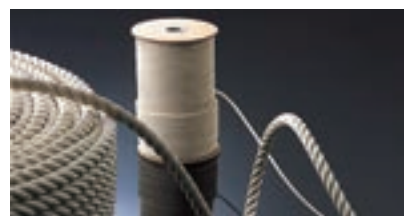
(highly heat-resistant polyamide resin)

GENESTAR™ is a new highly heat-resistant polyamide resin created with our proprietary technologies. It is used in electronic parts of mobile phones, personal computers, and the like, and it is applied in backlights for LED liquid-crystal TV panels and in the automotive field as well.



### Activated carbon

Activated carbon is created through a reaction with gas and chemical agents at high temperatures using a carbon substrate, such as bituminous coal and coconut shells, and has micropores (diameter: 10 – 200 Å, 10 Å = 1 nm). The micropores form a meshwork structure inside the activated carbon, and the walls of these micropores give the material a large surface area (500 – 2,500 m²/g) for adsorbing a wide range of substances.



### VECTRAN™

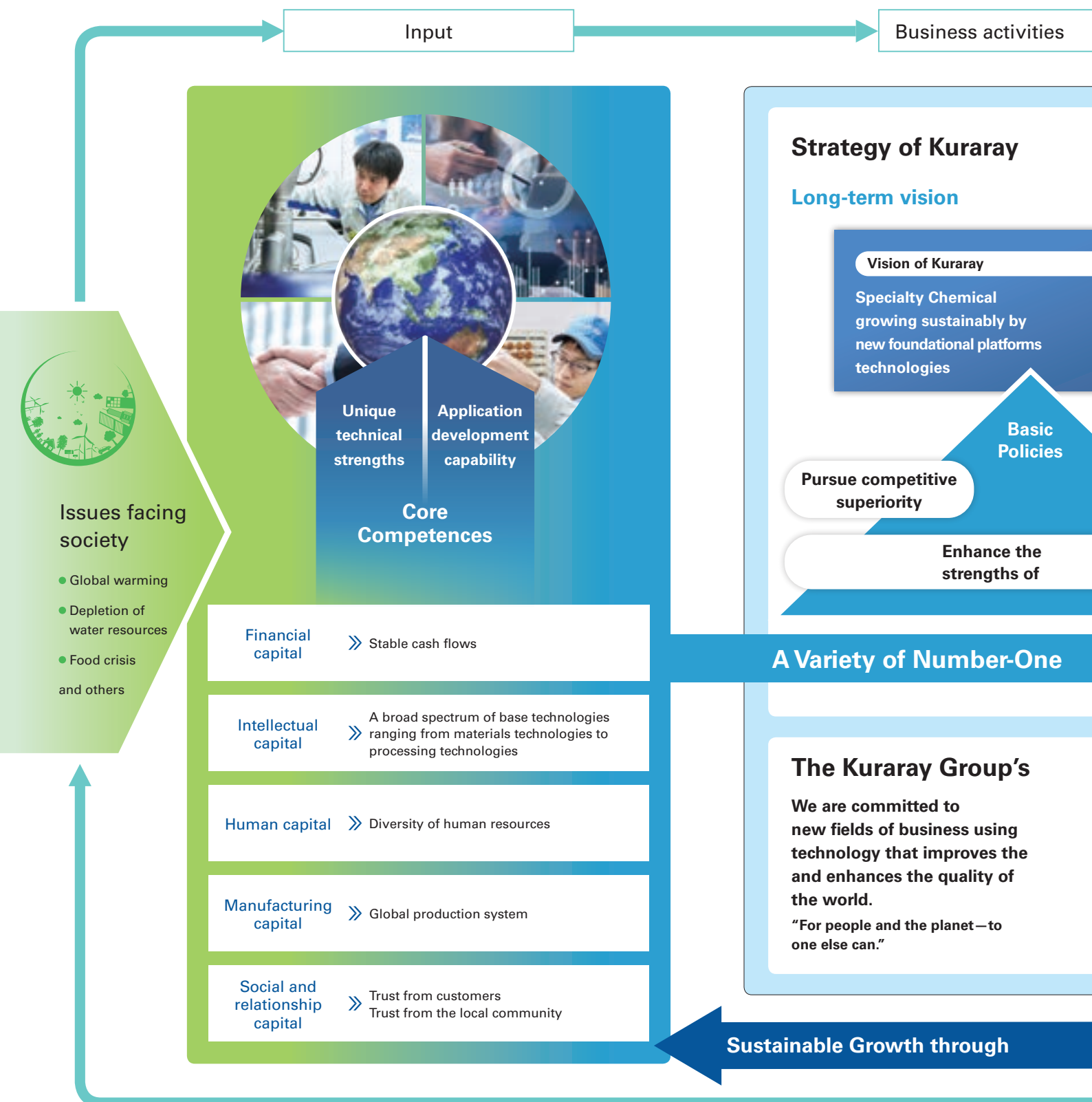
(high-strength polyarylate fiber)

VECTRAN™ fiber has about seven times the tensile strength of steel by weight and provides excellent abrasion, flex fatigue and chemical resistance, among other physical properties. It is used in a range of applications including aerospace uses, composites, electronic components, ropes, and sporting goods.

\*In-house survey

# The Kuraray Group's Aims

## Value Creation Process



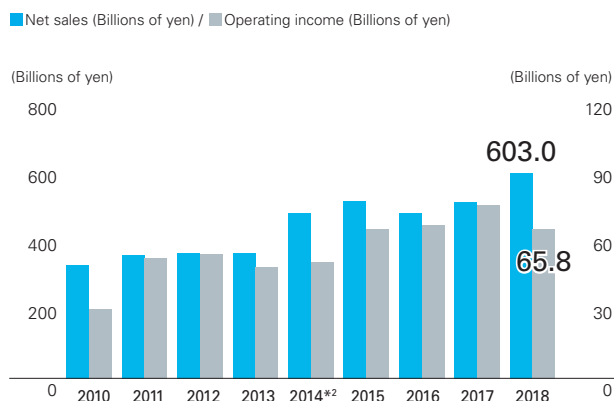


As a corporate group engaged in manufacturing, Kuraray Group creates economic and social value through providing its excellent products and services to the market.

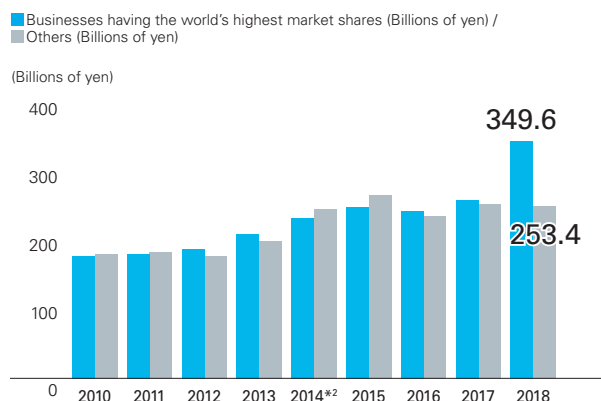


## Financial and Non-Financial Highlights

### Net Sales / Operating Income

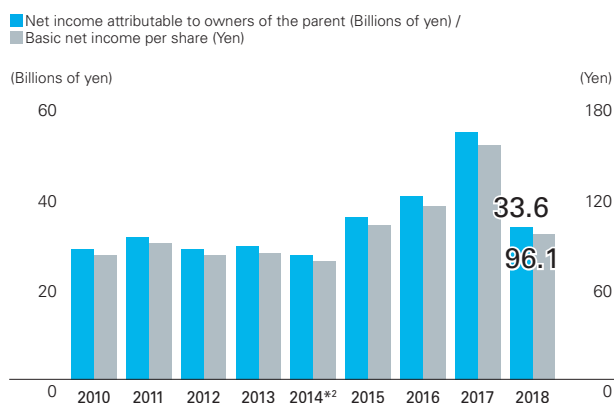


### Net Sales of Businesses Having the World's Highest Market Shares\*<sup>1</sup>

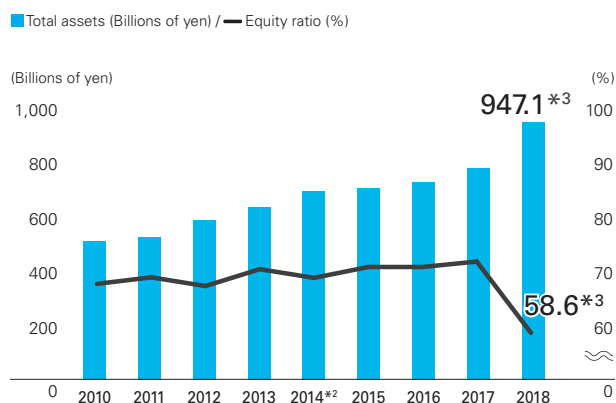


\*1 In-house survey

### Net Income Attributable to Owners of the Parent / Net Income per Share

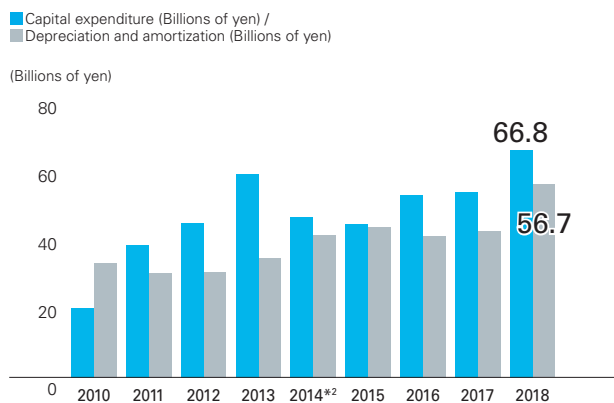


### Total Assets / Equity Ratio

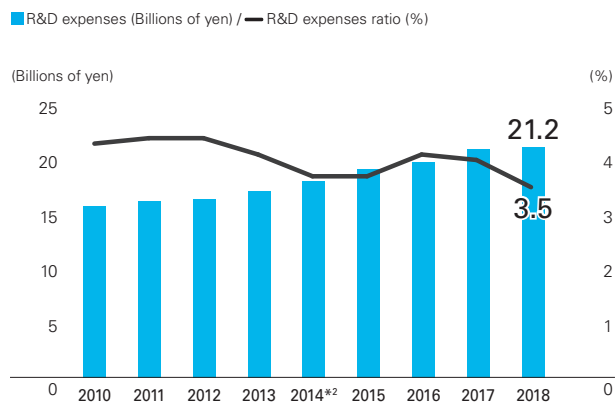


\*3 In fiscal 2018, the total assets increased due to consolidation of Calgon Carbon Corporation. Meanwhile, the equity ratio declined due to debt financing for its acquisition.

### Capital Expenditure / Depreciation and Amortization

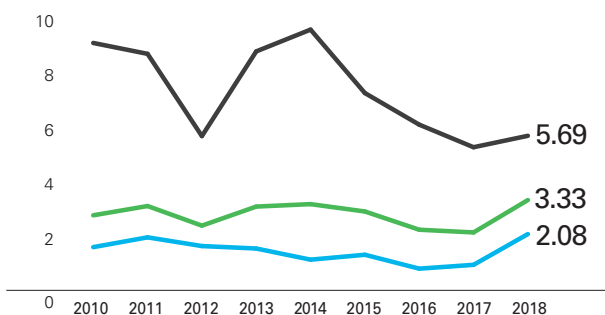


### R&D Expenses / R&D Expenses Ratio



## 1 Frequency Rate of All Occupational Incidents\*\*

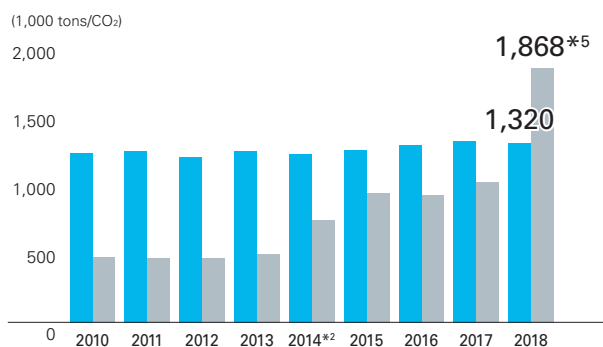
— Domestic Kuraray Group / — Overseas affiliates /  
— Kuraray Group inside and outside Japan



\*4 The number of occupational incidents requiring medical treatment per one million work hours

## 2 GHG Emissions

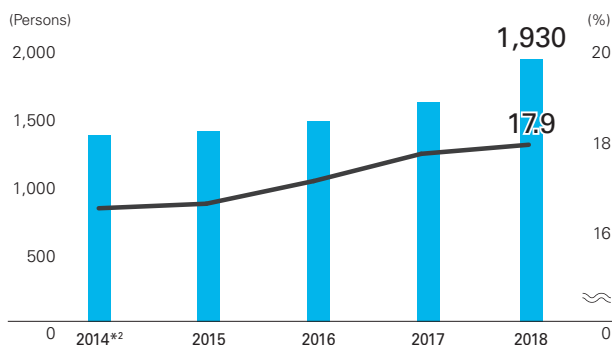
■ Domestic Kuraray Group / ■ Overseas affiliates



\*5 Calgon Carbon Corporation is included in data for fiscal 2018.

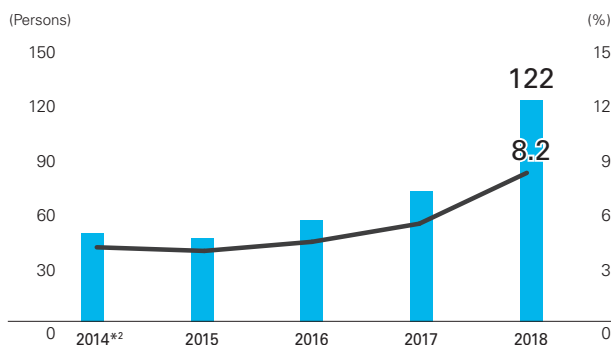
## 3 Number of Female Employees / Ratio of Female Employees

■ Number of female employees (Persons) / — Ratio of female employees (%)



## 4 Number of Female Employees in Managerial Positions / Ratio of Female Employees in Managerial Positions

■ Number of female managers (Persons) / — Ratio of female managers (%)



## Brief Commentary on Non-Financial Information

### 1 Frequency Rate of All Occupational Incidents

In the Kuraray Group's business activities, safety is the cornerstone, an absolute requirement that forms the basis for all activities. Realizing workplaces where people can safely work at ease without accidents is an important theme we need to work on to maintain stable supply of products and continue to be trusted by society.

Based on this view, the Kuraray Group develops and operates safety management systems and conducts various activities. We are putting various measures in place to raise employee awareness of safety and establish safe actions and safety checks as routine practices.

### 2 GHG Emissions

We believe that the Kuraray Group's mission is to manufacture basic and intermediate materials that will contribute to creating a low-carbon and eco-friendly society and minimize their environmental impact as much as possible. Drawing from this philosophy, the Kuraray Group is continuing to conserve the environment by promoting measures to combat global warming, curb chemical emissions, and effectively use by adopting global manufacturing.

### 3 Number of Female Employees / Ratio of Female Employees

### 4 Number of Female Employees in Managerial Positions / Ratio of Female Employees in Managerial Positions

Kuraray is striving to enhance its organizational strengths by making the most of the abilities of its diverse human resources. From the viewpoint of promoting women's active participation in the workplace, Kuraray is making various efforts with a focus on three points—employing more female employees, expanding areas of their responsibility at work and improving the retention of female employees.

\*2 The account closing date changed from March 31 to December 31 in fiscal 2014. The consolidated financial results for fiscal 2014 covered 9 months, from April to December 2014, in Japan and 12 months, from January to December 2014, overseas. Values shown have been corrected as the results for January to December 2014 for both Japan and overseas.

*Masaaki Ito*

**Masaaki Ito**

Representative Director and President



# Aiming to Become a Company That All People Surrounding the Kuraray Group Can Take Pride In

The Kuraray Group is aiming to grow sustainably according to the long-term vision set out in “Kuraray Vision 2026” by further expanding our existing businesses and creating a portfolio of new ones, as well as bolstering our initiatives to promote diversity and other workstyle reforms.

Please read on to discover our vision and the progress of the “PROUD 2020” medium-term management plan launched in 2018.

## **The Source of Our Competitiveness: The Kuraray Group’s Basic Stance**

Kuraray began as a fiber and textile manufacturer in 1926 to produce regenerated cellulose fiber rayon. At the time, the Japanese fiber and textile industry depended on raw materials and technologies from overseas, but Kuraray launched determined initiatives to use only domestic resins as raw materials for production, and succeeded in 1950 to commercialize synthetic fiber made with Japanese technologies under the KURALON™ brand. It was Kuraray’s willingness to take on challenges ahead of others in a new field, on top of its intent to pursue high quality and high added value, that the Company dared as a fiber and textile manufacturer to integrate production starting with resin as the raw material. This spirit reflects the strong belief of our second-generation president Soichiro Ohara: “It is only through originality that a business can truly contribute to society and generate profits.” Since day one,

the Kuraray Group has worked tirelessly to develop technologies and cultivate markets, and has focused on manufacturing unique products. The words “For people and the planet—to achieve what no one else can” in the Kuraray Group’s Corporate Statement express the strong belief of the Company’s founder and second-generation president. These words demonstrate the Kuraray Group’s stance of constantly providing value to the world. The result of the Kuraray Group applying its unique technologies to boldly take on the unknown has been to create many businesses that have clinched the world’s top market share in their respective fields. In fact, currently our businesses with world-leading market share account for as much as 58% of the Kuraray Group’s total sales and are the source of our competitiveness.

## **Targets and Long-Term Vision Toward 2026**

Looking toward celebrating its centennial in 2026, Kuraray has set the vision it aims to achieve along with the basic policy as outlined in the “Kuraray Vision 2026” long-term vision.

We predict that several factors will inflict dramatic changes in the Kuraray Group’s business environment in the medium to long term. These are likely to include major revisions to rules, laws and regulations, the emergence of technological innovation and advances in digitalization through information networks and AI. In addition, while development of emerging countries is further expanding the world economy and their presence strengthens, it is predicted that social and environmental issues such as water shortages and food crises will surface.

In light of such circumstances, we see increasing opportunities to apply our technical capabilities in chemistry

to resolve the challenges and problems that may newly arise from drastic changes that could occur right across the industrial landscape.

In the long-term vision set out in “Kuraray Vision 2026,” we have defined three basic policies: “Pursue competitive superiority,” “Expand new business fields,” and “Enhance the comprehensive strength of the Kuraray Group.” In addition, we established our targeted vision for 2026 as being a “Specialty Chemical Company, growing sustainably by incorporating new foundational platforms into its own technologies.” Based on these principles, we will strive to achieve sustainable growth and build a stable business portfolio through further expanding our existing businesses and spawning new ones.

## Progress in the Medium-Term Management Plan “PROUD 2020” and Priority Activities for FY2019

Starting in fiscal 2018, our medium-term management plan “PROUD 2020” was established with four key management strategies: the three strategies included in the basic policy of our long-term vision, with the addition of “Contribute to the environment.” Over fiscal 2018, we executed concrete actions based on these key strategies.

Also seeing steady progress were initiatives to achieve “Kuraray Vision 2026” through activities that offer a promising future, such as acquiring Calgon Carbon Corporation, a global leader in the manufacture of activated carbon products, and deciding to invest in a manufacturing plant for butadiene derivatives in Thailand.

### Activities Conducted in FY2018

<b>Pursue competitive superiority</b>	<ul style="list-style-type: none"> <li>● Optical-use PVA film: Decided on capital expenditure to cater to market needs</li> <li>● PVB film: Increased the production capabilities for highly functional film at our Korean plant</li> <li>● Water-soluble PVA film: Finished increasing the production capabilities in the U.S.A., and decided to invest in building new plants in the U.S.A.</li> <li>● EVAL™: Boosted production capabilities in the U.S.A. and began running at 11,000 ton/year</li> <li>● Isoprene: Decided on investing in new plant facilities in Thailand</li> <li>● Defined target areas for the newly established Corporate Marketing Group, and commenced cross-functional work</li> </ul>
<b>Expand new business fields</b>	<ul style="list-style-type: none"> <li>● VECSTAR™ (liquid crystalline polymer film): Increased production capabilities in response to higher demand</li> <li>● PLANTIC™ (bio-based gas barrier material): Decided to invest in resin production facilities in the U.S.A. with the aim of expanding this business</li> </ul>
<b>Enhance comprehensive strength of the Kuraray Group</b>	<ul style="list-style-type: none"> <li>● Promoted integration with Calgon Carbon Corporation, after completing acquisition in March 2018</li> <li>● Installed the Global SAP System</li> <li>● Strengthened initiatives for workstyle reforms</li> </ul>

### Priority Activities for FY2019

<b>Pursue competitive superiority</b>	<ul style="list-style-type: none"> <li>● EVAL™: Consider investment for a new plant</li> <li>● Water-soluble PVA film: Consider plots and investments for building new plants</li> <li>● Isoprene: Proceed with the project for the new plant in Thailand</li> <li>● Calgon Carbon Corporation: Consider investment to increase capabilities in the U.S.A.</li> <li>● Meltblown nonwoven fabric: Decide on boosting production capabilities</li> <li>● Strengthen initiatives that use IoT to improve production efficiency and quality</li> </ul>
<b>Expand new business fields</b>	<ul style="list-style-type: none"> <li>● VECSTAR™ (liquid crystalline polymer film): Consider investment regarding facilities for full-scale mass production</li> <li>● Search for new opportunities and create new uses by strengthening corporate marketing functions</li> </ul>
<b>Enhance comprehensive strength of the Kuraray Group</b>	<ul style="list-style-type: none"> <li>● Promote integration of Calgon Carbon Corporation businesses, and realize synergy</li> <li>● Promote workstyle reforms</li> </ul>

The planned amount for capital expenditure during “PROUD 2020” was initially determined as 250 billion yen. However, owing to investments for the butadiene derivative manufacturing plant in Thailand and to increase the activated carbon production capabilities to further expand this business, we forecast that the three-year

investment figure will exceed 300 billion yen. Moving forward, we will take care to maintain healthy finances while investing in infrastructure to reinforce our future competitive strength. In this way, we are focusing on building the Kuraray Group’s corporate value with a medium-to long-term mindset, in view of our centenary in 2026.

## Recognizing Problems and Taking Concrete Approaches to Sustainability

Recent years have seen a demand for corporate management to carry out proactive initiatives for sustainability. To be good corporate citizens, companies must increase transparency in their management and consider society and the environment, as well as make more proactive contributions. These activities work as a driving source for long-term growth in companies and help create a sustainable society.

Based on its mission “For people and the planet—to achieve what no one else can,” the Kuraray Group has aimed to develop businesses that contribute to society ever since its establishment. The United Nations recently adopted the Sustainable Development Goals (SDGs)—17 goals and specific aims for achieving them—in order to realize a sustainable world by 2030, and the Kuraray Group has already put some of these goals into practice. For example, the resin EVAL™ has excellent gas barrier properties, and can be used as a packaging material to store food for long periods and thereby help reduce food loss and wastage. Hollow-fiber membranes and activated carbon are also essential products for supplying safe water. Activated carbon is a particularly promising product, as its material properties make it easier for a variety of harmful substances to adsorb and desorb. We will develop the activated carbon business into a major pillar, as the product can contribute toward environmental improvements in a variety of fields.

Problems related to microplastics (ocean plastic) and plastic waste are other environmental issues that we must concentrate on as a chemical manufacturer. Specific circumstances in each country and region mean there is currently no definite course of action in terms of governmental policy or regulations. The Kuraray Group will organize a global system to gather accurate information from each country and region, and will carefully consider what actions to take based on this information. The Kuraray Group also makes biodegradable products derived from biomass, such as the barrier material PLANTIC™, and will offer solutions for environmental issues with these products in a precise and timely manner to cater to market needs. In addition, we appreciate that it is vital to share information with stakeholders regarding the type of problems we aim to solve as we conduct these activities, as well as the criteria for setting our goals. Moving forward, we wish to offer additional information where it is needed.

I continually share with employees my wish to make the Kuraray Group a “safe and secure company,” “a company that people can take pride in” and “a company growing sustainably by incorporating new foundational

platforms into its own technologies.” In particular, it is essential to further reinforce our system of compliance in order to earn the trust of people around the world as a truly global corporate group, and to be “a company that people can take pride in.” We understand workstyle reform is to mean the creation of a workplace where a diverse range of people can be confident in their individuality as they work, and where people can feel more comfortable at work and experience high job satisfaction. We are conducting Group-wide initiatives to achieve such workstyle reforms, including those to encourage greater participation by women in the workplace. In addition, we have made progress in achieving diversity among the management, with a female external director and corporate auditor newly joining us in fiscal 2019, together with four foreign executive officers (one of whom is a managing executive officer). We will continue promoting diversity across the Group by building a “safe and secure company” and “a company that people can take pride in.” On top of these initiatives to reinforce our foundations, we will continue with our aim to be a proud company “growing sustainably” by solving social and environmental issues through “incorporating new foundational platforms into our own technologies.”



## Overview of Our Long-Term Vision and the “PROUD 2020” Medium-Term Management Plan

### The Kuraray Group’s Mission

We are committed to developing new fields of business using pioneering technology that improves the environment and enhances the quality of life throughout the world.

— For people and the planet—to achieve what no one else can —

### “Kuraray Vision 2026” Long-Term Vision

#### Vision for Kuraray

Specialty Chemical Company growing sustainably by incorporating new foundational platforms into its own technologies

#### Basic Policies

##### Pursue competitive superiority

Increase existing businesses’ competitive edge

##### Expand new business fields

Strengthen our business portfolio while expanding the scope of operations

##### Enhance comprehensive strength of the Kuraray Group

Establish global business foundations to ensure the realization of the vision

### Medium-Term Management Plan “PROUD 2020”

#### Pursue competitive superiority

- Develop high-value-added products and applications based on customer needs
- Create more demand in emerging countries
- Achieve innovation of production and operational processes through use of IoT

#### Expand new business fields

- Create new businesses by improving on Kuraray’s own technologies and incorporating external ones
- Capture new business areas by M&A and alliance
- Establish a new business model bundling technology and services

#### Enhance comprehensive strength of the Kuraray Group

- Establish global business foundations
- Create a workplace in which employees find their job rewarding
- Cultivate a strong culture of unity within the Kuraray Group

### Medium-Term Management Plan “PROUD 2020”

Making Kuraray a Company That People Can Take Pride In

#### Contribute to the environment

- Provide products contributing to environmental protection
- Put in place a production process with low environmental footprint
- Provide products that help enhance quality of life (QOL)

**PROUD 2020**

Profitability

Responsibility

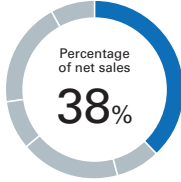
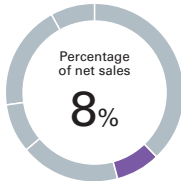
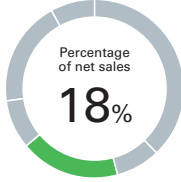
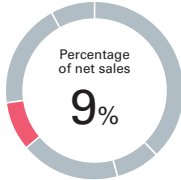
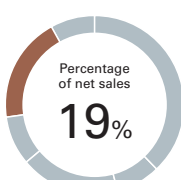
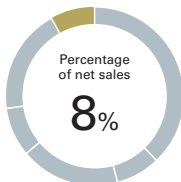
Opportunity

Unique products & services

Diversity



# Business Overview

Segment name	Medium-term management plan/strategies for each business		Review of the medium-term management plan
<b>Vinyl Acetate</b> 	<b>PVA resin</b> <ul style="list-style-type: none"> <li>Shift to high-added-value products</li> <li>Optimally manage global production operations</li> </ul>	<b>Optical-use PVA film</b> <ul style="list-style-type: none"> <li>Expand and maintain a high market share in line with increasing demand for LCDs</li> <li>Add new functions and enhance workability to satisfy the latest market and customer needs</li> </ul>	<ul style="list-style-type: none"> <li>Decided to withdraw from the EVA emulsion business as part of a shift to high-added-value products</li> <li>Boosted the production rate at U.S. plants and propelled global optimizations in the supply chain</li> </ul>
	<b>Water-soluble PVA film</b> <ul style="list-style-type: none"> <li>Execute the timely expansion of production facilities in step with growth in operations</li> <li>Allocate development resources to new industrial applications</li> </ul>	<b>PVB film</b> <ul style="list-style-type: none"> <li>Bolster the development and sale of highly functional films for automobiles</li> <li>Expand sales of high-strength films for construction</li> </ul>	<ul style="list-style-type: none"> <li>Decided to increase production capabilities in response to increasing demand for wide films in large LCDs</li> </ul>
	<b>Eval™</b> <ul style="list-style-type: none"> <li>Create new demand in emerging countries and boost sales</li> <li>Expand EVAL™-related operations to help reduce food wastage</li> </ul>		<ul style="list-style-type: none"> <li>Finished increasing production capabilities in the U.S.A. in response to rising demand for single-use detergent packets, and began production. Decided to build new plants in the U.S.A. for further business expansion</li> <li>Promoted development activities for new uses, including single-use packets for pharmaceuticals, cosmetics, and food</li> <li>Began production of highly functional film in our Korean plant, and launched sales</li> <li>Achieved sales expansion with SentryGlas™ for construction</li> <li>Continued activities to cultivate demand in developing countries, despite the impact of fire in U.S. plants</li> <li>Proposed extension of expiry dates using EVAL™ for food and logistics industries with an aim of expanding business</li> </ul>
<b>Isoprene</b> 	<b>Isoprene chemicals</b> <ul style="list-style-type: none"> <li>Pursue expansion of one-of-a-kind products</li> <li>Commercialize newly developed products, including oil-gas chemicals</li> </ul>	<b>Elastomer</b> <ul style="list-style-type: none"> <li>Build a more sophisticated portfolio of products by enhancing their functionalities</li> <li>Expand global sales of liquid rubber</li> </ul>	<ul style="list-style-type: none"> <li>Achieved sales expansion in one-of-a-kind products, such as MMB and MPD</li> </ul>
	<b>GENESTAR™</b> <ul style="list-style-type: none"> <li>Expand the range of products for automotive applications, such as components for on-board electronics</li> <li>Develop new polymers</li> </ul>		<ul style="list-style-type: none"> <li>Added the SEPTON™ BIO-series, a new brand using bio-derived farnesene, to our product portfolio</li> <li>Engaged in marketing to promote the use of SEPTON™ in cable gels for protecting optical fiber</li> <li>Expanded the adoption of liquid rubber by domestic and overseas tire manufacturers</li> <li>Strengthened marketing regarding automotive applications, including components for on-board electronics</li> <li>Promoted development activities for a new functional polyamide resin</li> </ul>
<b>Functional Materials</b> 	<b>Methacrylic</b> <ul style="list-style-type: none"> <li>Expand the sales of newly developed products, such as soft resin and multi-layered substrates</li> <li>Bolster sales of highly functional grades of optical-use resin</li> </ul>	<b>Medical</b> <ul style="list-style-type: none"> <li>Expand sales of CAD/CAM products (e.g., zirconia blocks)</li> <li>Upgrade communication of information to users (dentists and dental technicians)</li> </ul>	<ul style="list-style-type: none"> <li>Steadily expanded the adoption of multi-layer sheets for on-board displays</li> <li>Achieved sales growth in highly functional grades of resin to achieve thinner and lighter laptop computers</li> </ul>
	<b>Carbon materials</b> <ul style="list-style-type: none"> <li>Swiftly achieve synergy via collaboration with Calgon Carbon Corporation</li> <li>Expand the range of products for automobile canisters</li> <li>Expand the sales of products for battery applications (capacitors and lithium-ion batteries)</li> </ul>		<ul style="list-style-type: none"> <li>Took the lead in the industry by commencing sales in Japan, the U.S.A., and Europe for zirconia blocks that deliver outstanding aesthetics</li> <li>Released an app with videos describing how to use our products, as part of user service enhancement</li> <li>Moved forward with the integration by streamlining sales bases that overlap with Calgon Carbon Corporation, among other activities</li> <li>Began considering improving the capabilities of Calgon Carbon Corporation</li> <li>Promoted joint research activities with Calgon Carbon Corporation to enrich our product lineup for applications in automobile canisters</li> </ul>
<b>Fibers and Textiles</b> 	<b>CLARINO™</b> <ul style="list-style-type: none"> <li>Roll out products targeting luxury brands</li> <li>Achieve full-scale entry into the automobile interior market</li> </ul>	<b>Fiber Materials</b> <ul style="list-style-type: none"> <li>Promote the VIP project for KURALON™</li> <li>Expand the VECTRAN™ business</li> </ul>	<ul style="list-style-type: none"> <li>Made progress with new adoption by luxury brands, and increased the sales volume</li> <li>Accelerated development activities to enter the automobile interior market</li> </ul>
	<b>Lifestyle Materials</b> <ul style="list-style-type: none"> <li>Expand sales of new meltblown nonwoven fabrics</li> <li>Accelerate expansion into Southeast Asia</li> </ul>		<ul style="list-style-type: none"> <li>Expanded the adoption of KURALON™ for industrial filaments with revolutionary production process VIPs</li> <li>Achieved progress in expansion with high-added-value uses of VECTRAN™</li> <li>Grew sales of high-added-value products in the meltblown nonwoven fabric business</li> <li>Further developed the Southeast Asian market with KURAFLEX™ counter cloths</li> </ul>
<b>Trading</b> 	<ul style="list-style-type: none"> <li>Increase the scale of business in Asia</li> <li>Expand revenue in the fibers and textiles business</li> <li>Strengthen initiatives with high-value customers</li> <li>Launch new businesses</li> </ul>		<ul style="list-style-type: none"> <li>Achieved progress in strengthening integrated production spanning raw material to product, and in creating high added value through investments to bolster the sewing business in Vietnam</li> <li>Grew sales in Asia for resin and synthetic products</li> </ul>
<b>Others</b> 	<ul style="list-style-type: none"> <li>Accelerate market cultivation of products from new businesses</li> </ul>		<ul style="list-style-type: none"> <li>Increased sales of VECSTAR™ (liquid crystalline polymer film) for 5G high-speed networks, and boosted our production capacity</li> <li>Expanded the adoption of polishing pads for semiconductors, mainly within Japan</li> </ul>

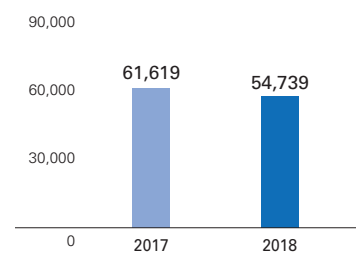
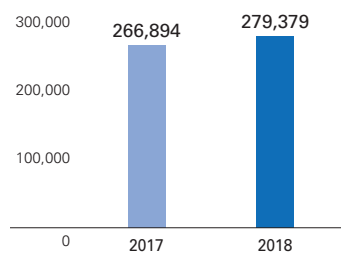
## Segment name

## Net sales (Millions of yen)

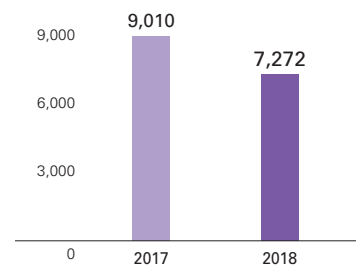
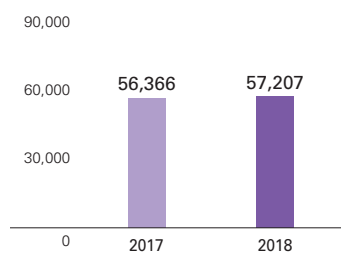
## Operating income (Millions of yen)

**Vinyl Acetate**

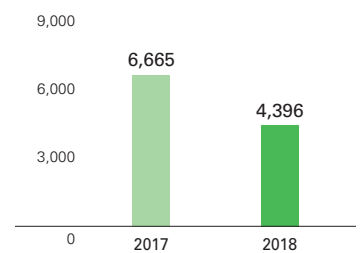
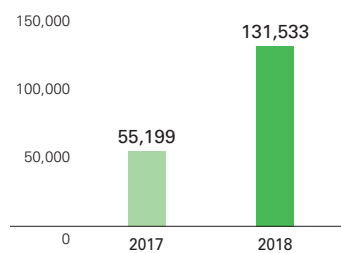
In this business, we manufacture and sell PVA resin, which features water solubility and adhesive properties, PVA film, which can be applied to liquid crystal displays and is also used for single-use packets for detergents and so on; PVB film used as an interlayer for laminated glass; and EVAL™, which has an excellent gas barrier property.

**Isoprene**

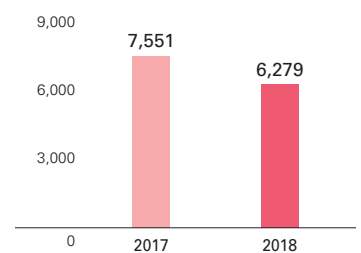
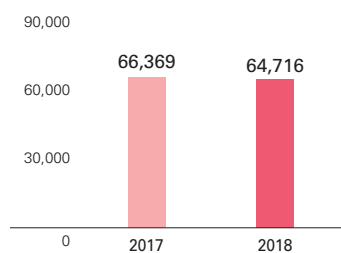
In this business, we manufacture and sell synthetic isoprene chemical products; and SEPTON™, a thermoplastic elastomer that is a derivative of synthetic isoprene chemical products; as well as GENESTAR™, a new polyamide resin with excellent heat resistance.

**Functional Materials**

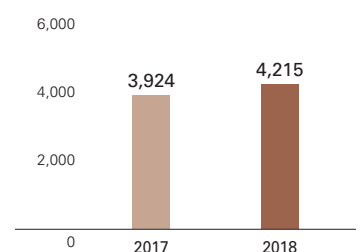
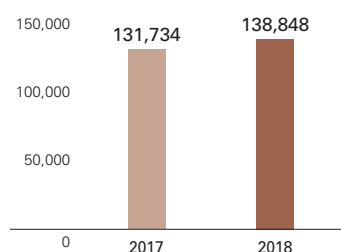
In this business, we manufacture and sell methacrylate resin, which boasts excellent weather resistance; dental materials which enable repairs that closely resemble natural teeth; activated carbon, whose adsorption properties are used to purify water and air; equipment for water treatment; and others.

**Fibers and Textiles**

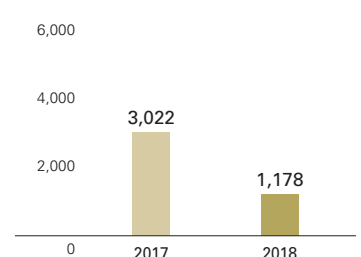
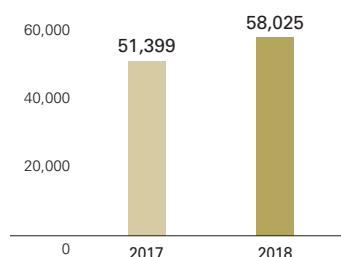
In this business, we manufacture and sell CLARINO™, a man-made leather with a structure and functionality as elaborate as natural leather; vinylon fiber, used in automotive components and to reinforce concrete; KURAFLEX™ nonwoven fabric, used for lifestyle products and industrial materials; and MAGIC TAPE™ hook-and-loop fasteners.

**Trading**

In this business, we manufacture and sell polyester and other fiber and textile products, as well as export/import and wholesale resin and chemical products.

**Others**

In this business, we manufacture and sell highly functional membranes and systems used in water treatment, and conduct the engineering business, as well as manufacture and sell VECSTAR™, a liquid crystalline polymer film used mainly for flexible circuit boards.



**KURARAY POVAL™, ELVANOL™ (PVA resin)**

Paper/fiber processing agents, adhesives, stabilizer for polyvinyl chloride polymerization and others

**TROSIFOL™ (PVB film and Ionoplast interlayer)**

Interlayer film for safety glass

**Optical-use PVA film**

Polarizers for LCDs and others

**EVAL™ (EVOH resin)**

Food packaging, automotive fuel tanks, stain-resistant wallpaper, vacuum insulation panels, and others

**Water-soluble PVA film**

Single-use packages for detergents and others

**Plantic™ (Bio-based gas barrier material)**

Food packaging materials

**Isoprene chemicals**

Cleaner, aroma chemical and cosmetic ingredients, pharmaceutical and agricultural intermediates, and others  
\* One and only products derived from synthetic isoprene (IMB, IMPD, etc.)

**KURARITY™ (Acrylic thermoplastic elastomer)**

Adhesives, molding materials and others

**SEPTON™ (Thermoplastic elastomer)**

Substitute for rubber, automobile parts, electronic parts, stationary, toys, sporting goods, and others

**GENESTAR™ (Highly heat-resistant polyamide resin)**

Electronic parts of smartphones and personal computers, LED reflector applications, automobile parts and others

**Liquid rubber**

Additive agent for automobile tires and others

**Methacrylic resin**

Light guide plates for LCDs, automobile parts, signboards, construction materials and others

**Dental materials**

Various organic and inorganic dental materials

**Activated carbon**

Water purification, wastewater treatment, capacitor electrode materials and others

**CLARINO™ (Man-made leather)**

Men's and women's shoes, bags, athletic footwear, large inflatable sports balls

**MAGICTAPE™ (Hook and loop fastener)**

Clothing, sporting goods, industrial materials and others

**KURALON™ (PVA fiber)**

Reinforcing material for cement and concrete, automotive brake hoses and others

**VECTRAN™ (High-strength polyarylate fiber)**

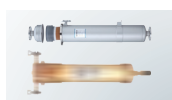
Aerospace, composites, electronic components, ropes, sporting goods and others

**KURAFLEX™ (Nonwoven fabrics)**

Daily goods, industrial products (wipers, filtration media, automobile applications) and others

**Polyester**

Nonwoven fabrics, industrial materials, woven fabrics, knit fabrics, tents, sheets and others

**Aqua business**

Water purification, wastewater treatment, ballast water management system and others

**VECSTAR™ (Liquid crystalline polymer film)**

High-speed signal transmission flexible printed circuit boards and others

**Changes in Business Activities**

Since fiscal 2018, we have implemented the first-in, first-out (FIFO) method as a unified evaluation method for products, raw materials, and semi-manufactured items among our audited assets. We have used figures after post-facto processing for business results in the previous fiscal year. In addition, we have made changes to the service life and the methods of depreciation and amortization regarding tangible fixed assets, as well as to the method of allocating costs shared across the Group to each segment.

We have also moved the CLARINO™ business from the functional materials segment to the fibers and textiles segment, following organizational reforms effective from January 1, 2018. All segment information is based on the categories as they are after this change.

Finally, Calgon Carbon Corporation has been included in consolidated results from January 1, 2018 onward.



## Aiming for Greater Growth through Technological Development as the Global Leader in Water-Soluble Films

### P. Scott Bening

Executive Officer  
General Manager of WS Film Division,  
President of MonoSol, LLC.

## Key Person Interview 1

### Corporate Culture that Pursues Superior Technology and High Quality

MonoSol specializes in manufacturing water soluble films. The company has continued to steadily grow since its founding in 1953 in the U.S. state of Indiana, focusing mainly on industrial applications for release films and other products. Every year since its integration into the Kuraray family in 2012, MonoSol has registered double-digit growth, with sales of single-use (water soluble unit dose, or SUD) pods for laundry and dishwashing detergents—created using technology and know-how acquired for industrial film applications—leading the way and solidifying our position as the world's No. 1 manufacturer of water soluble films. We are currently leveraging these films' unique properties, such as solubility and biodegradability, to create packaging materials with an even smaller environmental impact. In addition, we are branching out from our mainstay single-use laundry detergent pods with an eye to developing a wider range of packaging material applications, from water treatment and cosmetics to food products.

MonoSol's consistent growth is attributable to its proprietary film formulations and constantly improving manufacturing systems as well as efforts to maintain relationships and enter into deep collaboration with customers. In addition, we consider intellectual property to be an important part of our strategy. MonoSol's patents facilitate its competitive advantages and next-generation

R&D and also act as a barrier to entry for other companies. Becoming part of the Kuraray Group has meant that we can engage in R&D extending all the way upstream to the raw material polyvinyl alcohol resin, shift to a higher-value-added product lineup and processing technology continues to advance. Furthermore, MonoSol is not just a provider of high-quality products and services. MonoSol boasts a culture of quality underpinned by the responsiveness of all our employees, including those in the back office. This culture of quality flows into our company governance such as compliance and safety, which is the foundation that supports our current position as the world's leading supplier of water soluble films.



MonoSol Headquarters in Indiana, U.S.A.



## Initiatives to Achieve Mid-Term Management Plan “PROUD 2020” Targets and Sustainable Society

In “PROUD 2020,” we aim to expand sales in line with the rising market penetration of single-use pods for laundry detergent while maintaining our high market share. We will also continue to create new demands for industrial and consumer applications for such products as personal care soaps and shampoo, cosmetics, single dose nutrition supplements, and release films.

Reflecting differences in daily habits among countries around the world, people use daily consumables like detergent in different ways. MonoSol develops and provides films that meet various conditions around the world through continuous co-development with customers, including film technology that can dissolve even in cold water, which had been difficult previously. In addition, our efforts to solve environmental problems such as waste volume reduction and plastic disposal problems utilizing the films’ solubility and biodegradability, have garnered acclaim and MonoSol’s films are currently adopted by the top five global detergent suppliers. We intend to deepen our technology and expand our business while contributing to the improvement of living conditions and the solutions of the environmental problems in not only developed countries but also emerging markets.

On the other hand, in parallel with growth in the size and complexity of the overall business, the supply chain challenges are also increasing. In “PROUD 2020,” we will plan a “Glocal” future through improvements in the efficiency of inter-Group procurement of raw materials, optimizing locations for film production bases which are currently concentrated in the U.S. Midwest, and enhancing our distribution network. Our ultimate goal is to establish a regional supply chain and thereby avoid any external risk.

In 2018 MonoSol achieved its sales goal. However, our operating profit goal was not achieved as planned. This was because of unexpected difficulties during the initial stages of the new product introductions. However, sales are expected to increase by the expansion of the unit dose detergent market, and by the further improvement in film production yield, we are convinced that we can achieve the “PROUD 2020” plan by compensating for the operating income by 2020.

Through maintaining its overwhelming presence in the unit dose detergent market and creating new applications while working to further strengthen the supply chain, I believe MonoSol will continue growing at or near its current pace through at least 2026—the centennial of Kuraray’s founding.



Single-use detergent packets using the water soluble poval film

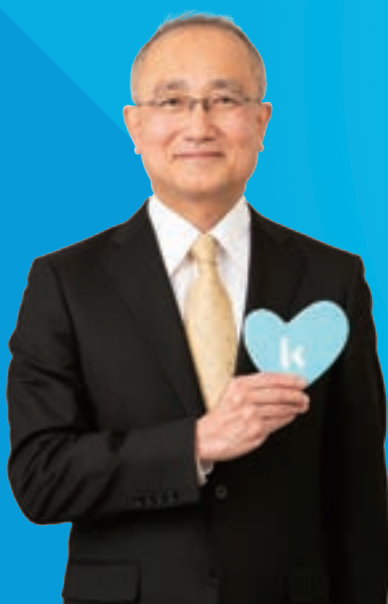
## MonoSol’s Purpose and HR Development to Support Growth

MonoSol is focusing its efforts on employee training. We are especially focusing on “coaching and developing” in “PROUD 2020.” We are training employees who can act globally and excel in MonoSol’s highly specialized business. We support our employees’ growth by providing unique training programs related to MonoSol’s operations alongside Kuraray’s HR training programs.

Before joining the Kuraray family, MonoSol had long been focused on building value with a view to ultimately selling the company. However, building long-term value and securing rapid earnings growth through increased volume are not necessarily the same goal. Our purpose is to grow in breadth and depth for the people and the

planet. Yes, we must work hard to deliver financial results and returns for all the stakeholders. But above all, we always remember our purpose. By focusing on what is important to customers and society, we will build a company that can deliver both growth and profit over the long term.

Kuraray Group has been globalized rapidly in recent years. As a non-Japanese Executive Officer of the Kuraray Group, I always keep in mind that I have to take on the role of “bridge between different cultures” and make intentional efforts to play a role in the sustained growth of the Kuraray Group.



## Transforming Carbon Materials Into One of Kuraray's Core Businesses: Toward True Leadership in Activated Carbon

### Nobuhiko Takai

Senior Executive Officer  
Vice President of Functional Materials Company,  
General Manager of Carbon Materials Division

## Key Person Interview 2

### History and Overview of the Carbon Materials Business

The Kuraray Group's history in the carbon materials business started with manufacturing and selling activated carbon in 1965.

Activated carbon is the product of a reaction between bituminous coal, wood, coconut shells or other raw materials with gas and chemical agents at a high temperature. This process creates micropores (measuring 20 nanometers or less in diameter) that purify gases or liquids by selectively separating and removing particular substances. The micropores form a meshwork structure within the activated carbon to give the material high adsorption strength owing to their large surface area (500 to 2,500 m<sup>2</sup>/g). For this reason, the activation process that forms and controls the size of these micropores is critical. Kuraray possesses refined manufacturing technologies used in the activation process that keeps pore diameter within a suitable range to adsorb particular materials.

Activated carbon is used in a variety of fields, such as waterworks plants, sewage treatment, household water

purifiers, food and drink processing, and other areas related to water treatment, as well as exhaust-gas treatment, air purifiers, and other applications connected to air treatment. Activated carbon also plays an important role in electrical materials such as capacitors in the energy-related field and nitrogen scrubbers in the chemical and food industries. Recently, the material has also shown promise in value-added areas like automotive applications.



Activated carbon

### Creating Synergy by Acquiring Calgon Carbon Corporation and Achieving Integration

The Kuraray Group considers the fields of water, the environment, and energy as areas for focused strategies. The Group has promoted initiatives to strengthen and enhance its carbon materials business in line with the "Next-generation growth model" and "Contribution to the environment," the key business strategies in "GS-STEP," our previous medium-term management plan. As part of these initiatives, in January 2017 we merged our subsidiary Kuraray Chemical Co., Ltd., which was handling

the manufacture and sale of activated carbon, and newly established Carbon Materials Division, to concentrate the Kuraray Group's resources. Meanwhile, we continued discussions on expansion through M&As to grow our presence in the activated carbon market and accelerate the development of our global business. One fruit of these discussions was March 2018's acquisition of Calgon Carbon Corporation, a global leader in activated carbon materials.

As mentioned earlier, the raw materials for activated carbon are categorized into three groups: coconut shells, bituminous coal, and wood. Kuraray's original expertise with activated carbon extended mainly to coconut shells, handling bituminous coal and wood to a limited extent only. Calgon Carbon Corporation, on the other hand, includes activated carbon from bituminous coal and wood in its product lineup, and the company has particularly strong production capabilities in activated carbon from bituminous coal, one of its major products. Through this acquisition, Kuraray has become the world's largest overall manufacturer of activated carbon that can produce all three types of products, taking the lead among the world's many activated carbon manufacturers.

This acquisition will bring a wide range of benefits. In terms of raw materials, coconut shells are susceptible to risk from variations in supply volume and price, but the unified purchasing strength of Kuraray with Calgon Carbon Corporation enables us to secure more stable procurement from the many coconut shell providers in Southeast Asia. We will also be able to procure bituminous coal and wood while leveraging our presence as a leading manufacturer. In terms of sales, Calgon Carbon Corporation has mainly developed its businesses in Europe and the U.S.A., while Kuraray has focused on Japan and Asia, allowing us to complement each other's business regions. In addition, by further accumulating client information, we can expect to cultivate new markets.

We are also looking to achieve a multifaceted synergy, including better product development capabilities by fusing both companies' technologies, as well as stronger cost competitiveness through mass production.

In addition, we feel that we have welcomed extremely talented people from Calgon Carbon Corporation. The company is listed on the New York Stock Exchange, and has built good relationships with shareholders, customers, and other stakeholders. Its employees have a strong awareness regarding compliance, and we believe that we can build a system of governance to serve as a foundation as we aim for future global growth. In 2018, we launched integration processes within each region in the U.S.A., Europe, and Asia, and have conducted consolidation activities for sales bases, among other initiatives.



Pearl River Plant  
Calgon Carbon Corporation  
Mississippi, U.S.A.

## Our Ideals for Future Business

In 2019, we will concentrate on achieving quick results to gain some tangible synergy through this acquisition, and act to more closely integrate our carbon materials business. In addition, as worldwide demand grows for activated carbon in response to ever tighter environmental regulations, we are considering making investments to boost the production capacity of Calgon Carbon Corporation's American plant, which is operating at full capacity. We plan to swiftly make such decisions.

Regarding the market outlook, we can expect growth at an annual rate of 3% to 5% with highly versatile bituminous coal-based and wood-based activated carbon, in line with the world's annual economic growth rate. As such, we will work to further amplify our presence and expand sales in these areas that already have a large market scale. In addition, we will add further value to our coconut shell-based products, and aim for an annual

growth rate of 10% or more in our high-end product group within the activated carbon market.

In this growing market, it is imperative to swiftly grasp changes in the world as well as the needs of the market, and take advantage of the Kuraray Group's technological capabilities to provide comprehensive solutions for environmental problems. In this way, we will contribute to improving people's health and comfort around the world, as well as to sustainability of the global environment.

In the "PROUD 2020" medium-term management plan, Kuraray identified the key strategies of "Expand new business fields" and "Contribute to the environment." Our initiatives to strengthen and expand the carbon materials business are precisely in line with these strategies, and we will endeavor to grow this business into a large pillar of the Kuraray Group.



## Aiming to Create Economic Value by Applying our Technological Prowess

### Tsugunori Kashimura

Senior Executive Officer  
Officer Responsible for Research and Development Division,  
Officer Responsible for Environmental Business Development  
and Promotion Division,  
General Manager of Research and Development Division,  
General Manager of Environmental Business Development  
and Promotion Division

## Key Person Interview 3

### Shifting to a Viewpoint and Actions with a Focus on Earning

The Research and Development Division has two functions. The first involves research and development through two research centers. The second involves developing new business through the business promotion departments for molding materials and in VECSTAR™, as well as the Functional Products Development Department that deals with CMP polishing pads for semiconductors. In addition to these two functions, the organizational structure at the Research and Development Division includes a base for information gathering in the U.S.A. as well as the Intellectual Property Department, the Market and Business Development Department, and the Planning and Administration Department. The New Business Development Division (in charge of projects close to commercialization) was previously an independent organization, but was reintegrated into the Research and Development Division in January 2017 with the aim of fundamentally reviewing all development operations.

Together with this organizational reform, we spent a year selecting the most important themes for development, and narrowed these themes down to those that should be worked on as part of corporate R&D. All people in charge of the themes were consulted to address points that were missing from previous judgment criteria, including the questions of “Why should Kuraray do it?” “How can we commercialize it and win?” and “Can it both contribute to society and bring profit to the company?” The

result was to cancel approximately 70 percent of the research themes, allowing us to focus on what remained. We are currently making progress in about 30 projects, including new themes that sprouted after the reforms.

In addition to these measures, researchers in the Research and Development Division are expected to maintain a perspective and conduct their actions so as to focus on generating profits in addition to achieving results in the research theme they are working on. This is achieved through encouraging researchers to view themselves as “technological pillars” who work in an appropriate way to solve the wide range of problems in technology and development tackled by business departments in terms of corporate development. We also grasp this challenge by quantifying the contributions to results gained through solving these problems.

When fostering human resources to support our technologies, it is vital to accumulate a bank of successful experience. To this end, we nurture outstanding researchers by having them actively engage in personal interactions with business divisions and accumulate experience while directly involving themselves in business as they produce results. Occupying around 100th place in global sales rankings among chemical manufacturers, Kuraray is not large in scale; however, we wish for our researchers to be confident that they will succeed in their individual endeavors.

### Promoting the Partnership and Support Program Together with Strategies for Intellectual Property

Kuraray’s strength is in its technological capabilities that originate from developing novel vinyl acetate-based

chemical products. We see our home turf centered around this strength, and set targets for new businesses within



walking distance of this home turf. We engage in initiatives with the goal of expanding into new territory step by step. Meanwhile, the Research and Development Division plays a crucial role in organizing verification activities throughout the entire Group to more firmly secure our vinyl acetate-related businesses as well as other core businesses that support our growth as the Group's foundations.

As a part of these initiatives, the Research and Development Division launched a "Supporting Program" for the Kuraray Group, with the Tokyo Head Office serving as its main point of contact. Over the past two years, the division has launched projects in which its researchers visit bases in Europe, the U.S.A., and other regions to hold discussions. Over many sessions, the researchers listened to the concerns and issues faced by people at each base and discovered various problems in each region that had been left unsolved and overlooked. In fact, there were over 80 problems regarding precision analysis and technical matters for which the Research and Development Division could offer support. Some of these can be solved relatively quickly, while others may need long-term

attention. In this light, we will strive to take these discussions of these problems to a deeper level on a global scale and address all of these issues without fail over the next few years, working to secure the foundations of businesses across the entire Group and protect this foundation from cracks.

Adding to these initiatives, the Research and Development Division supports the entire Group through surveying and management work conducted by the Intellectual Property Department in relation to patents. In a similar vein to the Supporting Program mentioned above, the Intellectual Property Department has created a system in which it first conducts patent surveys covering all regions targeted by each base at the Group. This is essential for understanding the actual conditions in each region. The Program then provides support for filing patents and utilizing patent rights in the global market. In addition, "Intellectual Property Strategy Conference" have been established through appointing intellectual property staff in each business division, thereby further honing value to derive profit from our technologies and knowledge.

## Working to Promote New Businesses and Create More Value

The Kurashiki Research Center celebrated its 50th anniversary in July 2018. This facility comprises of four laboratories, with each one linked to one of its core technologies: catalyst and synthetic technologies, VA-related polymer technologies, battery material design technologies, and analytical technologies. The Kurashiki Research Center has maintained three unwavering missions across the past five decades: "Create new businesses," "Strengthen and expand existing businesses," and "Establish and deepen core technologies." Together with the Tsukuba Research Center serving as an Eastern Japan research base, the Kurashiki Research Center will continue to operate as an R&D facility that is trusted by all stakeholders both inside and outside the Kuraray Group, and one that fulfills their expectations. In 2026, the year marking the 100th anniversary of company foundation, we have plans to

build a new R&D facility in Kurashiki City to expand our functionality, as well as plans to reorganize the R&D system across the entire Group.

As the company's corporate statement highlights, Kuraray aspires to help solve social problems through our businesses. Contributing to this effort is the Research and Development Division's ambition to create economic value by taking advantage of its technological strengths; we believe that such an endeavor is essential for the company's continued existence as a part of society. This Division will not simply engage with research themes to solve a specific social problem. Rather, we will continue exploring possibilities for research themes that carry the potential to create economic value acceptable to greater society and that will ultimately deliver solutions to a range of many social problems.



Kurashiki Research Center



Tsukuba Research Center

## • Corporate Governance •

### Basic Views on Corporate Governance

Kuraray Co., Ltd. (hereinafter “Kuraray” or “the Company”) believes that the maintenance of appropriate relationships with various stakeholders and the fulfillment of social responsibilities through establishing a corporate governance system that ensures effective and fair management would contribute to the long term and sustainable enhancement of corporate value.

The Company has adopted the governance system as “a company with the board of corporate auditors.” Under this framework, the Company has established corporate governance mechanism centered on its Board of Directors

and Board of Corporate Auditors to improve the effectiveness of supervisory and monitoring mechanism while maintaining management efficiency and to handle issues including management remuneration, selection of new company officers, internal control and risk management.

Through the above establishment of mechanism, the Company believes that the effectiveness of supervisory and monitoring mechanism would be improved while maintaining management efficiency, contributing to the long term and sustainable enhancement of corporate value.

### Kuraray's Steps to Strengthen Corporate Governance

The Company has worked continuously to strengthen corporate governance by taking steps such as separating supervision and execution functions through the introduction of the Executive Officer System, appointing and increasing the number of Outside Directors and Outside Corporate Auditors, establishing the CSR Committee and

the Risk Management and Compliance Sub Committee, evaluating the effectiveness of the Board of Directors, and establishing the Corporate Advisory Committee.

The Company will further strengthen the corporate governance system through measures such as managing compliance risks in its overseas operations.

### Kuraray's Efforts for Improving Corporate Governance Thus Far

2003

- Reduced the maximum number and the term of office of Directors
- Introduction of the Executive Officer System
- Increased the number of Outside Corporate Auditors from two to three  
**Purpose:** Strengthening the management monitoring function of Corporate Auditors
- Established the CSR Committee  
**Purpose:** Reinforced the Group's CSR promotion structure

2008

- Introduced two Outside Directors  
**Purpose:** Strengthening the management monitoring function of the Board of Directors
- Started early delivery of the notice of convocation of the ordinary general meeting of shareholders (at least three weeks before the date of the meeting)  
**Purpose:** Providing enough time for shareholders to examine each proposal
- Started uploading an English translation of the notice of convocation of the ordinary general meeting of shareholders to the TSE platform and the Company's website

2016

- Started Analysis and Evaluation of the Effectiveness of the Board of Directors

2017

- Established the Risk Management and Compliance Sub Committee  
**Purpose:** Promoted the development and operation of the Group's compliance structure

2018

- Established the Corporate Advisory Committee  
**Purpose:** The Management Advisory Committee was abolished as an advisory body to the President, and the “Corporate Advisory Committee,” comprised of Outside Officers and outside experts, was established as an advisory body to the Board of Directors.



## Key Points of Corporate Governance of the Kuraray Group

The key points of Kuraray's corporate governance are as follows:

- 1.** Kuraray has adopted the governance system as “company with board of corporate auditors” and established the Board of Corporate Auditors comprised of five Corporate Auditors, at least three of whom are Outside Corporate Auditors. It has done this to ensure the fairness and transparency of management.
- 2.** The Company has been appointing Outside Directors since 2008, and three Outside Directors are in office.  
  
The Company has established “Corporate Advisory Committee” comprised of Outside Officers and outside experts, as an advisory organ to the Board of Directors, with a view to enhancing transparency, fairness and objectivity in decision making concerning important matters of management, including nomination and remuneration of Directors, and further strengthening its corporate governance.  
The Corporate Advisory Committee is comprised of six members: three Outside Directors, one Outside Corporate Auditor and two outside experts, as of March 27, 2019.
- 3.**

## Corporate Governance System

### ■ Board of Directors and Business Execution Body

The Board of Directors (convenes at least once a month), according to the Board of Directors' Regulations, deliberates and decides important management matters, including legal matters, and supervises the execution of business. The maximum number of Directors is 12 in order to promote agile management decision-making by the Board of Directors, and the term of office is one year to clarify their responsibilities to the shareholders. There are currently 12 incumbent Directors, including three Outside Directors, whom one is female, with wealth of experience in and broad insight into economy, finance, management and corporate legal affairs. These three Outside Directors are supervising management from an independent third-party standpoint.

As the chief executive responsible for business execution, the President appointed by the Board of Directors exercises control over the execution of business in the Company and its subsidiaries (hereinafter “the Group”). Every executive officer (one-year term of office) appointed by the Board of Directors is responsible for business execution in the Group organization. As the heads of internal companies, divisions and major functional organizations, the executive officers bear responsibilities for operations and business results.

In this way, the Company clearly separates the

responsibilities of Directors, that is, decision-making on and supervision of management, from the responsibilities of business execution. Some Directors hold concurrent positions as executive officers. The President has established the Executive Committee (in principle, convenes twice a month) and various other councils and committees to deliberate and report on important matters concerning the Group's management policies and business execution.

### ■ Board of Corporate Auditors and Internal Audit

The Board of Corporate Auditors consists of five Corporate Auditors, of which four are males and one is female, and three of them are independent Outside Corporate Auditors, the majority thereof. The current number of Corporate Auditors is five, including three Outside Corporate Auditors with extensive experience in and broad insight into areas such as finance, law and management, who perform their duties from an independent third-party standpoint.

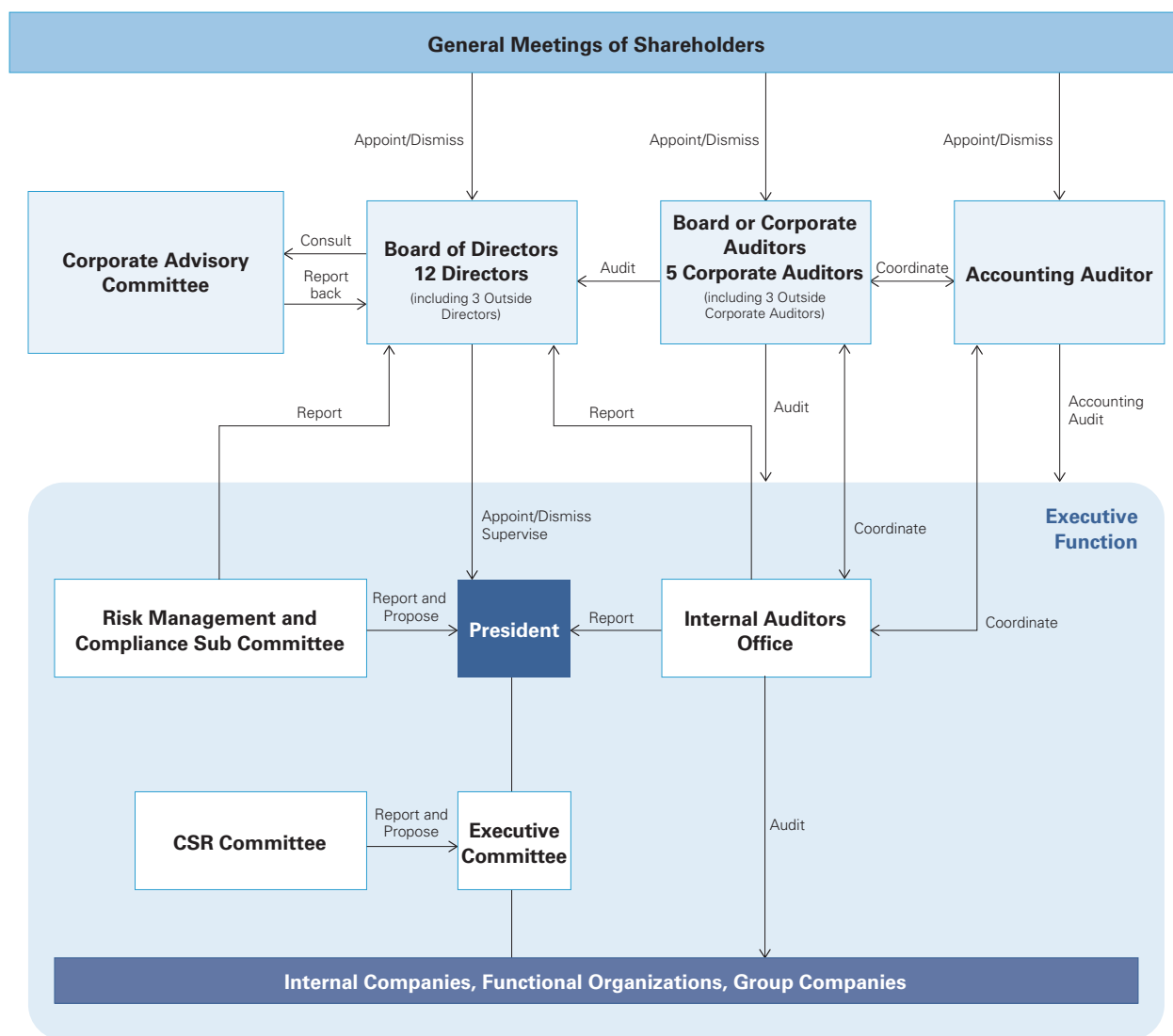
Corporate Auditors attend meetings of the Board of Directors and other important meetings, and monitor the Directors' execution of duties through inquiries conducted by such means as the examination of important documents and requests for explanations of the state of business affairs. In principle, the Board of Corporate Auditors convenes monthly.

• Corporate Governance •

The Corporate Auditors regularly have meetings with the Accounting Auditor receive reports on audit planning, implementation status and audit content. Also, they receive reports on internal audit results by the Internal Auditors Office (consisting of ten members). The

Corporate Auditors also serve as corporate auditors of core group companies to conduct group company audits as needed and attend periodic Group Auditor Liaison Meetings consisting of the group company auditors to deepen their understanding of each company.

Corporate Governance System (As of March 27, 2019)



## Policies for the Appointment of the Candidates for Directors and Corporate Auditors and the Independence Standards for Outside Officers

### ■ Policies for the Appointment of the Candidates for Directors and Corporate Auditors

(1) The Company appoints individuals who have experience, knowledge and capabilities required for Directors of the Company as candidates at the Board of Directors meeting with the attendance of Outside Officers and elect them as Directors with the resolution of the General Meeting of Shareholders. However, the candidates for Outside Directors shall satisfy the criteria of independence provided separately.

(2) The Company appoints individuals who have experience, knowledge and capabilities required for Corporate Auditors of the Company as candidates at the Board of Directors meeting with the presence of Outside Officers, and elect them as Corporate Auditors with the resolution of the General Meeting of Shareholders after obtaining the consent of the Board of Corporate Auditors. However, the candidates for Outside Corporate Auditors shall satisfy the criteria of independence provided separately.

#### ■ Independence Standards for Outside Officers

(1) The Company judges that its Outside Officers and the candidates for the Outside Officers are fully independent from the Company if they do not fall under any of the following items:

- (i) A business executive of the Group
- (ii) A counterparty which has transactions principally with the Group, or its business executive thereof
- (iii) A major business partner of the Group, or its business executive thereof
- (iv) A major lender of the Group, or its business executive thereof
- (v) A counterparty that receives a large amount of donations from the Group, or its business executive thereof
- (vi) A major shareholder of the Company (who possesses 10% or more of the total voting right either directly or indirectly), or its business executive thereof
- (vii) A business executive of the party whose major investor (who possesses 10% or more of the total voting right either directly or indirectly) is the Group
- (viii) A consultant, certified public accountant or other accounting professional, attorney or other legal professional who receives a large amount of monetary

or other assets from the Group other than the executive remunerations (in case of a legal entity, association or other organization, a person belonging thereto)

- (ix) A person who belongs to an accounting firm that conducts the statutory audit of the Company
- (x) A person who has fallen under the above criteria (i) in the past ten years
- (xi) A person who has fallen under any of the above criteria (ii) through (ix) in the past three years
- (xii) A person whose position constitutes him/her as having an Outside Officer's interlocking relationship with the Group
- (xiii) A relative of the persons listed in the above criteria (i) through (xi)

(2) Even in cases where a person falls under any of the above items, if the person is deemed to be appropriate for the post of an independent Outside Officer in light of his/her personality, knowledge and other qualities, the Company may appoint him/her as independent Outside Officer on the condition that the reasons why the person is deemed appropriate for the post are explained to the public.

## Directors' Remuneration System

#### ■ Policies for Determining the Remuneration for Directors

- (1) Remunerations for Directors are determined by taking into consideration the remuneration level of other companies and other factors so that the remuneration will function as one of the incentives for mid to long term and sustainable enhancement of the corporate value.
- (2) Remunerations for Directors are comprised of monetary remuneration consisting of fixed remuneration by position and performance-linked remunerations, and stock option-based remunerations. However, monetary remuneration for Outside Directors does not include performance-linked remunerations.
- (3) Remuneration for each Director is determined based on the calculation method stipulated by the Board of Directors within the limit amount resolved at the General Meeting of Shareholders. The remuneration for the President which serves as the basis for calculating the remuneration for each Director is determined after the deliberation at the Management Advisory Committee comprised of Outside Officers and outside experts.

Changes in the remuneration system and structure as well as the amount of remuneration for Directors are also determined by the Board of Directors after the deliberation at the aforementioned Management Advisory Committee.

#### ■ Performance-Linked Remuneration System

The Company abolished the bonus scheme to Directors and introduced a performance-linked remuneration system

in July 2006, thereby strengthening the incentives of Directors for increasing the Company's corporate value. In addition, to respond to the increase in the amount of performance-linked remuneration in conjunction with the improved business performance, it was resolved to increase the maximum amount of annual remunerations to Directors from ¥450 million to ¥800 million (including ¥100 million annually for Outside Directors) at the Company's 131st Ordinary General Meeting of Shareholders held on June 22, 2012.

#### ■ Calculation Method of Performance-Linked Remuneration

As a short term performance incentive, the performance-linked remuneration for the President shall be the amount that is obtained by multiplying the amount of actual consolidated net income for the prior fiscal year with a predetermined coefficient. The performance-linked remuneration for Directors shall be determined by dividing the said amount in proportion to the index corresponding to each position of Directors. The Company does not have a performance-linked remuneration system for Outside Directors based on the above calculation method.

#### ■ Remuneration-Type Stock Option Scheme

The Company abolished the prior severance and retirement benefits system for Directors in July 2006 and introduced a remuneration-type stock option scheme that entails the issue of share acquisition rights for the purpose of further boosting Directors' sensitivity and motivation towards improving the Company's performance. The stock option-based remunerations under this scheme shall not



## • Corporate Governance •

exceed ¥90 million, separately from the maximum amount of annual remunerations to Directors. The number of share acquisition rights to be granted shall not exceed 120

each year (The number of common stock to be issued upon exercise of share acquisition rights shall not exceed 60,000 shares each year.)

### Corporate Officer Remuneration for Fiscal 2018

Director classification	Total amount of remuneration, etc. (Millions of yen)	Total amount by type of remuneration, etc. (Millions of yen)		Number of eligible officers (persons) <sup>*1</sup>
		Monetary remuneration	Stock option-based remuneration <sup>*2</sup>	
Directors (excluding Outside Directors)	461	429	32	8
Corporate Auditors (excluding Outside Corporate Auditors)	55	55	—	3
Outside Officers	63	59	4	6

<sup>\*1</sup> The above number of eligible Directors and Corporate Auditors include one Director and two Corporate Auditors who retired at the close of the 137th Ordinary General Meeting of Shareholders held on March 23, 2018.

<sup>\*2</sup> Separately from the above stock option-based remuneration, share acquisition rights amounting to ¥21 million were granted to Directors who concurrently serve as Executive Officers (seven Directors) as stock option-based remuneration for Executive Officers.

## Evaluation of the Effectiveness of the Board of Directors

### ■ Analysis and Evaluation of the Effectiveness of the Board of Directors

#### (1) Analysis and Evaluation Method

The Company distributed “Questionnaire on Evaluation of the Effectiveness of the Board of Directors” (non-anonymous) to all the Directors and Corporate Auditors in December 2018 and collected responses and opinions from all members in January 2019. The secretariat of the Board of Directors aggregated the responses, and analyzed and evaluated the effectiveness of the Board of Directors based on the data.

#### <Questionnaire > (32 questions in total)

- Concerning Structure of the Board of Directors
- Concerning Agenda of the Board of Directors
- Concerning Operations of the Board of Directors
- Systems Outside the Board of Directors

#### (2) Outline of Analysis and Evaluation Results

The evaluation confirmed that the Company's Board of Directors is generally functioning properly and that the effectiveness of the Board of Directors is secured in all aspects such as its size, composition, diversity, agenda selection, the scope of matters to be discussed or reported, the timing for scheduling the Board of Directors meetings, frequency of the meetings, operations of the Board of Directors including deliberation time, provision of additional information to the Directors, systems outside the Board of Directors such as those for providing training opportunities, etc.

In light of the results from this evaluation, the Company will continue to examine and implement necessary measures to make discussions more lively and productive at the Board of Directors meetings.

## Cross-Shareholdings

The Company has set forth the policy on cross-shareholdings and standards for exercising voting rights pertaining to cross-held shares as follows.

1. Coming from the viewpoint of stable and long term business operation, the Company may hold the shares of its business partners, etc. if maintaining and strengthening the relationships with such business partners are deemed to contribute to corporate value enhancement.
2. Regarding the shares held pursuant to the preceding paragraph (hereinafter, “cross-held shares”), the Company regularly examines economic rationality and significance of holding individual stock at the Board of Directors meetings in consideration of benefits and risks associated with such holding, capital cost and other factors. The Company will sell shares of stocks, as necessary, whose holding was deemed not to be appropriate based on the examination to reduce such stocks.
3. Concerning the voting rights pertaining to the cross-held shares, the Company appropriately exercises such voting rights in light of the objectives of shareholdings set forth in the preceding two paragraphs, taking into consideration

the business conditions of the companies and potential impact to the business operation of the Company or a subsidiary of the Company (hereinafter “the Group”). Particularly, the Company carefully exercises such voting rights in a case where performance of the companies has been sluggish for a long period of time or a serious scandal has occurred or in a case where a proposal that would impair shareholders' value was made.

### ■ Content of Examination on the Propriety of Holding Cross-Held Shares

In the fiscal year ended December 31, 2018, the Company sold all shares of 8 stocks and part of 1 stock of its cross-held shares. Additionally, as the result of an examination at the Board of Directors meeting held on February 21, 2019 of the economic rationality and significance of holding individual cross-held stock for the fiscal year ended December 31, 2018 (examination on cross-held shares as of the end of December 2018) in consideration of benefits and risks, capital cost and other factors associated with such holding, the Company plans to continue with the sale of some stocks.

## Message from Outside Director



**Jun Hamano**

Outside Director

### **Establishing global governance while taking advantage of the strength of corporate culture**

In March 2016, I was appointed as an Outside Director and the fiscal year 2019 is my fourth year. During this period, I realized that discussions at meetings of the Board of Directors have become active over the years. In the past, discussions were made focusing on questions and answers from only one point of view, but recently discussions have been made from many different perspectives. In addition, a variety of opinions are expressed by Outside Officers who have different backgrounds and expertise. Furthermore, Outside Officers can attend meetings of the Board of Directors with a full understanding of the details of agenda thanks to clear explanations provided before the meeting is held.

In recent years, Kuraray has rapidly expanded its global business, but it seems that there is still room to improve the control by the Head Office over its overseas operations. I believe that improving the level of governance while supporting the optimization of local management according to the circumstances of each country is the key point for Kuraray to be recognized as a real global company. Moreover, the spirit of “For people and the planet—to achieve what no one else can” that is declared in the corporate statement is the greatest strength that Kuraray has cultivated. I believe that spreading the spirit, which demonstrates simultaneous development of both this enterprise and society, throughout local management will lead to the global development of Kuraray.

Last December, the Company established the Corporate Advisory Committee, which is comprised of Outside Officers and outside experts. Through experience as an Outside Director, I fully understood the role of the President and its weight of responsibility in the process of management. The Corporate Advisory Committee will properly discuss the election and dismissal process of the President, as well as the development of human resources who will be successors.

## Message from Outside Corporate Auditor

### **Provide support for further efforts from the sustainability perspective from the standpoint of an Outside Corporate Auditor**

I will fulfill my duties as an Outside Corporate Auditor and contribute to the development of the Company using my knowledge and experience from a standpoint that is different from that of a Standing Corporate Auditor who has an advanced knowledge of Kuraray's business and the ability to gather information, through analysis and evaluation as well as by expressing opinions from mainly three perspectives.

Firstly, an outside perspective referring to values of other business sectors and categories that are significantly different from Kuraray's corporate culture. Secondly, a global development perspective based on my experience, where I have engaged in overseas business over the years. Thirdly, the perspective of finance as a person having experience in banking and securities businesses, which promotes a dialogue between Kuraray and the capital market.

I believe that Kuraray is an honest Company group where employees are loyal to the Company and have a mindset of contributing to society. The Company has established a robust corporate governance framework, but it should continue to improve systems such as compliance, quality assurance and its system to deal with serious accidents or natural disasters, as well as strengthen internal controls and improve the reasonableness of management judgments. I hope that taking in different outside perspectives helps the Company strengthen its governance system.

Looking at the capital market, these efforts for taking in the sustainability perspective, which focuses also on such governance aspects, are currently vital, and so I believe that my experience in the financial industry might be helpful for Kuraray to promote a dialogue with the capital market. I will contribute to the development of Kuraray by fulfilling the role of an Outside Corporate Auditor.



**Mitsuhiro Nagahama**

Outside Corporate Auditor

## Executives (As of March 27, 2019)



### Board of Directors

Representative Director and President

- 1 Masaaki Ito** (Date of birth: June 23, 1957)

Director and Senior Managing Executive Officer

- 4 Hiroaya Hayase**  
(Date of birth: February 28, 1956)  
● President of Vinyl Acetate Film Company

Director and Managing Executive Officer

- 7 Yoshimasa Sano**  
(Date of birth: April 12, 1956)  
● President of Functional Materials Company

Outside Director (Independent Director)

- 10 Tomokazu Hamaguchi\*1**  
(Date of birth: April 20, 1944)

Representative Director and Senior Managing Executive Officer

- 2 Sadaaki Matsuyama**  
(Date of birth: October 18, 1950)  
● President of Fibers and Textiles Company, Officer Responsible for Osaka Head Office

Director and Managing Executive Officer

- 5 Kazuhiro Nakayama**  
(Date of birth: January 1, 1956)  
● Officer Responsible for Technology Division, Officer Responsible for Plants in Japan and Officer Responsible for Environmental and Industrial Safety Management Center

Director and Managing Executive Officer

- 8 Hitoshi Kawahara**  
(Date of birth: March 12, 1962)  
● President of Vinyl Acetate Resin Company

Outside Director (Independent Director)

- 11 Jun Hamano\*1**  
(Date of birth: February 27, 1951)

Director and Senior Managing Executive Officer

- 3 Kazuhiko Kugawa**  
(Date of birth: January 22, 1954)  
● Officer Responsible for Administrative Unit

Director and Managing Executive Officer

- 6 Kenichi Abe**  
(Date of birth: May 3, 1956)  
● President of Isoprene Company, General Manager of Elastomer Division, Isoprene Company

Director and Managing Executive Officer

- 9 Keiji Taga** (Date of birth: October 16, 1961)  
● Officer Responsible for Corporate Management Planning Office, Officer Responsible for CSR Division, General Manager of Corporate Management Planning Office

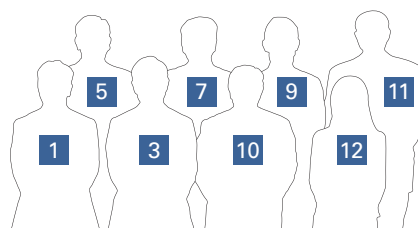
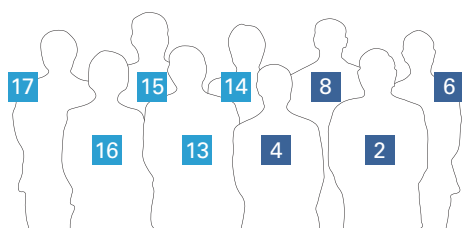
Outside Director (Independent Director)

- 12 Mie Fujimoto\*1**  
(Date of birth: August 17, 1967)

Apr. 1967 Entered Nippon Telegraph and Telephone Public Corporation  
Jun. 1995 Director, NTT Data Communications Systems Corporation (present NTT DATA Corporation)  
Jun. 1997 Executive Vice President, NTT Data Communications Systems Corporation  
Jun. 2001 Senior Executive Vice President, NTT DATA Corporation  
Jun. 2003 President & CEO, NTT DATA Corporation  
Jun. 2007 Director & Senior Corporate Advisor, NTT DATA Corporation  
Jun. 2009 Senior Corporate Advisor, NTT DATA Corporation  
Jun. 2010 Outside Director, East Japan Railway Company (Current position)  
Jun. 2013 Outside Director, Kuraray Co., Ltd. (Current position)  
Oct. 2014 Director, FPT Corporation (Current position)

Apr. 1974 Entered Economic Planning Agency of Japan  
Jul. 1999 Director, Minister's Secretariat Division, EPA  
Jul. 2004 Director General for Economic and Fiscal Management, Cabinet Office  
Jul. 2006 Vice-Minister for Policy Coordination, Cabinet Office  
Jul. 2008 Director General, Cabinet Office  
Jul. 2009 Vice-Minister, Cabinet Office  
Jan. 2012 Advisor, Cabinet Office  
Apr. 2013 Executive Advisor, DENTSU INC.  
Jun. 2014 Director, Ohara Healthcare Foundation (Current position)  
Jun. 2015 Chairman, the Institute for Science of Labour (present the Ohara Memorial Institute for Science of Labour) (Current position)  
Mar. 2016 Outside Director, Kuraray Co., Ltd. (Current position)

Apr. 1993 Registered with Daini Tokyo Bar Association  
Apr. 1993 Entered Shin-Tokyo Sohgo Law Office (later merged with Bingham Sakai Mimura Aizawa-Foreign Law Joint Enterprise)  
Jan. 2003 Partner, Shin-Tokyo Sohgo Law Office  
Jun. 2009 Outside Corporate Auditor, Kuraray Co., Ltd. (Current position)  
Apr. 2015 Partner, TMI Associates (Current position)  
Jun. 2015 Outside Audit & Supervisory Board Member, SEIKAGAKU CORPORATION (Current position)  
Jun. 2016 Outside Auditor, Tokyo Broadcasting System Holdings, Inc. (Current position)  
Jun. 2016 Outside Auditor, Tokyo Broadcasting System Television, Inc. (Current position)  
Mar. 2019 Outside Director, Kuraray Co., Ltd. (Current position)



\*1 Tomokazu Hamaguchi, Jun Hamano and Mie Fujimoto are Outside Directors.

\*2 Mitsuhiro Nagahama, Tomomi Yatsu and Kenji Komatsu are Outside Corporate Auditors.





## Corporate Auditors

### 13 Kunio Yukiyoishi

(Date of birth: May 2, 1951)

Corporate Auditor

### 15 Mitsuhiro Nagahama\*2

(Date of birth: October 24, 1953)

Outside Corporate Auditor (Independent Corporate Auditor)

Apr. 1976 Entered The Fuji Bank Limited  
Apr. 2002 General Manager, Americas non-Japanese Corporate Banking Division No. 2, Mizuho Corporate Bank, Ltd.  
Mar. 2003 Executive Officer and General Manager, Otemachi Corporate Banking Division No. 6 and No. 7, Mizuho Corporate Bank, Ltd.  
Apr. 2005 Managing Executive Officer in charge of corporate banking, Mizuho Corporate Bank, Ltd.  
Mar. 2006 Managing Executive Officer, Head of the Americas, Mizuho Corporate Bank, Ltd.  
Apr. 2010 Deputy President, Head of the Americas, Mizuho Corporate Bank, Ltd.  
Apr. 2013 Chairman of the Board, Mizuho Securities Co., Ltd. Chairman of the Board, Mizuho Securities USA Inc.  
Apr. 2015 Senior Adviser, Mizuho Securities Co., Ltd. (Current position) Chairman of the Board, Mizuho Securities USA Inc.  
Jun. 2015 Outside Audit & Supervisory Board Member, Azbil Co., Ltd. (Current position)  
Mar. 2018 Outside Corporate Auditor, Kuraray Co., Ltd. (Current position)

### 14 Yukinori Yamane

(Date of birth: September 9, 1955)

Corporate Auditor

### 16 Tomomi Yatsu\*2

(Date of birth: May 30, 1960)

Outside Corporate Auditor (Independent Corporate Auditor)

Apr. 1983 Entered Tokyo Electron Ltd.  
Oct. 1986 Entered Tohmatsu Awoki & Sanwa (present Deloitte Touche Tohmatsu LLC)  
Sep. 1990 Registered as a Certified Public Accountant  
Oct. 2001 Registered with Tokyo Bar Association  
Oct. 2001 Entered Shin-Tokyo Sohgo Law Office (later merged with Bingham Sakai Mimura Aizawa- Foreign Law Joint Enterprise)  
Jun. 2009 Outside Corporate Auditor, Calbee, Inc.  
Jun. 2010 Outside Corporate Auditor, Taiko Pharmaceutical Co., Ltd.  
Mar. 2012 Outside Corporate Auditor, KOKUYO Co., Ltd.  
Mar. 2015 Outside Corporate Auditor, Yamaha Motor Co., Ltd.  
Apr. 2015 Partner, TMI Associates (Current position)  
Jun. 2016 Outside Director, SMBC Nikko Securities Inc. (Current position)  
Jun. 2017 Outside Corporate Auditor, IHI Corporation (Current position)  
Mar. 2019 Outside Corporate Auditor, Kuraray Co., Ltd. (Current position)

### 17 Kenji Komatsu\*2

(Date of birth: March 24, 1953)

Outside Corporate Auditor (Independent Corporate Auditor)

Apr. 1978 Entered Mitsubishi Corporation  
Feb. 1996 Entered GE International Inc.  
Jul. 2005 Representative Director and President, Ecolab Inc. (present Ecolab GK)  
Apr. 2007 Ecolab Inc. Senior Vice President  
Dec. 2010 Senior Executive Officer, Sanden Corporation (present SANDEN HOLDINGS CORPORATION)  
Nov. 2011 Entered Bain Capital Asia, LLC  
Mar. 2013 Director, President and CEO, BELLSYSTEM24, Inc.  
Mar. 2016 Director and Chairman, BELLSYSTEM24 Holdings, Inc.  
Jun. 2016 Advisor, COACH A Co., Ltd. (Current position)  
Dec. 2018 Advisor, API Consultants CO., LTD. (Current position)  
Mar. 2019 Outside Corporate Auditor, Kuraray Co., Ltd. (Current position)

Please refer to our website for personal histories of Directors and Corporate Auditors.

 <https://www.kuraray.com/company/directors/>

## Executive Officers

Senior Managing Executive Officer **Hitoshi Toyoura**  
● President of Kuraray America, Inc.

Managing Executive Officer **Nobuhiko Takai**  
● Vice President of Functional Materials Company, General Manager of Carbon Materials Division

Executive Officer **Stephen Cox**  
● General Manager of PVB Division

Executive Officer **Toshihiro Omatsu**  
● General Manager of Isoprene Chemical Division

Executive Officer **Ichiro Matsuzaki**  
● General Manager of Kurashiki Plant

Executive Officer **Tomoyuki Watanabe**  
● Vice President of Vinyl Acetate Resin Company, General Manager of Poval Resin Division, Senior Manager of Poval Resin Sales Management Department

Executive Officer **Yoji Ikemori**  
● General Manager of Genestar Division

Managing Executive Officer **Tsugunori Kashimura**  
● Officer Responsible for Research and Development Division, Officer Responsible for Environmental Business Development and Promotion Division, General Manager of Research and Development Division, General Manager of Environmental Business Development and Promotion Division

Executive Officer **Akira Omura**  
● General Manager of Technology Division

Executive Officer **Toshinori Tsugaru**  
● General Manager of Okayama Plant

Executive Officer **Hajime Suzuki**  
● Vice President of Kuraray America, Inc.

Executive Officer **Takaharu Kawahara**  
● General Manager of Production and Technology Management Division, Vinyl Acetate Resin Company  
General Manager of Production and Technology Management Division, Vinyl Acetate Film Company

Executive Officer **Katsumasa Yamaguchi**  
● General Manager of EVAL Division

Managing Executive Officer **Matthias Gutweiler**  
● President of Kuraray Europe GmbH

Executive Officer **P. Scott Bening**  
● General Manager of WS Film Division, President of MonoSol, LLC

Executive Officer **Koichi Takano**  
● General Manager of Purchasing and Logistics Division

Executive Officer **Ikuo Nakamura**  
● General Manager of Clarino Division

Executive Officer **Fuyuo Ueyama**  
● Vice President of Calgon Carbon Corporation

Executive Officer **Stevan R. Schott**  
● General Manager of Calgon Carbon Division, President of Calgon Carbon Corporation

# • Sustainability Management •

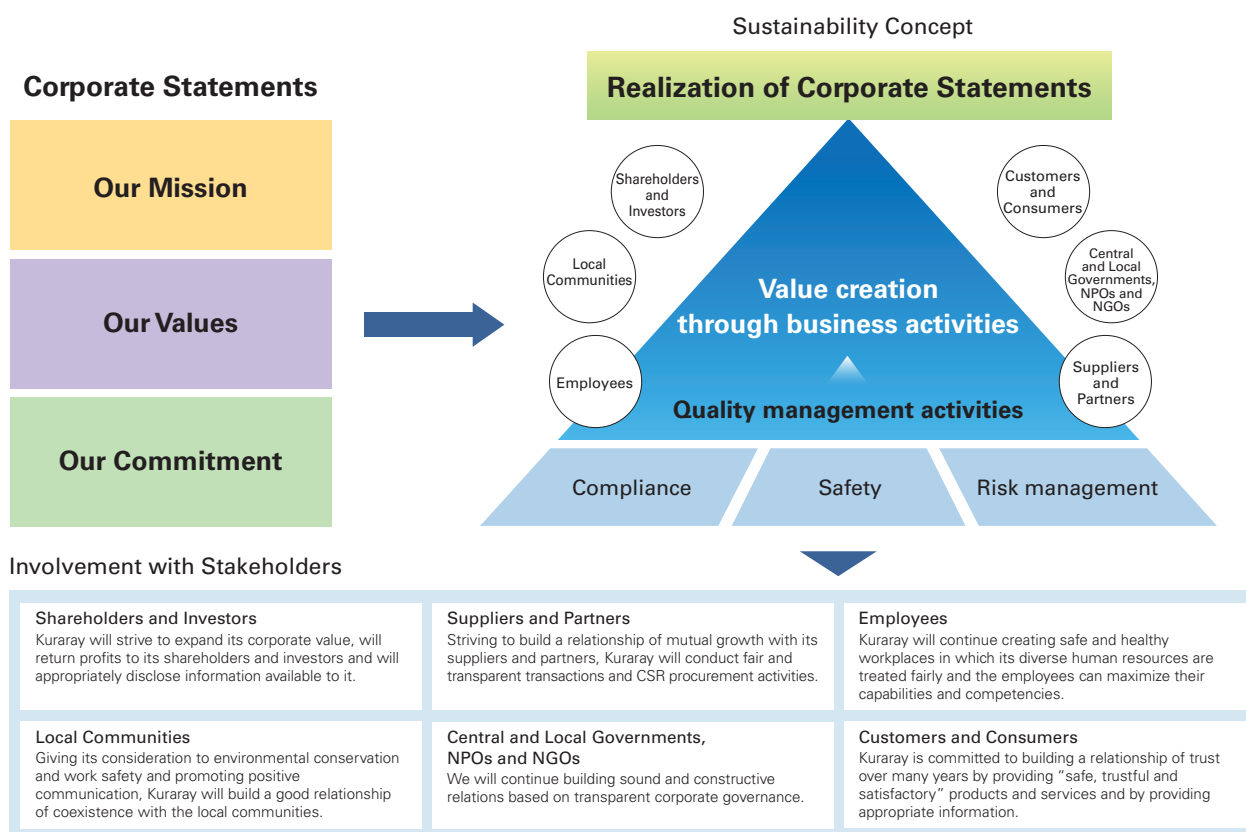
## Basic Approach

The Kuraray Group creates economic and social value through the provision of its excellent products and services to the market and aims to contribute to the realization of a sustainable society.

The Kuraray Group's business utilizing its unique technologies is related to various social issues such as resource saving, energy saving, environmental conservation, and improving the quality of life. The Group believes that its most fundamental responsibility is to resolve these issues, and therefore we aim to fulfill our corporate social responsibility by sustaining value

creation through quality management in manufacturing with compliance, safety, and risk management serving as a base.

The Kuraray Group's corporate activities are established by relationships with many stakeholders including customers and consumers, shareholders and investors, suppliers and partners, employees, local communities, and central and local governments. The Group will further deepen dialogue and cooperation with each stakeholder to realize sustainable growth.



## Stakeholder Communication

Stakeholders	Communication
Shareholders and Investors	General meetings of shareholders, plant tours, meetings to explain settlement of accounts
Suppliers and Partners	Purchasing activities, safety councils, liaison meetings, etc.
Employees	Employee awareness surveys, labor-management meetings, personnel evaluation interviews, company newsletter, various events
Local Communities	Responsible care regional dialogue, meetings to exchange views with local resident associations, plant tours, chemistry classes for boys and girls, cherry blossom viewing parties, summer festivals and other events
Central and Local Governments, NPOs and NGOs	Plant tours, firefighting drills, volunteer activities
Customers and Consumers	Sales and marketing activities, trade fairs (eco-friendly products fair and other fairs), questionnaires

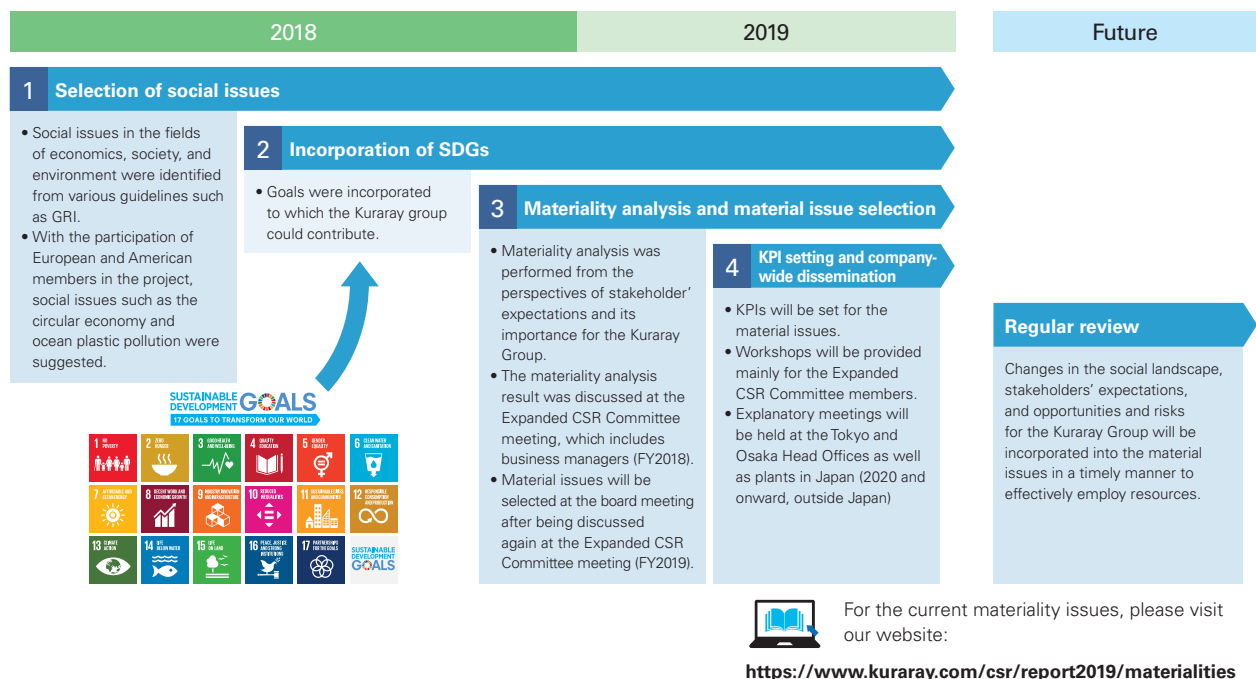




## Materiality of the Kuraray Group

The range of the Kuraray Group's material issues is currently under review. It will include some of the Sustainable Development Goals (SDGs), adopted at the

United Nations Summit in September 2015, that we can contribute to, and will be finalized by the end of FY2019. In addition, we will review it regularly.

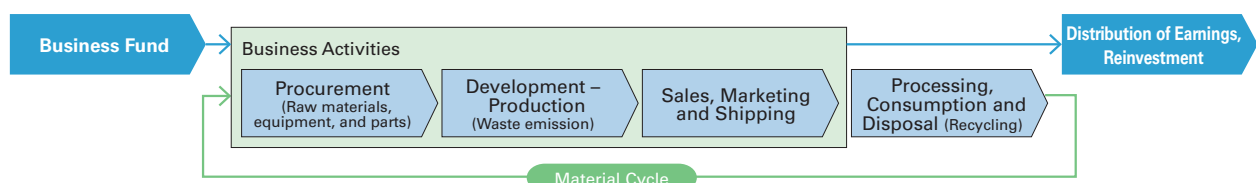


## Non-Financial Capital as a Foundation to Support Value Creation

Our corporate activities create a value chain in which we invest funds from shareholders and investors into the business, offer various top-level or one-of-a-kind products and services with higher added value, and distribute or reinvest financial value obtained through offering these products and services. To support the chain of value creation with the aim of sustainable growth and development, the Kuraray Group strives to strengthen its non-financial capital—including intellectual capital—that provides a broad spectrum of core technologies ranging

from materials technologies to those for processing, human capital to achieve human resource diversity, manufacturing capital such as a global production system, and social and relationship capital based on the trust of stakeholders. Furthermore, the Group views appropriate return of earnings to society including social contribution activities as an important responsibility to fulfill. It will also aim to create sustainable supply chain that is friendly to non-financial capital.

### Value Chain





## Advancing Resources That Support Sustainable Growth • Technological Development Capabilities •

### Basic Strategy for Research and Development

Competition is increasing in the chemicals industry due to the entry of companies from emerging countries and the commoditization of specialty chemicals is also underway. Technological development capabilities to create value-added products are increasing in importance as an essential management resource for maintaining and strengthening global competitiveness.

In corporate research and development, which is the

core of the Kuraray Group's technological development capabilities, projects that contribute to group-wide business expansion and profit increase are promoted under the corporate missions of "Create new businesses," "Strengthen and expand existing businesses," and "Establish and deepen core technologies" through close collaboration with in-house companies, business divisions, and R&D divisions in group companies.

### Research and Development Organization

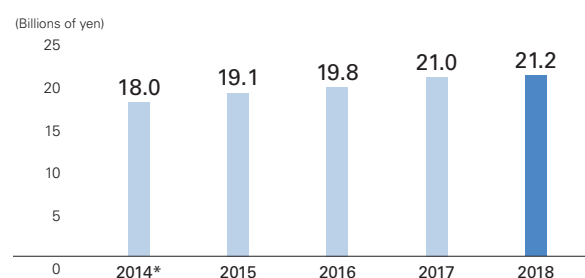
The Research and Development Division, which engages in corporate research and development, manages the Kurashiki Research Center, Tsukuba Research Center, KAI Corporate R&D (U.S.A), Functional Products Development Department, Molding Component Business Department, Vecstar Business Promotion Department, Intellectual Property Department, Market and Business Development Department, and Planning and Administration Department.

The two research centers promote research and development of new business, products, and technologies using their core technologies, which comprise organic synthesis and synthetic polymer technologies, catalytic chemistry, VA-related polymer materials technology, carbon materials technology, battery material design technology, precision polymerization and denaturation, molding, polymer processing, and computational chemistry. Taking advantage of their analysis and safety assessment techniques in addition to their research and development capabilities, the research centers also play a

role as analysis hubs for all Kuraray Group companies to solve their technical problems.

Each business division has its own R&D department at Kuraray Group's base plants. Including overseas bases, these plants engage in research and development activities while closely working with corporate and business divisions' research, development, and production bases.

### R&D Expenses



\* The figure for FY2014 is adjusted for the 12-month period from January to December 2014.

The Technology Division, which is responsible for corporate production technology development, manages the Technology Development Center and the Technology and Maintenance Management Department. It promotes progress in production technology by collaborating with the Production and Technology Management Division of each in-house company and the Production and

Technology Development Department of each plant. It has also begun collaborating with the Research and Development Division in the early stages of development to accelerate the evolution of new business and products. Since 2018, this department has taken the lead in implementing digital strategies for company-wide research and development as well as production technology.

## Priority Policy

Kuraray's corporate R&D activities are guided by its corporate missions to "Create new business," "Strengthen and expand existing business," and "Establish and deepen core technologies."

To promote "Create new business," our policy is to commercialize materials that society needs in areas where only Kuraray can commercialize them. Focusing on our strengths, we set our target in the area within "walking distance" from our home ground (existing business), repeatedly taking half-steps or full strides forward from the home ground to expand our business

into new domains.

To advance the concept to "Strengthen and expand existing business," every one of our business divisions and group companies collaborate in symphony to quickly resolve problems in production and development fundamentals to fortify Kuraray's core business.

To promote "Establish and deepen core technologies," we will establish and deepen necessary core technologies through the "Create of new business" and "Strengthen and expand existing business."

### R&D Focus

#### R&D Topic 1

##### VECSTAR™ Liquid Crystalline Polymer Film

There is increasing demand for high-speed signal transmission through high-frequency waves, such as vehicle-mounted millimeter-wave radar and 5G antennas. In this connection, the sales volume of VECSTAR™ increased due to its high reputation for low transmission loss in the high-frequency wave range and excellent workability as a flexible printed circuit board. This has led us to upgrade the existing production facilities in 2018. Since it is expected that demand for high-speed signal transmission will rise even faster, we are considering investments in full-scale mass production facilities, and will continue to actively expand this business.



#### R&D Topic 2

##### Polishing Pads for Semiconductors (CMP Pads)

Polishing pads for semiconductors are made of high-hardness polyurethane, a new material developed by leveraging the polyurethane design and manufacturing technologies cultivated through the development of CLARINO™ man-made leather. Multiple customers have begun the shift to Kuraray's CMP pads since their super-hard surfaces offer outstanding device polishing and smoothening capabilities, create few scratches despite their hardness, and deliver a long service life due to



their high abrasion resistance. We have a system in place to provide pads that meet customer needs, and overseas customers are increasingly rating the products. We will continue to refine the business structure to accommodate customer needs for both advanced and existing processes.



## Advancing Resources That Support Sustainable Growth • Human Resources •

### Basic Approach to Human Resource Management

Based on the Kuraray Group Global Human Resource (HR) Policy, the Kuraray Group is making efforts to develop its organizational system regarding the promotion of diversity, fostering of human resources, and fair and just evaluation

of performance, as well as establishing a healthy corporate culture and creating new employment opportunities, so that each employee can grow personally through work.

#### The Kuraray Group Global HR Policy

1. We will respect the human rights of individuals.	6. We will strive to employ personnel who are able to contribute to the development of the Kuraray Group.
2. We will abolish discrimination and respect diversity and individuality.	7. We will place the right person in the right job.
3. We will carry out our HR activities in full compliance with applicable laws and regulations.	8. We will implement evaluation and benefits systems that are fairly satisfactory.
4. We will create HR systems that uphold equality, fairness and transparency.	9. We will support professional development.
5. We will strive to improve the environment of workplaces.	10. We will strive to promote communication and disclose information as appropriate.

### Mechanisms and Systems for Human Resource Development

#### ■ Executives and Manager Candidate Development (EMT)

To strengthen our management capability, the Kuraray Group has been providing Executive Management Training since 2012 for our business heads, as well as those heading corporate and administrative divisions, in addition to the presidents and similar level personnel of the Group's subsidiaries outside Japan. Executive Management Training enables participants across businesses and regions to hold discussions and more fully perceive the direction the Kuraray Group should take. At each training seminar, we have first-rate consultants who provide information on a variety of themes to participants.

#### ■ Career Support (Career Training)

Amid rapid changes in the business environment, the Kuraray Group supports the career development of employees through the following systems to enable them to improve their human resource value independently and autonomously.

- (1) Training for designing one's own career  
We provide training for employees at turning-point ages at the Company (ages 30, 42, and 50) to give them opportunities to look back on their career and design their future career path. At the training, employees' superiors also receive guidance and participate in supporting subordinates' career development.
- (2) Provision of opportunities for career consultation  
We have in-house career advisors to help employees design their career and implement career programs.



### ■ Responding to Globalization of Operations (Global Talent Development Program)

Kuraray Group's sales ratio outside Japan has grown to 68% in fiscal 2018, and approximately 30% of the Group's employees are working in the Group's operations outside Japan.

In order to foster human resources who can actively take part in conducting business internationally with the aim of achieving growth on a global basis, the Kuraray Group has been providing the global human resource development program since fiscal 2007, and more than 800 employees in Japan and from overseas operations participated in the program over the 12-year period through fiscal 2018. This program has been provided continuously, with the content of training revised every year.

Global Team Training (GTT), designed to develop global leadership capabilities for the section manager class, has been provided 17 times, with a total of 300 employees participating. The network of training alumni has contributed significantly to the promotion of cross-border communication within the Group.

A trainee system, whereby younger employees are dispatched between the Head Office in Japan and overseas subsidiaries for a limited period of three months, has had about 100 employees participating, and many of the participants are actively taking part in conducting business internationally as global personnel by going on assignments to the Group's subsidiaries outside Japan after they finish the trainee program.

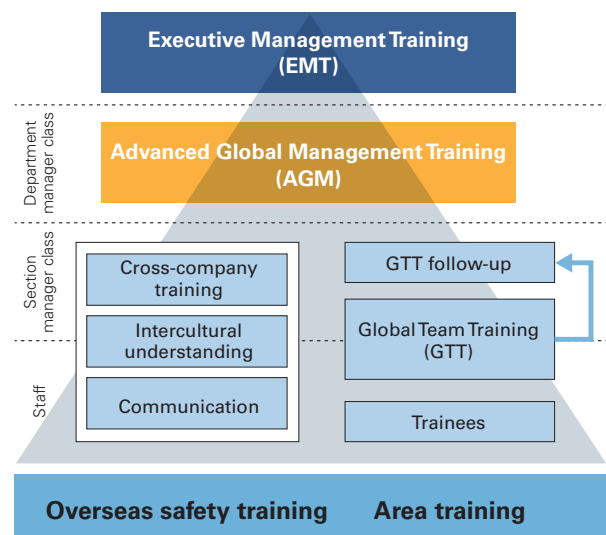
### ■ Global Human Resource Management

The Kuraray Group is developing a foundation for global human resource management to optimize the way we apply our human resources right across the Group's global operations. Specifically, in FY2017, the Group began phased introduction of globally standardized personnel evaluation and

information systems. With these systems in place, we plan to implement basic human resource management on a global basis that encompasses (1) work goal-setting and personnel evaluation based on those goals; (2) support for capability and career development; and (3) discovery of competent human resources, rotation and optimal allocation of human resources, and development of a succession plan.

Meanwhile, the globally standardized Kuraray Group behavioral index "Kuraray Competency 5x5" is being implemented and used as a personnel evaluation item and capability development benchmark. In addition, Kuraray sorted out job grades, which were different in each country and company, as global grades based on the duty size and is utilizing them for personnel allocation and selection of participants for human resource development programs.

### Global Talent Development Program



## Work-Style Reforms and Promotion of Diversity

### ■ Work-Style Reforms (Productivity Improvement, Working Hour Management, etc.)

Kuraray is promoting work-style reforms toward realizing the ideal work style conveyed in the Top Statement.

While driving the creation of a healthy corporate culture and employee mindset reform, Kuraray is also examining and implementing initiatives to enhance productivity and introducing flexible work programs. In FY2018, it launched the telework program at the Head Offices (Tokyo and Osaka). Also, the rate of taking paid holidays by regular employees, excluding managers, was about 84%.

Furthermore, to support employees' active engagement in productivity improvement, by the end of this mid-term management plan, Kuraray will start paying employees the amount equivalent to overtime compensation for overtime hours reduced from the previous year.

### ■ Promotion of Women in the Workplace

Kuraray is placing emphasis on creating a corporate culture to promote more active participation by female employees with a focus on three points—employing more female employees, expanding areas of their responsibility at work and improving retention of female employees. It is doing this in order to enhance its organizational strengths by making the most of the abilities of its diverse human resources. Specifically, we provide workshops for employees in managerial positions (division general manager class and department general manager class) and training for female employees aimed at fostering career development and leadership development, etc.

#### The ideal work styles

- Carry out your tasks with awareness of regular work hours.
- Aim to deliver high-quality work within a given time.
- Cooperate with the people around you and share an efficient work style throughout the whole workplace.
- Keep in mind to get refreshed and stay in good physical condition to gear up for your next work day.





## Advancing Resources That Support Sustainable Growth • Safety Activities •

### Kuraray's Approach to Safety

In the Kuraray Group's business activities, safety is the cornerstone, an absolute requirement that forms the basis for all activities. Realizing workplaces where people can safely work at ease without accidents is an important theme we need to work on to maintain stable supply of products and continue to be trusted by society.

Based on this view, the Kuraray Group develops and operates safety management systems and conducts various activities. We are putting various measures in place to raise employee awareness of safety and establish

safe actions and safety checks as routine practices.

At each workplace, we carry out risk assessments to evaluate the risk of process accidents and occupational incidents, promote fundamental equipment safety measures, and prevent accidents and incidents. In order to prepare for such situations, we share information such as cases of process accidents and occupational incidents, are preventing recurrence by horizontal deployment of measures, and are training to minimize damage.

### Safety Activity Management

In accordance with Corporate's Safety Activity Management Rules, the Kuraray Group develops safety activity plans every fiscal year and operates them to ensure occupational safety and process safety. Specifically, at the Safety Promotion Committee attended by the President and executives in charge, we carry out an overall assessment of the safety activity performance of the current year and decide an activity policy for the next fiscal year. Each plant and department conducts safety activities in accordance with their action plans that reflect the determined activity policy. Safety personnel from the Head Office, including the executives in charge, visit each plant in Japan twice a year to check the activity plan, progress, and outcomes. Head Office staff members visit overseas affiliates once every three years to examine the same. Problems identified in onsite checks and the annual safety performance rating are used for overall performance evaluation. The evaluation results are

incorporated into company-wide policy making and the safety activity management system for the next year.

In 2018, we held the Global Meeting at the Okayama Plant, where Japanese and overseas environment and industrial safety personnel gathered to introduce their safety activities and exchange opinions. The meeting will take place again in the next fiscal year and onward.

In FY2018, there were eight accidents of minor leakages of hazardous materials and one accident of a minor fire in an exhaust duct in Japan. Overseas, meanwhile, there was also one accident of fire at the startup of plant, causing injuries. There were ten process accidents for the whole group. The frequency rate of all occupational incidents deviated far from the evaluation criteria both inside and outside Japan. As a result, we could not achieve the goals. The Kuraray Group will address the problems identified and work to improve safety for the whole group.

## Targets and Performance in Safety Priority Activities

Evaluation: ○ Accomplished, △ Nearly accomplished, × Not accomplished

Item	FY2018			FY2019 safety activities items
	Targets	Performances	Evaluation	
Process Safety and Disaster Prevention, Occupational Safety	Promotion of integration of safety activities and daily operation (tasks)	Safety activities which had been perfunctory were reviewed and improved. We are embedding that into the flow of daily operations.	○ - △	● Prevention of occupational injuries caused by careless or involuntary behavior of individuals
	Cultivation of a sense of acceptance of the value of safety activities	We conducted personal interviews to foster employees' understanding of the activity objectives. The resulting implementation of creative frameworks to encourage them to proactively think and act has motivated them to engage in these activities.	○ - △	● Transition to situation where all employees actively take part in safety activities
	Implementation of measures to discover latent risks and to minimize actualization risks	Detecting and addressing risks during preparation, in work during free moments, and during failures and problems have now become established practice. Moreover, the quality of emergency drills has improved and abnormality criteria are now clear.	○	● Promotion of work place improvement (facilities and operation) by realizing when something feels wrong
	Prevention of occupational incidents caused by the unsafe or unconsidered behaviors of individuals	Employees were instructed to pause for a moment and check before carrying out work by, for example, pointing and calling. However, incidents due to individuals' careless or unthinking behavior still occur frequently, and continued efforts are required to minimize these behaviors.	△	● Prevention of process accidents/troubles by making thorough "Check"
	Creation and operation of the global safety management system	Kuraray created and operated the Global Safety Activity Management System covering global operations. In April, Japanese and overseas safety personnel met in Okayama for the Global Meeting and exchanged information.	○	● Implementation of measures to discover latent risks that can lead to process accidents and minimize the occurrence of those risks ● Reliable operation of the Global Safety Activity Management System

## Numerical Targets and Results

	FY2018			FY2019	
	Targets	Criteria for evaluation	Actual results	Targets	Criteria for evaluation
Process safety	Japan	Zero	Zero process accidents	Whole group (Japan, Overseas)	Zero
	Overseas	Zero	Zero process accidents		
Occupational safety	Japan	Zero	Zero A, B rank incidents* <sup>1</sup>	Whole group (Japan, Overseas)	Zero
	Overseas		Zero A, B rank incidents* <sup>1</sup>		
	Japan		The frequency rate of all occupational incidents* <sup>2</sup> : 0.5 or less		
	Overseas		The frequency rate of all occupational incidents* <sup>2</sup> : 3.0 or less		

\*1: An indicator unique to Kuraray that rates the seriousness of an occupational incident based on the probability of potential disability and the seriousness of the flaw that caused the injury. Ranks A and B denote serious incidents.

\*2: The number of occupational incidents requiring medical treatment per one million work hours (based on US OSHA Recordable Incident).

## Chemical Products and Product Safety

To ensure our products are safe, each business division of the Kuraray Group companies evaluates and improves its products using the risk management method when developing a new product or managing product changes. For products that require a particularly stringent safety evaluation, such as those using nanomaterials or that are ingested, a deliberation committee mainly comprising the CSR Division checks their safety.

In the area of chemical management, these divisions use IT systems and constantly educate managers and staff members in charge of chemicals management to ensure compliance with laws and regulations that are increasingly tightening around the world. The divisions also work with overseas group companies to conduct studies and share information to achieve group-wide effective chemicals management.

## Focus

## The First Global Environment and Industrial Safety Meeting

With the expectation of synergy and sharing of the philosophy and policy on environment and industrial safety, the first Global Meeting was held at the Okayama Plant. KAI and MonoSol from the US, KEG from Germany, EE from Belgium, KAP from Singapore, Plantic from Australia, MonoSol from the UK, Kuraray Korea from South Korea, and personnel from environment and industrial safety divisions in Japan gathered for the conference. Although it was only the first meeting, the participants introduced their safety activities and actively exchanged opinions, providing a good opportunity for information sharing. It will take place again in the next fiscal year and onward.





## Advancing Resources That Support Sustainable Growth • Environmental Management •

### Kuraray's Approach to Environment-Friendly Manufacturing

We believe that the Kuraray Group's mission is to manufacture basic and intermediate materials that will contribute to creating a low-carbon and eco-friendly society and minimize their environmental impact as much as possible. Drawing from this philosophy, the

Kuraray Group is continuing to conserve the environment by promoting measures to combat global warming, curb chemical emissions, and effectively use by adopting global manufacturing.

### Environmental Management System

The Kuraray Group has established the Kuraray Group Environmental Policy and is promoting environmental conservation activities. These activities are in the P (plan) D (do) C (check and evaluate) A (act and improve) cycle for

constant improvement according to the Kuraray Group Environmental Activity Management Rule. Kuraray plants and affiliates have acquired ISO 14001 certification and completed updating it to the 2015 version by May 2018.

### Kuraray Group Environmental Policy

The Kuraray Group has established the following policy to contribute to the sustainable development of society and fulfill its responsibilities to future generations through business activities in harmony with environment.

#### Basic Policy

1. We give maximum consideration to the environment in conducting our business operations.
2. We conduct perpetual environmental improvement activities.
3. We develop technologies and products which contribute to improvement of the environment.

Activity item	FY2018 targets	Results
Global warming prevention	<ul style="list-style-type: none"> <li>Kuraray Group in Japan:               <ul style="list-style-type: none"> <li>Implement measures to reduce GHG emissions by 13,000 tons-CO<sub>2</sub> or more.</li> <li>Add at least 1% to the GHG emission intensity index*<sup>1</sup> from the previous year.</li> </ul> </li> <li>Overseas affiliates:               <ul style="list-style-type: none"> <li>Add at least 1% to the energy intensity index from the previous year.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Kuraray Group in Japan:               <ul style="list-style-type: none"> <li>Implemented measures to reduce GHG emissions by 13,000 tons-CO<sub>2</sub>.</li> <li>The GHG emission intensity index fell by 3.5% from the previous year.</li> </ul> </li> <li>Overseas affiliates:               <ul style="list-style-type: none"> <li>The energy intensity index rose by 3.6% from the previous year.</li> </ul> </li> </ul>
Effective utilization of water resources	<ul style="list-style-type: none"> <li>Kuraray Group in Japan:               <ul style="list-style-type: none"> <li>No specific numerical targets were set.</li> </ul> </li> <li>Overseas affiliates:               <ul style="list-style-type: none"> <li>Add at least 1% to the water (excluding sea water) usage amount index*<sup>1</sup> from the previous year.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Kuraray Group in Japan:               <ul style="list-style-type: none"> <li>Efforts were made to use water more effectively.</li> </ul> </li> <li>Overseas affiliates:               <ul style="list-style-type: none"> <li>The water (excluding sea water) usage amount index*<sup>1</sup> rose by 24.3% from the previous year.</li> </ul> </li> </ul>
Management of chemical substance emissions	<ul style="list-style-type: none"> <li>Kuraray Group in Japan:               <ul style="list-style-type: none"> <li>Reduce the amount of JCIA-designated PRTR substance emissions*<sup>2</sup> to less than 957 tons. (Keep it below the FY2016 result.)</li> </ul> </li> <li>Overseas affiliates:               <ul style="list-style-type: none"> <li>No specific numerical targets were set.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Kuraray Group in Japan:               <ul style="list-style-type: none"> <li>JCIA-designated PRTR substance emissions were 1,004 tons.</li> </ul> </li> <li>Overseas affiliates:               <ul style="list-style-type: none"> <li>Chemical emissions regulations were observed in each country/area.</li> </ul> </li> </ul>
Reduction of waste	<ul style="list-style-type: none"> <li>Kuraray Group in Japan:               <ul style="list-style-type: none"> <li>Implement measures to reduce waste by the equivalent of 1% relative to FY2016 level (900 tons) or more.</li> <li>Reduce the amount of disposal to landfill to less than the FY2016 result (251 tons).</li> </ul> </li> <li>Overseas affiliates:               <ul style="list-style-type: none"> <li>No specific numerical targets were set.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Kuraray Group in Japan:               <ul style="list-style-type: none"> <li>Implemented measures to reduce waste by 2,327 tons.</li> <li>The amount of disposal to landfill was 330 tons.</li> </ul> </li> <li>Overseas affiliates:               <ul style="list-style-type: none"> <li>Legal requirements were observed in each country/area and efforts were made to reduce and quantitatively manage the amount of waste produced.</li> </ul> </li> </ul>
Environmental accounting	—	<ul style="list-style-type: none"> <li>The amount of investment for environmental conservation: ¥1,153 million (FY2017: ¥752 million)</li> <li>The cost of environmental conservation activities: ¥2,402 million (FY2017: ¥2,399 million)</li> </ul>

\*1: Intensity index: A value obtained by dividing equivalent production by environmental impact. The 2016 result was set to 100.

\*2: JCIA-designated PRTR substance: Specific chemical substances in the Law concerning Pollutant Release and Transfer Register (PRTR Law) and substances targeted under voluntary control standards set by the Japan Chemical Industry Association (JCIA).

## Environmental Performance

The Kuraray Group in Japan met the target of reducing at least 13,000 tons-CO<sub>2</sub> of greenhouse gas (GHG) emissions (from FY2017) by reducing 13,000 tons-CO<sub>2</sub>. It however failed to achieve the GHG emission intensity index target (FY2018 target: at least 1% increase from FY2017) with the result of a 3.5% decrease from FY2017. Although the total GHG emissions decreased by 10,000 tons-CO<sub>2</sub> from FY2017, the decrease in production (equivalent production) caused a further decrease in the GHG emission intensity index.

The Group achieved the FY2018 target of waste reduction by at least 900 tons with the result of a 2,327-ton decrease. On the other hand, it did not meet

the target of keeping the emissions of JCIA-designated PRTR substances below the FY2016 result (957 tons). The FY2017 result was 1,004 tons.

Overseas affiliates met the target of adding 1% to the energy intensity (production) index and the water usage amount (production) index from the previous year. The energy intensity index rose by 3.6% from FY2017, and the water usage amount index increased by 24.3% from FY2017. The significant improvement in the water usage amount index was the result of upgrading exhaust gas treatment equipment (scrubber system), which required a large amount of water, to a thermal oxidizer at some production bases.

### Kuraray Insight

#### Environmental Data Audit

In FY2018, the Kuraray Group audited the environmental data of plants and affiliates in Japan. While problems such as falsification of quality or quality check data are occurring at famous companies in Japan, the Kuraray Group focused not only on quality check data but also on environmental data, and reexamined if those data have been properly handled, managed, reported and submitted to the government.

As a result, the Kuraray Group confirmed that effluent, air emission, wastes, and discharging of chemicals (PRTR substances) measurement data for manufacturing sites were appropriately managed and stored in verifiable state, and that environment-related reports and notifications were submitted appropriately based on actual measurement data. The Kuraray Group will audit environmental data to prevent problems from occurring.





Photo to through the courtesy of JOICFP

## Advancing Resources That Support Sustainable Growth • Trust •

### Social Contribution Activities

With the understanding that sound and sustainable social development is a requirement for corporate growth and prosperity, we, the Kuraray Group, contribute to society through our products and businesses that provide value to people and, as a corporate citizen, address social issues within a reasonable scope.

### Kuraray Group Social Contribution Policy

The Kuraray Group shall make vigorous approaches to social contribution activities in accordance with the following policy.

#### Types of activities

Activities that lead to a resolution of social issues  
Activities rooted in local communities where Kuraray's plants and sites are located  
Activities emphasizing participation by employees on their own initiative  
Activities that are sustainable in the long term

#### Areas of activities

Priority areas: Culture, social welfare, environment, and science

#### Activities in Culture Field

The Kuraray Group supports the Ohara Museum of Art—Japan's first privately owned art museum—in Kurashiki, the place where our company began, and cultural activities at our plants and facilities.



The Ohara Museum of Art

#### Activities in Social Welfare Field

With the goal of supporting the employment, maintaining the employment level, and increasing the employment opportunities for individuals with intellectual disabilities, the Kuraray Group operates workshops for them at plants and donates to the Kuraray Fureai (Rapport) Fund (a matching gift program).



Kurashiki: Kurashiki Workshop

#### Activities in Environmental Field

The Kuraray Group hosts greening activities such as forest conservation and cleanup volunteering around our plants.



Okayama: cleanup of Lake Kojima basin

#### Activity item

Contribution in cultural, academic, environmental and social welfare fields

#### Target

- "Sending School Backpacks Across the Sea"
- "Chemistry Classes for Boys and Girls"
- Operating workshops for people with intellectual disabilities
- "Kuraray Fureai Fund"
- Activity with emphasis on link to local community

#### Results

Activities were undertaken with a focus on the culture, art and science, environment and welfare fields in accordance with the Kuraray Group Social Contribution Policy.



### Global Initiative to Foster Interest in Chemistry

Plants in Japan hold Chemistry Classes for Boys and Girls to foster interest in chemistry. This initiative began in Japan and workshops now also take place in the US and Germany. For example, Kuraray America, Inc. hosted a chemistry class for local children. They made slime and kaleidoscopes using poval resin to experience the fun of chemistry. Also, volunteer employees offered a plant site tour and explained Kuraray's business. Meanwhile, Kuraray Europe GmbH invited a teacher and 18 students from a local school to the Poval plant in the Höchst Industrial Park. These students were at the age of Japanese senior high school students and wanted to major in chemistry. The plant manager gave a Poval plant tour and outlined its production. One of the participants commented that, "I now have a much clearer picture of my career as a potential future chemist."



Okayama Fun  
Chemistry  
Class



Kuraray Europe



For more details, please visit our website:

[https://www.kuraray.com/csr/report2019/relationship\\_with\\_society](https://www.kuraray.com/csr/report2019/relationship_with_society)

### Risk Management and Compliance

To strengthen the mechanism of promoting risk management and compliance, Kuraray separated the Risk Compliance Committee from the CSR Committee in FY2017. The Risk Compliance Committee now reports directly to the Board of Directors. With the Risk Compliance Committee placed at the core, the Kuraray Group will conduct activities to realize the implementation of priority countermeasures against critical risks, ensure strict compliance with laws and regulations, uphold corporate ethics, and ensure fair business practices.

### Risk Management

In the Kuraray Group, each year the President announces to the whole organization the basic risk management policy and risk management tasks for the fiscal year.

#### FY2019 Kuraray Group Risk Management Policy

##### Basic policy

- (1) Completely prevent illegal or inappropriate conduct that betrays the trust of society.
- (2) Completely prevent accidents and injuries (e.g., process accidents, occupational injuries, pollution, and product defects) that threaten the health and safety of employees, the local community, clients, partners, and so on.
- (3) Should an event occur that seriously impacts the business or society, be sure to secure trust from society, safety, and health, and implement measures to achieve business continuity or early recovery. (Prioritize trust from society, safety, and health, and then work to continue or restore the business.)

##### Tasks for the fiscal year

- (1) Reexamine the risks of violating laws such as the Anti-Monopoly Law and fully implement appropriate measures.
- (2) Completely check, improve, and modify the quality assurance system to enhance its reliability.
- (3) Recognize the importance of information and data, and strengthen the security measures.

Based on these tasks, the Group ensures that each business unit can flexibly and promptly accommodate changes in the risk environment while maintaining the long-term, continued approach to address risks.

The head of each business unit identifies, self-assesses, and appropriately addresses the risks for his/

her business unit. From these risks, the Risk Compliance Committee selects important ones to manage at the management level, reports them to the management and the Board of Directors. Executives in charge to promote prioritized measures are designated.



For more details, please visit our website:

<https://www.kuraray.com/csr/report2019/riskmanagement>

### Quality Management

The Kuraray Group implements quality management systems such as ISO 9001 in each major manufacturing site. Divisions have developed systems for each business operation to supply products incorporating the requirements of customers. Aiming to strengthen quality management for the whole group, in 2017, business divisions and the CSR Division worked together to create a PDCA cycle for company-wide progress checks on issues introduced the previous year and on performance

of improvement activities. In 2018, the PDCA cycle was used to share the outcomes of each division's quality improvement activities, provide education using the Kuraray Group Quality Handbook, and develop internal quality assurance rules to meet heightened demand from customers and society.

The Group will continue to run this PDCA cycle to strengthen quality management for the entire group.

## Group Compliance

"Our Commitment" states the principles of our conduct which we should adhere to in doing our business. The "Kuraray Group Code of Conduct" serves as guidelines to implement the commitment in performing day-to-day work. The Group's top executive has declared that we will comply with laws and regulations and "Our Commitment" under any and all circumstances. To share these principles and commitments among all Kuraray Group personnel throughout the world, the Compliance Handbook has been compiled containing the foregoing declaration by the top executive and explanations of the "Kuraray Group Code of Conduct." To disseminate these principles and commitments among all Kuraray Group employees, a compliance handbook written in ten languages,

Japanese, English, German, Chinese, Hangul, Russian, Flemish, Czech, French and Italian has been distributed to the Group employees worldwide.

In addition, we have appointed compliance officers at plants and overseas offices of Kuraray and Group companies, and have organized regional compliance committees. The regional committees are working to effectively implement not only Group-wide targets decided by the Risk Management and Compliance Subcommittee but also region-specific ones.



Compliance Handbook

## Whistleblower System

As a whistleblower system to prevent, identify and troubleshoot any compliance violation at an early stage, the Kuraray Group Employee Counseling Room has been set up for all employees of the Kuraray Group in Japan, including contract employees, temporary and part-time employees. A whistleblower contact desk is also provided for major subsidiaries in Europe and North America.

Due to the recent rapid globalization of the Kuraray Group through M&A and other events, we created access to the contact desk for overseas subsidiaries that hadn't had one yet. By the end of FY2018, all group companies

got to be access the contact desk.

The internal compliance seminar, which began in 2017, raised the recognition of the Kuraray Group Employee Counseling Room. The number of consultations seems to reflect such heightened recognition.

### Number of Consultations at the Kuraray Group Employee Counseling Room in Japan



### Thorough Compliance Measures

In March 2016, the Fair Trade Commission of Japan made an on-the-spot inspection of Kuraray, involving competitive bidding on textile products purchased by the Acquisition, Technology and Logistics Agency, Defense Ministry. Subsequently, in March 2017, the commission ruled that Kuraray had violated the Anti-Monopoly Law and issued a cease-and-desist order.

Following an on-the-spot inspection, the Kuraray Group implemented various measures to ensure observation of the Anti-Monopoly Law and compliance with it.

Despite these efforts, the Fair Trade Commission again made an on-the-spot inspection in February 2017 regarding manufacturing and sales of activated carbon for use in facilities such as water purification facilities and waste incinerators. The Group took this event seriously and sincerely. We fully cooperated with the Commission during the inspection and implemented the following measures to prevent the issues from recurring and ensure compliance.

#### ■ Anti-Monopoly Law

Between 2017 and 2018, Kuraray in Japan introduced an internal system that requires advance approval for bid participation and transactions and meetings with competitors to monitor bid participation and competitor

contact. Bid results are audited annually.

For overseas operations, between 2017 and 2018, Kuraray created guidelines on compliance with the Anti-Monopoly Law and bribery act and distributed them to employees in each region. The company also provided training to employees of overseas subsidiaries on the Anti-Monopoly Law and bribery act, and interviewed them to grasp the situation.

#### ■ Compliance Seminar

Since 2017, department-based compliance education has been provided to all group employees in Japan (including contractors, temporary employees, and part-time employees).

In the training held in 2018, employees discussed compliance violation case studies with their department members. Through such training, Kuraray aimed to create a work environment where employees can always exchange honest opinions. We believe that compliance violations can be prevented if department members always pay attention to each other and are able to talk to coworkers, superiors, or supervisors when they have questions or worries. Kuraray will continue holding similar training in futures.

## Corporate Overview

Company Name	Kuraray Co., Ltd.
Representative Director and President	Masaaki Ito
Established	June 1926
Head Office	Ote Center Building, 1-1-3, Otemachi, Chiyoda-ku, Tokyo 100-8115, Japan
URL	https://www.kuraray.com
Capital	JPY89 billion
Employees (Consolidated)	10,768
Group Companies	77 consolidated subsidiaries, 3 equity-method affiliate
Major Operations	The United States, Germany, Belgium, China, Singapore

## Major Shareholders (As of Dec 31, 2018)

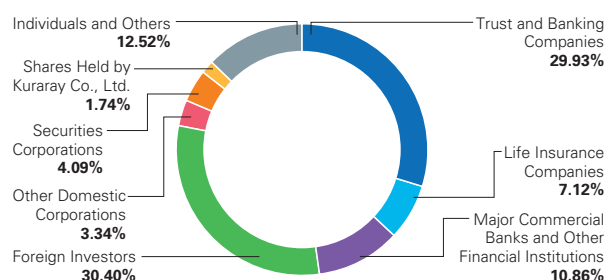
Name of shareholders	Number of shares held (thousands)
The Master Trust Bank of Japan, Ltd. (Trust Account)	40,318
Japan Trustee Services Bank, Ltd. (Trust Account)	24,629
National Mutual Insurance Federation of Agricultural Cooperatives	10,882
Nippon Life Insurance Company	10,448
Japan Trustee Services Bank, Ltd. (Trust Account5)	6,479
Meiji Yasuda Life Insurance Company	5,969
STATE STREET BANK WEST CLIENT - TREATY 505234	5,851
Japan Trustee Services Bank, Ltd. (Trust Account7)	5,776
STATE STREET BANK AND TRUST COMPANY 505001	5,765
NOTHERN TRUST CO. (AVFC) RE - SSD00	5,442

Note: Kuraray Co., Ltd. holds 6,179,578 shares of treasury stock.

## Stock Information

Securities Code	3405
Issued and Outstanding Shares	354,863,603 shares
Number of Shareholders	47,260
Domestic Stock Exchange Listing	Tokyo Stock Exchange
Shareholder Register Agent	Sumitomo Mitsui Trust Bank, Limited 1-4-1, Marunouchi, Chiyoda-ku, Tokyo 100-8223, Japan
Independent Auditor	PricewaterhouseCoopers Aarata LLC

## Shareholder Composition (Shareholding Ratio)



## Kuraray Group Network (As of January 1, 2019)

### Domestic

#### Group Main Bases

Head Office (Chiyoda-ku, Tokyo)  
 Osaka Office (Osaka)  
 Kuraray Trading Co., Ltd. (Osaka)  
 Kuraray Noritake Dental Inc. (Chiyoda-ku, Tokyo)  
 Kuraray Plastics Co., Ltd. (Osaka)  
 Kuraray Engineering Co., Ltd. (Osaka)  
 Kuraray Techno Co., Ltd. (Osaka)  
 Kuraray Kuraflex Co., Ltd. (Osaka)  
 Kuraray Fastening Co., Ltd. (Osaka)

#### Plants

Kurashiki Plant (Kurashiki City, Okayama)  
 Saijo Plant (Saijo City, Ehime)  
 Okayama Plant (Okayama City, Okayama)  
 Niigata Plant (Tainai City, Niigata)  
 Kashima Plant (Kamisu City, Ibaraki)  
 Tsurumi Plant (Bizen City, Okayama)

#### Laboratories

Kurashiki Research Center (Kurashiki City, Okayama)  
 Tsukuba Research Center (Tsukuba City, Ibaraki)

### Overseas

#### Regional Headquarters

Kuraray America, Inc. (Texas, U.S.A.)  
 Kuraray Europe GmbH (Frankfurt, Germany)  
 Kuraray Asia Pacific Pte. Ltd. (Singapore)  
 Kuraray (Shanghai) Co., Ltd. (Shanghai, China)  
 Kuraray Hong Kong Co., Ltd. (Hong Kong, China)  
 Kuraray India Private Limited (New Delhi, India)  
 Kuraray South America Ltda. (São Paulo, Brazil)  
 Kuraray (Thailand) Co., Ltd. (Bangkok, Thailand)

#### Plants

Kuraray America, Inc. (Texas, North Carolina, and West Virginia, U.S.A.)  
 MonoSol Holdings, Inc. (Indiana, U.S.A., Worcestershire, U.K.)  
 Kuraray Europe GmbH (Frankfurt and Troisdorf, Germany)  
 EVAL Europe N.V. (Antwerp, Belgium)  
 OOOTROSIFOL (Nizhny Novgorod, Russian)  
 Kuraray Asia Pacific Pte. Ltd. (Singapore)  
 Kuraray Methacrylate (Zhang Jia Gang) Co., Ltd. (Zhang Jia Gang, China)  
 Kuraray Chemical (Ningxia) Environmental Industry Co., Ltd. (Ningxia, China)  
 Kuraray Korea Ltd. (Ulsan, South Korea)  
 Plantic Technologies Limited (Victoria, Australia)  
 Calgon Carbon Corporation (Pennsylvania, Kentucky, and Mississippi, U.S.A., U.K., France, and other countries)

#### Laboratory

KAI Corporate R&D (Texas, U.S.A.)



## KURARAY CO., LTD.

Head Office: Ote Center Building, 1-1-3, Otemachi, Chiyoda-ku, Tokyo 100-8115, Japan

TEL: +81-3-6701-1000 FAX: +81-3-6701-1005

<https://www.kuraray.com>



Issued in May 2019

