

The Kurita Group's Businesses

Opportunities and Risks in Business Flow

Post-COVID-19 Domestic Growth Strategy

The various constraints on our lives caused by the COVID-19 outbreak have also led to changes in the domestic water treatment market, which has been growing at a slow pace in recent years. We have seen a spike in interest from customers in automation, labor-saving and remote monitoring, not just to boost productivity, but also to ensure business continuity. We think those needs will accelerate the introduction of IoT, AI, sensing and other digital tools in customer businesses. We also expect those trends to spur the creation of new markets where we can offer our total service contract-based solutions. At the same time, our existing lineup of worksite-based services, such as water sampling at customer sites and offsite analysis, have seen a decline in value and are likely to be superseded by digital services using automated monitoring systems and other tools. Kurita has always recognized the need to accurately identify the fundamental issues faced by customers in order to develop and provide optimal solutions, but that approach is likely to become even more important going forward. If we fail to address and adapt to these changes, we could lose our markets to competitors. Going forward, the Kurita Group will redeploy human resources to optimal roles and take other steps to build a sales team that can provide value that customers really want.



Yoshio Yamada
Executive General Manager of Japan Sales Business Division

Delivering an Unprecedented Manufacturing User Experience to Customers

More than ever, society needs efficient manufacturing systems that ensure worker safety and business continuity. Our division is working to address those needs by harnessing digital transformation (DX) and human resources (HR) tech. In manufacturing, DX is focused on the construction of digital twin simulators (DTS) to drive the automation of design processes. DTS can be used to assemble virtual facilities based on customer specifications for water quality, facility scale and other criteria. It also allows designers to visualize facility expansion several years after construction and the potential for savings in running costs. All this information is shared with customers. Moreover, improvements in facility design using DTS can be combined with HR tech, which uses a scientific approach to optimize the management and development of human resources, resulting in the deployment of the right people and teams within the Engineering division. By seeing risks and changes as opportunities to overhaul production systems and strengthen cost control, we aim to become an evolving engineering group that always stays ahead of the competition by providing customers with an unrivaled user experience (UX).



Hirohiko Ejiri
Executive General Manager of Engineering Division

The Kurita Group's Business Flow



Digital Strategy Is Key to Change

The Group's integrated digital strategy is vital to the success of business model creation and business process reforms. Big data gathered from numerous water treatment facilities and AI technologies developed by Kurita subsidiary Fracta present us with major opportunities in new business model creation. By combining our expertise in water treatment with automated operation, remote monitoring, AI and other technologies, we can optimize facility operation and implement predictive maintenance that helps customers boost productivity and achieve labor savings. Communication using digital technologies will also improve the efficiency of our sales activities by creating various points of contact with customers. Moreover, by building an IT system platform, we will be able to share information across the Group, making cooperation easier between Kurita sites worldwide. However, if we fail to keep up with the shift to digital technologies, there is a risk that competitors from other sectors will move into our markets. Not only that, we could fall behind the sector in data utilization and expose ourselves to the risk of information leaks. Kurita will accelerate the implementation of its digital strategy, aiming to maximize opportunities and minimize risks.



Toshitaka Kodama
Executive General Manager of Digital Strategy Division

Providing New Value Based on Customer Needs

Product innovation is vital to dismantle preconceived ideas and drive the transformation in our business from selling products to selling services and value. Society and our customers will face a different set of priority issues during and after the COVID-19 outbreak, which offers new opportunities for innovation, such as combining products with facility operation management and other services. We anticipate growing demand for solutions that are compatible with fewer workers in factories and that ensure business continuity during a crisis or disaster. We also expect customers to realign their global production sites and supply chains. In response, the Kurita Group sees an opportunity to provide new value by developing proprietary solutions models that support region-wide improvements in water and energy efficiency. However, any failure to maintain high-quality communication with customers could see the Group lag behind changes in society and markets, resulting in opportunity losses. By accurately predicting changes in our markets and fine-tuning our ability to understand customer needs, business process and business model reforms are likely to translate into new value.



Masaya Kawai
Executive General Manager of Solution Business Division

Driving DX in Water Treatment

In line with the MVP-22 medium-term management plan, the Kurita Group aims to create new products and technologies that will become the core of its total solutions. As part of those efforts, we are developing new water treatment technologies that utilize IoT and AI. The COVID-19 outbreak is spurring greater need for technology that allows customers to operate manufacturing and assembly sites with fewer personnel, which is likely to accelerate the pace of DX in order to boost productivity and ensure business continuity. That presents a major business opportunity for the Kurita Group. Conversely, the Group faces a number of risks if it lags behind peers in new technology development. To ensure that does not happen, we are working to develop innovative chemicals and units for water treatment and stepping up the development of remote monitoring and diagnostic systems, facility optimization control technology and water treatment simulation technology incorporating IoT and AI. Drawing on the Group's many years of expertise in water treatment, as well as engineering theory and data gathered from customers' sites, we plan to formulate mathematical models for complex water treatment phenomena and integrate them with IoT and AI to develop unrivalled, unique DX technologies. We aim to use those technologies to create solutions that provide real value to customers.



Tatsushi Kuramae
Executive General Manager of Research and Development Division

Reinforcing Our Global and Local Organizations

The Kurita Group plans to respond to customer needs by using its business platform established through M&A to create an optimum global and local framework. At the local level, we started work by integrating four subsidiaries in North America into a newly formed company called Kurita America Inc. in April 2020. In East and Southeast Asia, we are also deploying regional managers to oversee operations in each region and accelerate efforts to offer total solutions that cover water treatment chemicals, water treatment facilities and maintenance. At the global level, we plan to create a global network to provide services related to the RO membrane-related services supplied by Kurita subsidiary Avista Technologies. As the impact of COVID-19 becomes more widespread, the Group's businesses are increasingly seen as vital to society. In many countries, Kurita is being asked by customers to help them ensure their businesses continue to operate. To support business continuity plans, we are using online channels to respond to customers, while the provision of remote services is likely to create opportunities to develop new markets. We will also strive to fulfill our corporate social responsibility, globally and locally, by helping customers tackle and solve various issues while balancing efficiency and risks.



Yasuo Suzuki
Executive General Manager of Global Business Division

The Kurita Group's Businesses

R&D and Intellectual Property

R&D Promotion Framework

The Kurita Group uses R&D to reinforce core business technologies, such as boiler and cooling water treatment technology, ultrapure water production technology, wastewater treatment technology, water reclamation technology, and soil and groundwater remediation technology. The Group also strives to enhance fundamental technologies that support those areas, such

as diagnostic technology, analysis technology and new materials development. The Group's development centers in Japan, Germany, Singapore and other countries work together in those areas by exchanging research engineers and conducting joint research in order to maximize the Group's technical and personnel resources.

Achievements in the Fiscal Year Ended March 31, 2020

Research and Development Bases	Kurita Global Technology Center (Japan), Kurita Europe GmbH (Germany), Kurita R&D Asia Pte. Ltd. (Singapore) and other sites	
R&D staff	Approx. 180	
R&D expenses	¥5.7 billion (2.1% of net sales)	
Main Results	Water Treatment Chemicals	<ul style="list-style-type: none"> Developed an automated sludge dehydrating control system that optimizes the volume of chemical additives to improve sludge dehydration in wastewater treatment processes Developed an onsite system to produce microorganism growth inhibitors in factory and air-conditioning cooling water systems and in blow-water reclamation and reuse systems Developed chemicals to reduce the cost of manufacturing decorative paper and to make the paper stronger when wet
	Water Treatment Facilities	<ul style="list-style-type: none"> Developed technology to reduce the time needed to restart production lines after installing or replacing water treatment membrane units in ultra-pure water production systems Developed control system technology to ensure the stable generation of methane gas from various types of waste in biogas power generation facilities, which convert methane gas from the fermentation of food leftovers and other waste into energy Developed technology to rapidly decontaminate highly polluted soil and groundwater below factories and other buildings, and simulation technology that forecasts the required decontamination time based on the level of pollution

Initiatives in the MVP-22 Medium-Term Management Plan

Under the MVP-22 plan, the Kurita Group is using R&D to create core products and technologies for the CSV business and total solutions, and to reinforce the Group's technological foundation. R&D is divided into four themes – product development, advanced technology development, advanced digital technology development, and reinforcing the Group's technological foundation – which are managed separately in line with the characteristics of each theme.

In product development, we are developing technologies for products and solutions to support the creation of service contract-based businesses that address the needs of society and our customers from the standpoint of water and energy efficiency and waste reduction. At the same time, in advanced technology development, we are stepping up efforts to create advanced technologies by prioritizing development resources on key projects to support our business strategy, while using also working with external research partners in Japan and overseas through open innovation.

In advanced digital technology development, we are mainly working on the development of technologies that use IoT and AI to

optimize and automate water treatment processes in order to improve the profitability of ultra-pure water supply facilities and service contract-based businesses.

To reinforce the Group's technological foundation, we focus on understanding the mechanisms and limitations of water treatment processes to support product development, and on creating mathematical models for IoT- and AI-based water treatment technologies. We are also working to establish ultra-pure water analysis technology, which will be required for next-generation semiconductors.

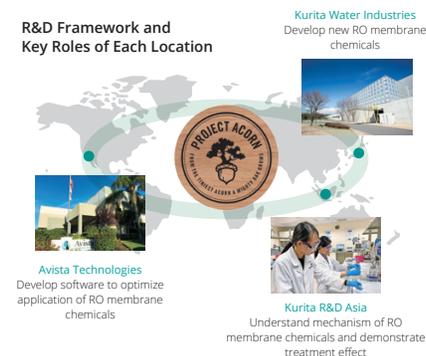
The Kurita Group plans to relocate the functions of the Kurita Global Technology Center to a newly constructed technology center in Akishima, Tokyo in April 2022. The relocation will allow Kurita to address issues with ageing facilities at the current site and accelerate the development of advanced technologies and total solutions related to water and the environment. Positioned as the core site in the Group's global R&D framework, the new technology center is designed to be an open research and development facility that drives innovation by drawing on ideas from interactions with customers and various other stakeholders.

TOPICS

Project Acorn: Kurita launches global project to develop RO membrane chemicals

In January 2020, the Kurita Group launched Project Acorn, a global initiative aimed at expanding its business by enhancing the capabilities of reverse osmosis (RO) membrane chemical solutions. Under the project, we aim to create a global product lineup and support network for RO membrane chemicals by combining the innovative products and technologies of US Group company Avista Technologies, Inc., a leading player in RO membrane chemicals, with the Group's products and technologies in Japan, Asia and Europe. These efforts will be backed by a brand marketing strategy and an optimized supply chain. In research and development, we have formed a single team of RO membrane chemical engineers from the US, Japan and Singapore. The team is leveraging the strengths of each Group research center to develop new chemical products, application evaluation technology and chemical application software.

R&D Framework and Key Roles of Each Location



Utilizing Intellectual Property

The Kurita Group strives to secure and appropriately manage intellectual property to increase the competitiveness of its core products and technologies in Japan and overseas. In the fiscal year ended March 31, 2020, we worked to acquire intellectual property rights to support the Company's efforts to promote total solutions and establish a global business framework. In promoting total solutions, we need to build solution models that incorporate products and sales methods and that can be deployed horizontally. However, to leverage these models as a strength of the Company, each model must be protected as intellectual property. In the fiscal year under review, we identified the sources of the Group's competitiveness from the solutions model development stage, earmarked them for patent protection and worked to create a patent network covering patents for fundamental technologies and patents for business models. We also adjusted the reward payment system for employee inventions and started operation of the system to support the development of solutions businesses.

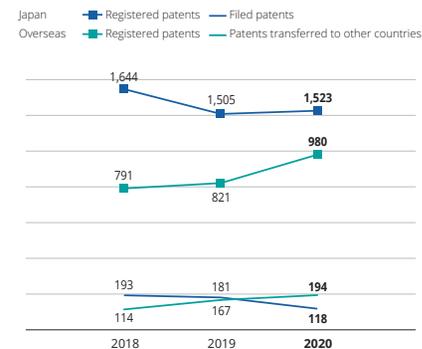
In the fiscal year ended March 31, 2020, the total number of domestic patent applications filed by the Company was 118, lower than in the previous fiscal year, but the number of solutions business-related patents increased. In addition, the Group transferred a record 194 patents* to other countries, spurred by the Group's overseas business expansion.

Going forward, we will continue to protect the Group's intellectual property by building a patent network for total solutions and by strengthening patent protection for strategic products overseas. In addition, the Group faces a growing risk of

intellectual property infringement as its global business expands. To mitigate that risk, we will establish rules and conduct training to ensure all Group employees comply with intellectual property rights.

* Total number of patents transferred to other jurisdictions under the Patent Cooperation Treaty (PCT) and patents filed in other countries and regions not party to the PCT.

Patent filings and registrations Fiscal years ended March 31



The Kurita Group's Businesses

Review of Operations by Segment: **Water Treatment Chemicals**

Results in the Fiscal Year Ended March 31, 2020

Orders **¥113,777** million **+10.5%** ↑

Year-on-Year Change

Business Profit **¥11,667** million **+19.2%** ↑

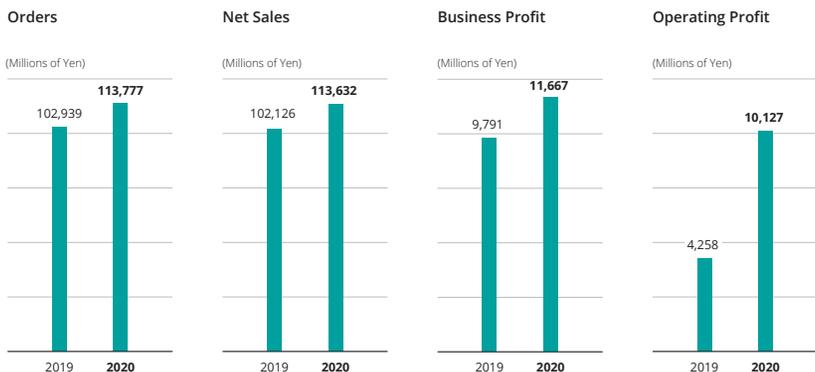
Year-on-Year Change

Net Sales **¥113,632** million **+11.3%** ↑

Year-on-Year Change

Operating Profit **¥10,127** million **+137.8%** ↑

Year-on-Year Change



Fiscal years ended March 31

Overview of the Fiscal Year Ended March 31, 2020

Orders and Net Sales

In Japan, orders declined slightly and net sales edged up 1% year on year. Demand was firm overall in the first half of the fiscal year, but demand started to weaken from the second half as the economy lost momentum. Overseas, orders and net sales both increased sharply, reflecting the consolidation of the water treatment chemicals business of U.S. Water Services, Inc., as well as Avista Technologies, Inc. and Avista Technologies (UK) Ltd. Excluding the consolidation of those businesses, net sales declined year on year. Three main factors weighed on net sales: the transfer of the aluminum compounds business in Europe at the end of the first half of the previous fiscal year, which led to lower sales in the first half of the year under review, yen appreciation against other currencies, and moves to streamline and rationalize low-margin product lines in each market as part of efforts to improve profitability. The COVID-19 outbreak had only a minimal impact on orders and net sales in the fiscal year under review.

Business Profit and Operating Profit

Business profit increased year on year despite the decline in sales after excluding new consolidations. Profit growth was supported by an improvement in the cost of sales ratio on the back of product line rationalization and other initiatives, and by tighter control of selling, general and administrative expenses. Again, there was only a modest impact on business profit from the COVID-19 outbreak.

Principal Products and Services

01

Boiler water treatment chemicals

Boilers are widely used for production processes in plants and air conditioning in office buildings. Boiler water treatment chemicals are used to prevent faults that may arise in boilers and ensure stable, efficient operation. They also help to save energy by preventing loss of heat efficiency in the boiler.



02

Cooling Water Treatment Chemicals

Cooling water treatment chemicals are used to treat cooling water used in plants and office buildings. By preventing problems in pipes and heat exchangers and inhibiting the growth of harmful Legionella bacteria in cooling towers, these chemicals help to save resources and energy and contribute to safer workplaces.



03

Wastewater Treatment Chemicals

Wastewater treatment chemicals are used to treat the many forms of industrial wastewater discharged by plants and domestic sewage to prevent any negative impact on the local environment. Proper treatment of wastewater contributes to the reduction of environmental impact.



04

Process Treatment Chemicals

Process treatment chemicals are used in manufacturing processes in the oil refining, petrochemical, steel, and pulp and paper industries, where they help to maintain and improve production efficiency and product quality.



05

Reverse Osmosis (RO) Membrane Treatment Chemicals

RO membrane treatment chemicals remove suspended solids that can reduce the filtering performance of RO membranes used in wastewater reclamation and seawater desalination facilities. By preventing clogging of the membranes, the chemicals contribute to stable, efficient operation of the facilities.



06

Treatment Chemicals for Automobile Painting Booths

Water treatment chemicals that separate residual paint contained in water in automobile painting booths ensure that circulating water is of appropriate quality, helping to improve productivity and reduce environmental impact.



07

Treatment Chemicals for Incinerators

Treatment chemicals for incinerators provide consistent treatment of hazardous substances, such as heavy metals contained in fly ash, and control emissions of dioxins, thereby helping to reduce environmental impact.



08

Treatment Chemicals for Civil Engineering

In civil engineering projects, the Group uses chemicals to develop greenspaces, treats construction sludge appropriately and reduces sprayed concrete dust, among other applications.



09

Chemical Dosing and Injection Equipment

The Kurita Group provides water treatment-related equipment for a wide range of applications, such as automatic water quality management systems that use chemical dosing and injection equipment and sensing technologies. By enabling stable operation of customers' facilities, this equipment contributes to labor saving and reduced environmental impact.



The Kurita Group's Businesses

Review of Operations by Segment: **Water Treatment Facilities**

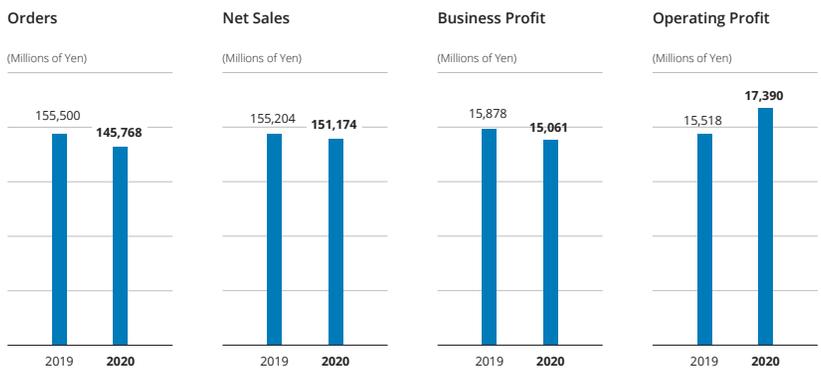
Results in the Fiscal Year Ended March 31, 2020

Orders **¥145,768** million Year-on-Year Change -6.3% ↓

Business Profit **¥15,061** million Year-on-Year Change -5.1% ↓

Net Sales **¥151,174** million Year-on-Year Change -2.6% ↓

Operating Profit **¥17,390** million Year-on-Year Change +12.1% ↑



Fiscal years ended March 31

Overview of the Fiscal Year Ended March 31, 2020

Orders and Net Sales

In Japan, orders and net sales for equipment supplied to the electronics industry declined year on year, reflecting a pullback from major projects booked in the previous fiscal year. Net sales from maintenance services provided to the electronics industry increased, supported by demand from customers that increased production capacity and upgraded facilities. Orders for water treatment systems for general industrial use declined due to a tighter focus on high-margin projects, but progress with work on major orders secured in the previous fiscal year led to higher sales. In soil remediation, orders and net sales declined, reflecting a drop-off in orders and net sales from major projects. In the domestic ultrapure water supply business, revisions to a contract for one customer pushed down sales, but sales increased overall due to the start of new water supply contracts.

Overseas, orders for water treatment facilities increased, mainly reflecting the consolidation of results from the water treatment facility business of U.S. Water Services, Inc. However, sales declined year on year due to a pullback from multiple major orders booked in the previous fiscal year and a negative impact on sales in yen terms amid yen appreciation against overseas currencies.

Business Profit and Operating Profit

Business profit declined year on year. The cost of sales ratio for water treatment facilities improved due to efforts to tightly control expenses after one-off additional costs were booked in the previous fiscal year, while profits from maintenance services for the public sector and from chemical cleaning also increased. However, those positives were outweighed by the impact of weaker sales from water treatment facilities for the electronics industry in Japan and overseas.

Operating profit increased year on year. The business recorded a loss on the sale of fixed assets related to the sale of research and development facilities, which was booked under other expenses, but that was outweighed by a gain on the sale of fixed assets related to the sale of some buildings and facilities in the ultrapure water supply business.

Principal Products and Services

01

Ultrapure Water Production Systems

Ultrapure water production systems remove ions, microscopic particles and bacteria from water to produce water that is as close as possible to theoretically pure H₂O—an essential ingredient in the production of semiconductors and FPDs.



02

Water Treatment Systems for General Industrial Use

Kurita provides water treatment systems to cover a wide range of industrial uses, including water for food products and beverages, and boiler water for use in the electric power and steel industries.



03

Wastewater Treatment Systems

Wastewater treatment systems detoxify the many forms of wastewater discharged by plants to ensure that it does not negatively impact the surrounding environment.



04

Wastewater Reclamation Systems

Kurita provides systems for reclaiming and recycling wastewater. Moreover, by reclaiming valuable substances included in the wastewater, the systems help to conserve resources and reduce costs.



05

Maintenance Services and Systems Management

Kurita provides maintenance services to prevent deterioration in performance and problems arising in water treatment facilities and to meet client needs for lower environmental impact and greater productivity. Kurita also manages systems and facilities for clients.



06

Ultrapure Water Supply Business

Kurita installs water treatment systems at customers' plants, handles the operation and maintenance of those systems, and charges customers for the supply of ultrapure water. This service reduces the level of investment required and the burden of system operation management for customers.



07

Tool Cleaning

Using its own facilities, Kurita cleans and removes any deposits that adhere to tools and jigs used by customers in the manufacture of semiconductors and FPDs. The provision of tool cleaning services helps customers to maintain and improve productivity.



08

Soil Remediation

Kurita conducts pollution assessments and remediation of soil and groundwater polluted by harmful substances. Using various decontamination methods, Kurita helps customers to hedge against the risk of soil pollution. Other services include support for the effective use or sale of restored land.



09

Chemical Cleaning

Kurita provides chemical cleaning services using chemicals and high-pressure water to clean accumulated deposits from boilers, heat exchangers and pipes, ensuring that large-scale plants such as industrial complexes and electric power plants continue to operate safely and efficiently.

