



Evolving unique chemical company

First Quarter, 2019 Financial Results

- Consolidated -

SHOWA DENKO K.K.

May 9, 2019

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Director & Corporate Officer

Performance forecast and other statements pertaining to the future as contained in this presentation are based on the information available as of today and assumptions as of today regarding risk factors that could affect our future performance. Actual results may differ materially from the forecast due to a variety of risk factors, including, but not limited to, the economic conditions, costs of naphtha and other raw materials, demand for our products such as graphite electrodes and other commodities, market conditions, and foreign exchange rates. We undertake no obligation to update the forward-looking statements unless required by law.

Consolidated Companies

- Consolidated subsidiaries: 57 (1 company excluded)
 - 1 company newly consolidated
 - SHOKO Electronics K.K. (Electronics)
 - 2 companies excluded
 - SHOWA DENKO CARBON Shanghai Co., Ltd. (Inorganics, liquidation)
 - SHOTIC (Singapore) Pte Ltd. (Aluminum, liquidation)
- Equity method applied: 11
 - Newly applied or excluded: none

Selected Data

(Average figure)

	Jan.- Mar. 2018	Jan.- Mar. 2019	Increase/ decrease
■ Exchange rates:			
¥/US\$	108.3	110.2	Yen depreciated by ¥1.9/\$
¥/€	133.2	125.2	Yen appreciated by ¥8.1/€
■ Domestic naphtha price: ¥/KL	47,900	41,200	-6,700
■ Aluminum			
LME price: US\$/T	2,163	1,881	-283
Domestic market*: K¥/T	289	258	-31

Exchange rate at December 31, 2018 ¥111.0/US\$, at March 31, 2019 ¥111.0/US\$

*Domestic market:
data from Nikkei

Summary

(Unit: Billions of Yen)

	CQ1, 2018	CQ1, 2019	Increase/ decrease	2019 1H forecast*
Net Sales	214.7	234.7	20.0	520.0
Operating Income	34.3	45.4	11.1	91.0
Non-operating income and expenses, net	-1.6	-1.2	0.4	-0.5
Interest/Dividends income and expenses	-0.3	0	0.3	
Equity in earnings of affiliates	0.6	-0.5	-1.1	
Foreign exchange gains or losses	-2.4	0.2	2.6	
Other	0.5	-0.9	-1.4	
Ordinary Income	32.7	44.2	11.5	90.5
Extraordinary Profit	0	0.3	0.3	
Extraordinary Loss	-0.9	-0.7	0.2	-4.2
Income before income taxes	31.8	43.8	12.0	
Income taxes	-5.7	-9.5	-3.8	
Profit	26.1	34.3	8.2	
Profit attributable to non-controlling interests	-1.4	-1.2	0.2	
Profit attributable to owners of the parent	24.7	33.1	8.4	63.0

* 2019 1H forecast was announced on February 14, 2019.

Extraordinary Profit/Loss

(Unit: Billions of Yen)

	CQ1, 2018	CQ1, 2019	Increase/ decrease
■ Extraordinary Profit	0	0.3	0.3
● Gain on sales of investment securities	—	0.3	0.3
■ Extraordinary Loss	-0.9	-0.7	0.2
● Loss on sales and retirement of noncurrent assets	-0.7	-0.5	0.2
● Other	-0.2	-0.2	-0
■ Extraordinary Profit/Loss, Net	-0.9	-0.4	0.5

Consolidated Sales by Segment

(Unit: Billions of Yen)

	CQ1, 2018	CQ1, 2019	Increase/ decrease		2019 1H forecast*
Petro-chemicals	53.8	62.7	8.9	<p>【Olefins】 sales increased (shipment volumes up due to large-scale shutdown maintenance in 2018. The absence of periodic shutdown maintenance in 2019)</p> <p>【Organic chemicals】 sales increased (vinyl acetate, ethyl acetate: shipment volumes up)</p> <p>【SunAllomer Ltd.】 sales increased (shipment volumes up)</p>	133.0
Chemicals	36.0	36.0	0	<p>【Basic chemicals】 sales decreased (AN: market prices down, chloroprene rubber: sales up, ammonia: sales maintained at the CQ1, 2018 level)</p> <p>【Electronic chemicals】 sales slightly increased (shipment volumes slightly up due to production adjustment in semiconductor and LCD panel industries)</p> <p>【Industrial gases】 sales maintained at the CQ1, 2018 level</p> <p>【Functional chemicals】 sales slightly increased</p>	79.0
Electronics	28.7	20.6	-8.2	<p>【HDs】 sales decreased (shipment volumes significantly down due to production adjustment for use in data centers)</p> <p>【Compound semiconductors】 sales decreased (shipment volumes down)</p> <p>【Rare earths】 sales decreased (shipment volumes down due to structural reform)</p> <p>【LIB materials】 sales decreased (shipment volumes down)</p> <p>【SiC epitaxial wafers】 sales increased (shipment volumes up)</p>	46.0
Inorganics	51.4	72.4	21.0	<p>【Ceramics】 sales decreased (shipment volumes of general-purpose alumina down, sales for electronic materials up)</p> <p>【Graphite electrodes】 sales significantly increased (global market prices up)</p>	168.5
Aluminum	24.8	23.8	-1.1	<p>【High-purity foil for capacitors】 sales decreased (shipment volumes down)</p> <p>【Aluminum specialty components】 sales decreased (shipment volumes for automotive parts and industrial equipment down)</p> <p>【Aluminum cans】 sales increased (shipment volumes in Vietnam up due to the effect of production capacity expansion)</p>	53.5
Others	33.4	32.4	-0.9	<p>【SHOKO Co., Ltd.】 sales maintained at the CQ1, 2018 level</p> <p>【Overseas trading subsidiaries】 sales decreased</p>	67.0
Adjustments	-13.4	-13.1	0.3		-27.0
Total	214.7	234.7	20.0		520.0

* 2019 1H forecast was announced on February 14, 2019.

(note) From 2019 SDK changed the segmentation (SiC epitaxial wafers business was transferred from “Others” to “Electronics”).
Figures of 2018 are based on the new segmentation.

Consolidated Operating Income by Segment

(Unit: Billions of Yen)

	CQ1, 2018	CQ1, 2019	Increase/ decrease		2019 1H forecast*
Petro-chemicals	3.3	4.0	0.6	<p>【Olefins】 profit decreased (shipment volumes up due to the 2018 shutdown maintenance, depreciation of naphtha inventory due to a fall in price, spread squeezed)</p> <p>【Organic chemicals】 profit increased (vinyl acetate, ethyl acetate: shipment volumes up)</p> <p>【SunAllomer Ltd.】 profit increased</p>	7.0
Chemicals	3.6	2.4	-1.2	<p>【Basic chemicals】 profit decreased (AN: market prices down)</p> <p>【Electronic chemicals】 profit decreased (difference in shipment item mix)</p> <p>【Industrial gases】 【Functional chemicals】 profit slightly decreased</p>	6.0
Electronics	3.0	-0.3	-3.3	<p>【HDs】 profit decreased (shipment volumes down)</p> <p>【Compound semiconductors】 profit decreased (shipment volumes down)</p> <p>【Rare earths】 profit decreased (shipment volumes down due to structural reform)</p> <p>【LIB materials】 profit decreased (shipment volumes down)</p> <p>【SiC epitaxial wafers】 profit slightly decreased (R&D cost up)</p>	3.1
Inorganics	24.8	39.5	14.7	<p>【Ceramics】 profit increased (shipment volumes of general-purpose alumina down, shipment volumes for electronic materials up)</p> <p>【Graphite electrodes】 profit increased (global market prices up)</p>	77.0
Aluminum	1.3	0.3	-1.1	<p>【High-purity foil for capacitors】 profit decreased (shipment volumes for industrial equipment down)</p> <p>【Aluminum specialty components】 profit decreased (shipment volumes for automotive parts and industrial equipment down)</p> <p>【Aluminum cans】 profit slightly increased (Japan: profit slightly up, Vietnam: profit maintained at the CQ1, 2018 level)</p>	2.2
Others	0.7	0.3	-0.4	<p>【SHOKO Co., Ltd.】 profit slightly increased</p> <p>【Overseas trading subsidiaries】 profit slightly decreased</p>	0.9
Adjustments	-2.5	-0.8	1.7		-5.2
Total	34.3	45.4	11.1		91.0

* 2019 1H forecast was announced on February 14, 2019.

(note) From 2019 SDK changed the segmentation (SiC epitaxial wafers business was transferred from “Others” to “Electronics”).

Figures of 2018 are based on the new segmentation.

Consolidated Balance Sheet

(Unit: Billions of Yen)

Assets	Dec. 31, 2018	Mar. 31, 2019	Increase/ decrease	Liabilities and net assets	Dec. 31, 2018	Mar. 31, 2019	Increase/ decrease
Cash and deposits	113.2	103.7	-9.5	Notes and accounts payable	139.4	133.8	-5.6
Notes and accounts receivable	203.7	196.1	-7.6	Interest-bearing debt	288.0	296.2	8.3
Inventories	152.8	171.3	18.5	Net defined benefit liability	22.0	14.3	-7.7
Other current assets	26.8	26.9	0	Other liabilities	160.2	152.5	-7.7
<u>Total current assets</u>	496.5	497.9	1.4	<u>Total liabilities</u>	609.6	596.8	-12.8
Buildings and structures	78.8	80.5	1.7	Capital stock	140.6	140.6	0
Machinery and equipment	146.8	144.4	-2.4	Capital surplus	78.9	78.9	0
Land	235.0	237.5	2.5	Retained earnings	197.7	216.3	18.6
Other tangible fixed assets	17.9	21.4	3.6	Treasury stock	-11.7	-11.7	-0
<u>Total tangible fixed assets</u>	478.4	483.8	5.4	<u>Total shareholders' equity</u>	405.5	424.1	18.6
Intangible fixed assets	15.0	15.7	0.8	Valuation difference on available-for-sale securities	7.5	9.6	2.1
Investments and other assets	85.1	86.5	1.4	Deferred gains or losses on hedges	0.8	1.1	0.2
incl. investment securities	71.9	73.4	1.5	Revaluation reserve for land	33.3	33.3	-0
				Foreign currency translation adjustment	7.1	7.1	0
				Remeasurements of defined benefit plans	-8.2	-7.8	0.5
				<u>Total accumulated other comprehensive income</u>	40.4	43.3	2.8
				Non-controlling interests	19.4	19.6	0.2
<u>Total fixed assets</u>	578.5	585.9	7.5	<u>Total net assets</u>	465.3	487.0	21.7
Total assets	1,075.0	1,083.9	8.9	Total liabilities and net assets	1,075.0	1,083.9	8.9

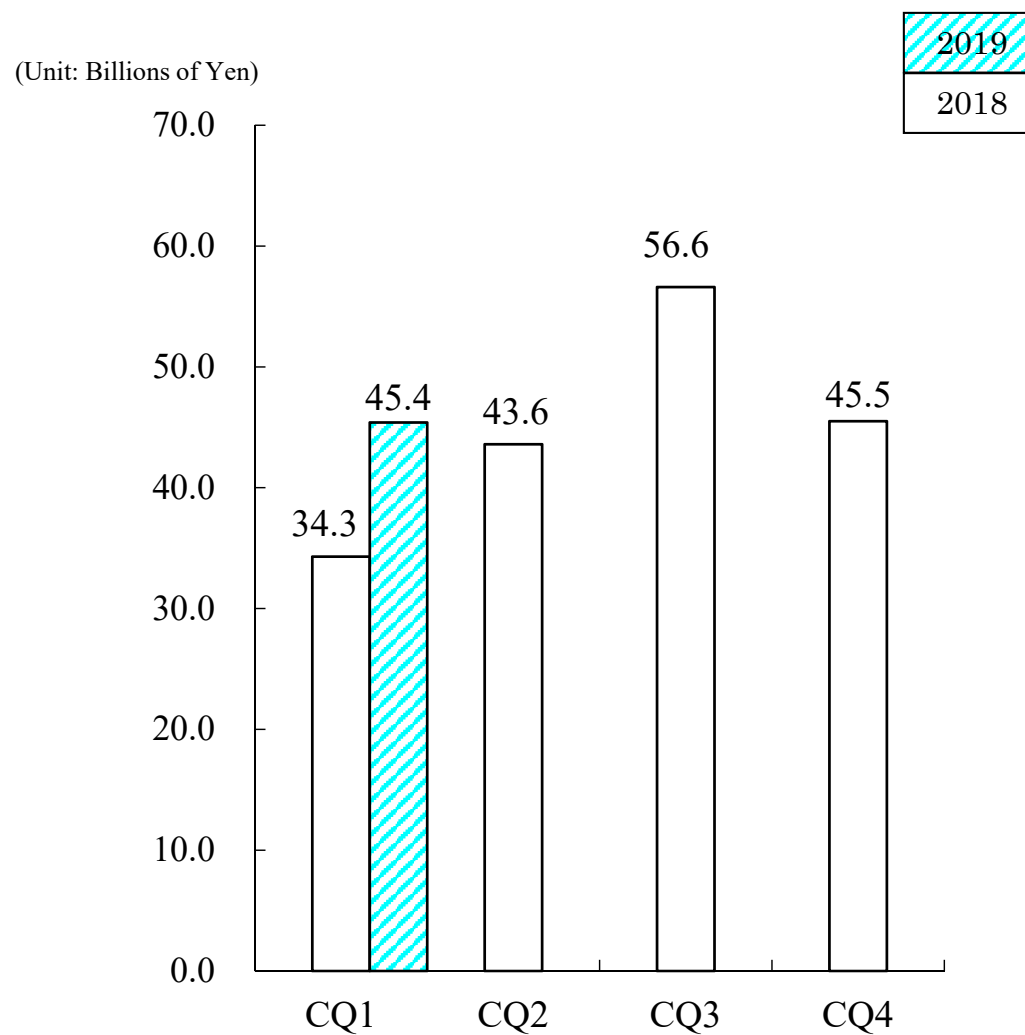
Total Assets

Interest-bearing Debt and D/E ratio

(Unit: Billions of Yen)

	Dec. 31, 2018	Mar. 31, 2019	Increase/ decrease
● Total assets	1,075.0	1,083.9	8.9
● Interest-bearing debt	288.0	296.2	8.3
● Debt/Equity ratio	0.62 times	0.61 times	-0.01p
● Stockholders' Equity ratio	41.5%	43.1%	1.6p

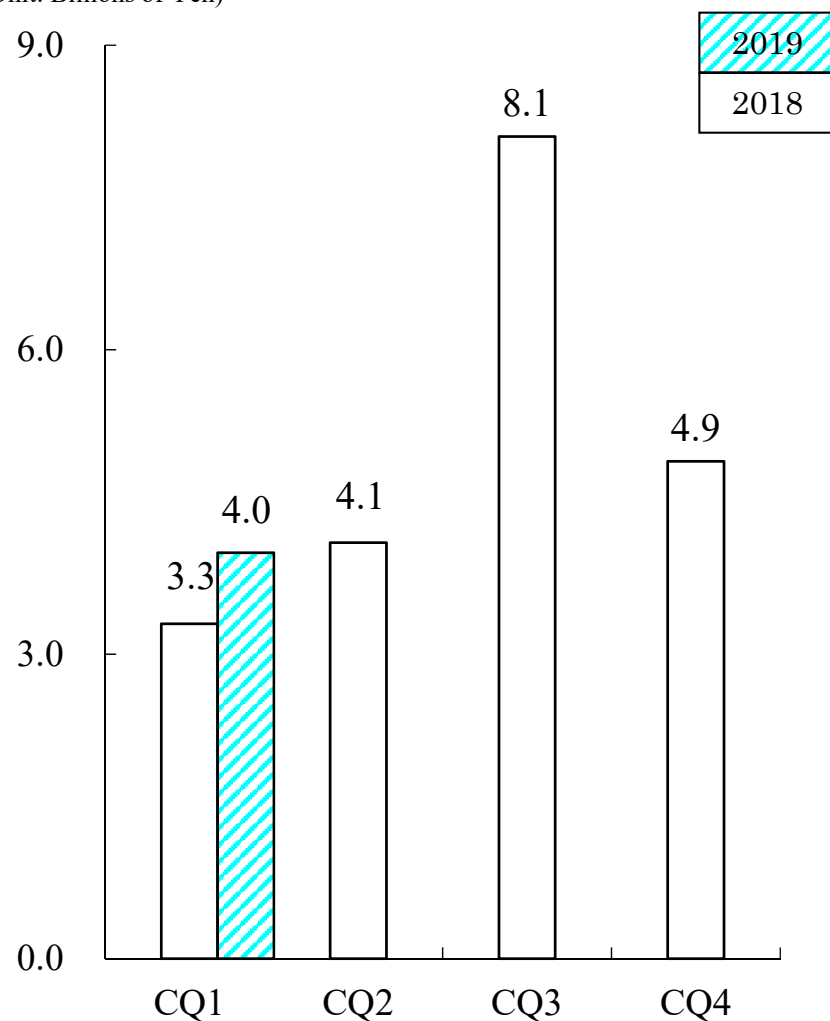
(Reference) Quarterly Operating Income



(Reference) Quarterly Operating Income by Segment

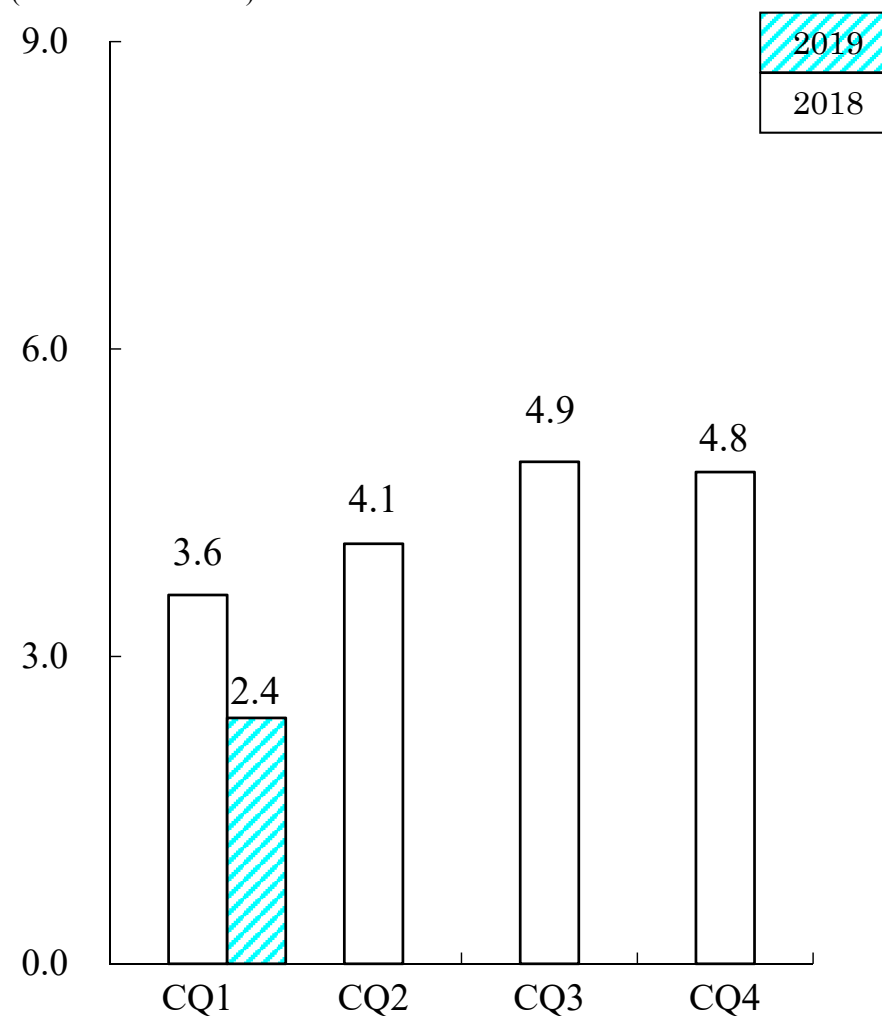
《Petrochemicals》

(Unit: Billions of Yen)



《Chemicals》

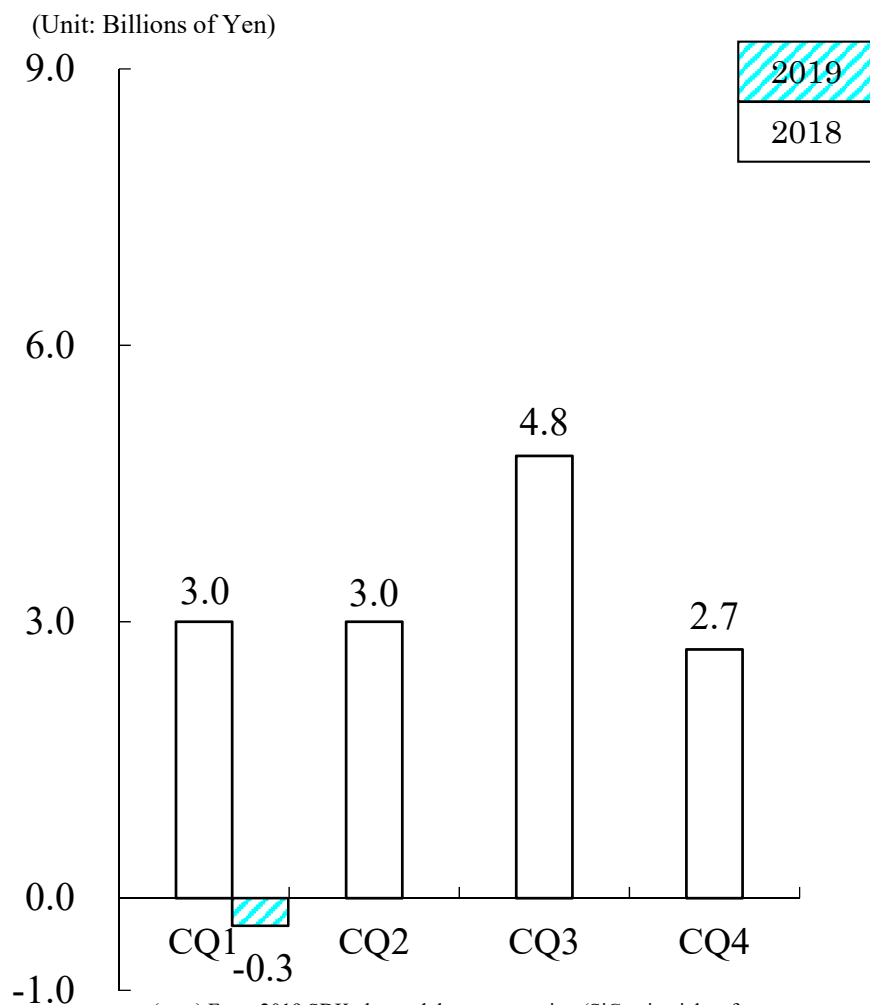
(Unit: Billions of Yen)



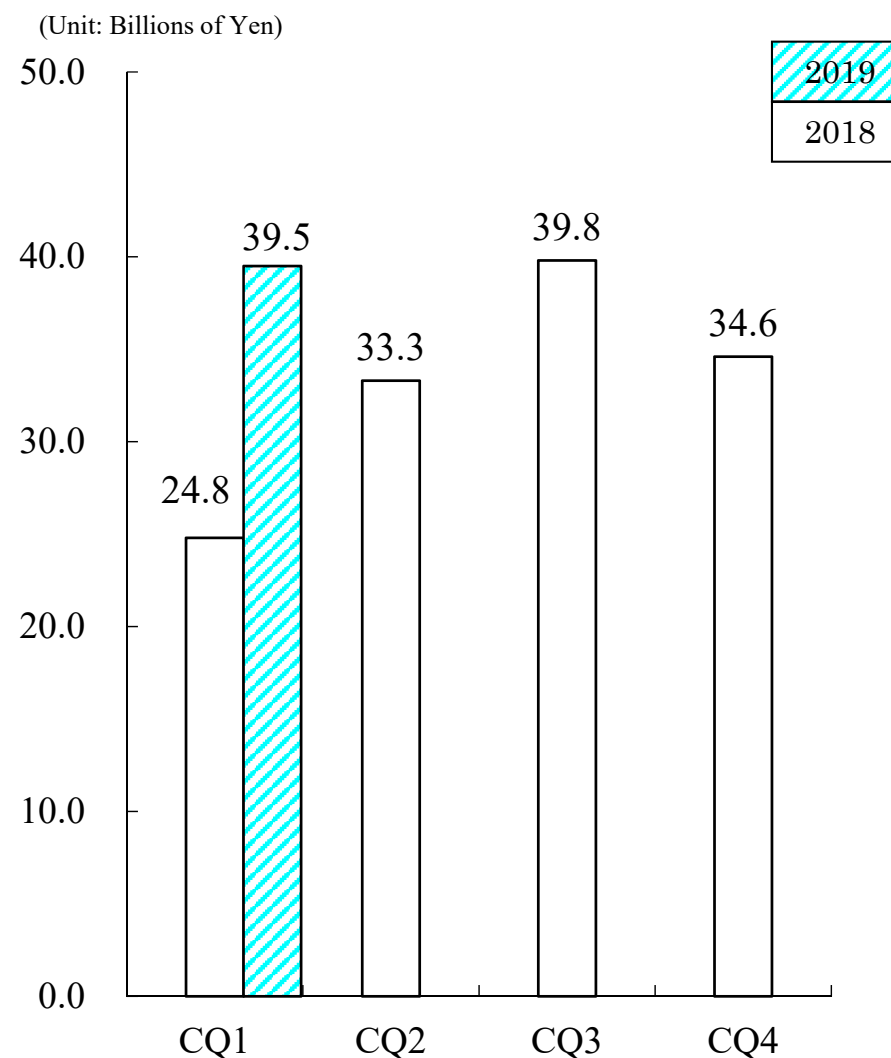
(Reference) Quarterly Operating Income by Segment

《Electronics》

《Inorganics》



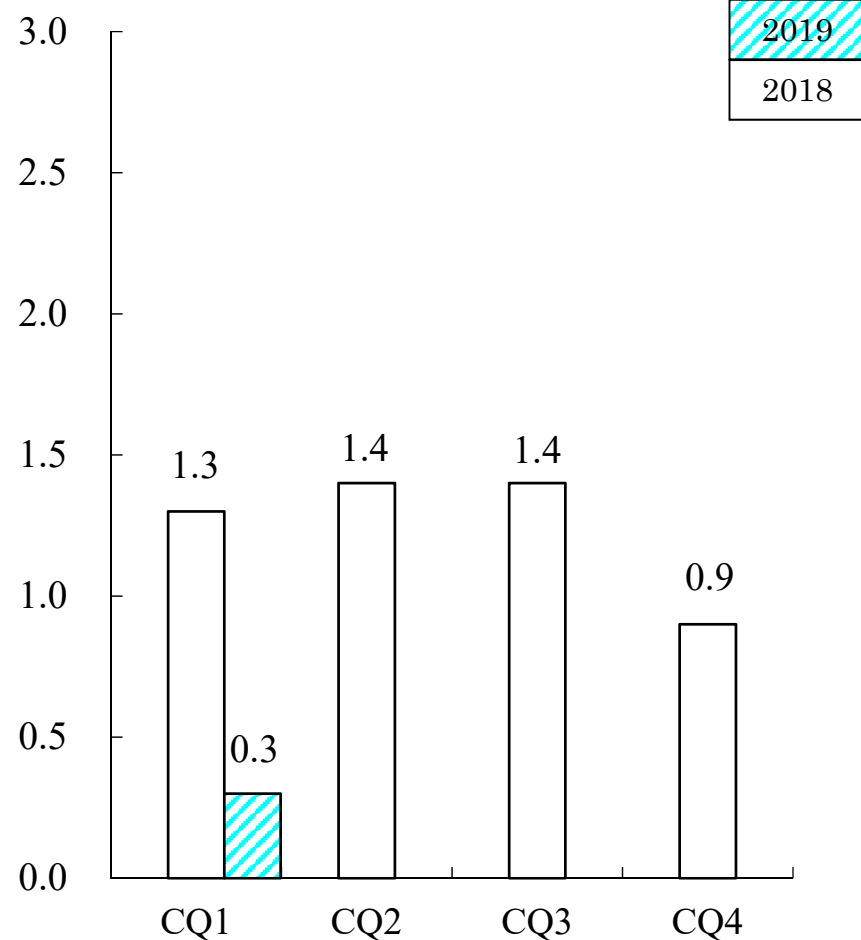
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Figures of 2018 are based on the new segmentation.



(Reference) Quarterly Operating Income by Segment

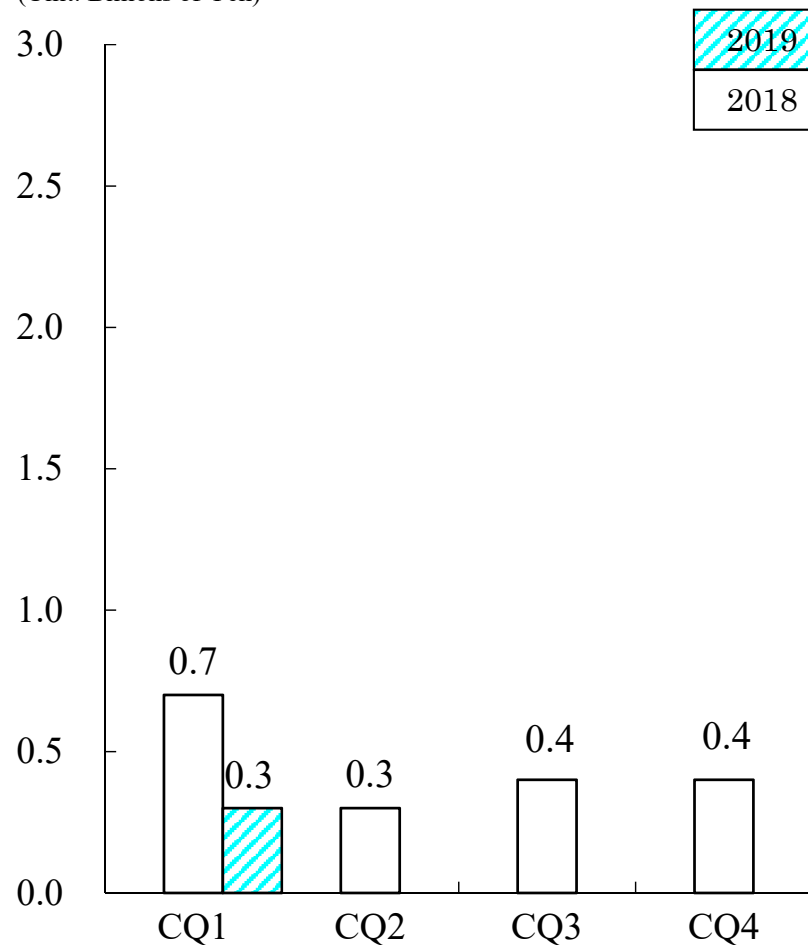
《Aluminum》

(Unit: Billions of Yen)



《Others》

(Unit: Billions of Yen)



(note) From 2019 SDK changed the segmentation (SiC epitaxial wafers business was transferred from “Others” to “Electronics”).
Figures of 2018 are based on the new segmentation.

[General]

● Developed ultralight laminate-type radiator for EVs' battery modules

In January 2019, SDK and its consolidated subsidiary Showa Denko Packaging Co., Ltd. (SPA) cooperatively developed next-generation laminate-type heat radiator designed for application to square-shaped lithium-ion batteries (LIBs) for use in electric vehicles and other equipment. This new product uses laminate film, which is composed of aluminum foil and resin films, as structural material. The “heat sealing method” to manufacture this next-generation radiator can connect laminate films under relatively low temperature of about 200 °C. The laminate film used as structural material of this new radiator is an application of the Showa Denko Group’s technologies to manufacture *SPALF*TM, which is aluminum laminate film manufactured and sold by SPA as pouch-type packaging material for LIBs. *SPALF*TM’s performance in electrical insulation, plasticity and resistance to corrosion is very high. SDK and SPA will accelerate development of this next-generation laminate-type heat radiator as heat radiation component for EVs and electricity storage systems (ESSs), and plan to ship samples of these radiators by the end of 2020. The Showa Denko Group has set “inter-business cooperation” as a pillar of the Group’s business strategy announced in the new medium-term consolidated business plan “The TOP 2021” which started this January, and has been developing products which make the maximum use of the Group’s various materials and technologies. SDK and SPA cooperatively developed this next-generation heat radiator through fusion of our heat-radiation technology fostered by long-time operation of our aluminum radiator/heat-exchanger business and our lamination technology which enabled us to develop *SPALF*TM.

[General]

● Developed AI-based patent interpretation support system

SDK and IBM Japan, Ltd. has jointly developed a “Patent Interpretation Support System,” which helps engineers to conduct effective and efficient screening of patent information. SDK will start to utilize this system in the whole company from July 2019. This system adopted “IBM Watson Explorer,” a cognitive technology which can analyze documented information and give high readability to chemistry-related patent documents. In a trial operation conducted in SDK, the system almost halved the time to screen chemistry-related patent documents which are difficult to understand because of their long sentences with complicated rhetorical structure and cross-sectional interdependence. In its medium-term business plan “The TOP 2021” which was launched in January 2019, the Showa Denko Group prepared a plan to “strengthen utilization of AI/IoT related technologies,” aiming to strengthen the Group’s business foundation. By introducing this new system into the Group, we will make our R&D activities more efficient and effective, reduce the risk of infringement on other parties’ intellectual property rights, and promote strategic intellectual property management, thereby strengthening competitiveness of the Showa Denko Group.

● Held a ceremony to unveil the nameplate of “Showa Denko Dome Oita”

In October 2018, SDK acquired the naming rights to athletic facilities of Oita Sports Park in Oita City, where SDK’s Oita Complex is located, from Oita Prefecture. And on March 2, 2019, SDK and Oita Prefecture held a ceremony to unveil the nameplate of “Showa Denko Dome Oita,” the main multipurpose stadium of the park. The naming rights are valid for five years, from March 2019 to February 2024, and cover 7 athletic facilities including the main multipurpose stadium, tennis courts and a baseball stadium. SDK has nicknamed these 7 facilities with names which include our company name, “Showa Denko.” A part of the fee for the naming rights SDK pays to Oita Prefecture is to be used for promotion of sports and regional development (partnership programs). The Showa Denko Group has been promoting various activities to fulfill corporate social responsibility (CSR), aiming to make itself a “social contribution company” which satisfies all stakeholders. The Group will continue communication with local communities through various CSR activities including plant tours and internship system for students to experience jobs.

[Chemicals segment]

● Started mass production of liquefied carbon dioxide in Oita Petrochemical Complex

Showa Denko Gas Products Co., Ltd. (SGP), a consolidated subsidiary of SDK, has established a new plant to produce liquefied carbon dioxide (CO₂) in its Oita Plant located in the premise of SDK's Oita Petrochemical Complex, and started shipment of products in April 2019. Production capacity of the new plant is 15,000 tons of liquefied CO₂ per year. A tight supply-demand situation for liquefied CO₂ is chronic because the scaling back of oil-refining and ammonia production processes in Japan has been resulting in reduction in supply of by-product gas which is used to produce raw CO₂ gas. This new plant utilizes by-product gas stably supplied from chemical plant in the Oita Petrochemical Complex, and supplies CO₂ products to our regional customers in a stable manner, thereby contributing to the growth of regional economy. SGP's project to establish Oita Plant has been acknowledged by relevant organizations that it is eligible for the "Program to subsidize establishment of corporate bases in Oita City" sponsored by Oita City and the "Program to promote establishment of corporate bases that can lead growth of regional economies sponsored by the Ministry of Economy, Trade and Industry.

● Starts service to measure performance of noxious-GHG removal equipment

In May 2019, SDK will start a service to measure and analyze performance of noxious-GHG removal equipment, which is used in manufacturing process for electronic parts including semiconductor chips and LCD panels, as an option for the maintenance work of SDK's noxious-GHG removal equipment. In processes to manufacture semiconductor chips or LCD panels, various GHGs are used by manufacturers. These manufacturers are required by the government to treat noxious GHGs emitted from their production lines to make the GHGs' densities lower than certain levels, calculate the emitted amount of GHGs after treatment, and report that amount to the government. Methods to calculate the amount of GHG emissions are listed in the 2006 IPCC Guidelines for National Greenhouse Gas Inventories. The Guidelines are expected to be revised at the 49th Session of the IPCC to be held in May 2019, to determine standards for GHG removal efficiency classified by production processes and GHG removal methods. Aiming to take advantage of our technical know-how for handling of many kinds of specialty gases which has been accumulated through our business operation to manufacture and sell noxious-GHG removal equipment over many years, SDK decided this time to launch a new service to measure densities of GHGs, analyze results and rate actual efficiency of the GHG removal equipment. Thus SDK will continue developing and offering wide-ranging solutions concerning its business to manufacture and sell high-purity gases for electronics.

[Electronics segment]

● To begin shipment of MAMR-technology-based HD media

In 2019, SDK will begin shipment of newly developed 3.5-inch HD media which have storage capacity of 2 terabyte per disk based on the Microwave Assisted Magnetic Recording (MAMR)^{*1} technology for next-generation hard disk drives (HDDs). In terms of Conventional Magnetic Recording (CMR)^{*2}, this product represents the 10th generation media. This new product has been adopted by Toshiba Electronic Devices & Storage Corporation for use in MAMR-technology-based 18 terabyte near-line HDD, which represents the largest storage capacity^{*3} in the industry. Due to the rapid expansion of cloud service and video content, data centers need HDDs with larger storage capacity. HD media are key parts for HDDs to determine their storage capacities, and SDK has been quickly launching top-quality media based on innovative technologies. As the largest independent HD media supplier, SDK will continue contributing to the increase in storage capacities of HDDs in accordance with its motto of “Best in Class.”

*1: MAMR is an abbreviation of Microwave Assisted Magnetic Recording, which is a technology to assist high-density recording of data into HD media by radiating microwave on magnetic layer of the disk to reduce coercive force only when data is written into there.

*2: CMR is an abbreviation of Conventional Magnetic Recording, which is a kind of Perpendicular Magnetic Recording (PMR) technology without the use of Shingled Magnetic Recording (SMR). CMR ensures high random access.

*3: As of February 11, 2019.

[Aluminum segment]

- Showa Aluminum Can to establish third production base in Vietnam and expand existing can end production lines

In April 2019, Showa Aluminum Can Corporation (SAC), a consolidated subsidiary of Showa Denko, decided to establish its third base in Vietnam to produce aluminum cans, aiming to expand its business in that country. This new production base is to be located in Ba Ria-Vung Tau Province, which is in the southern part of Vietnam. In addition, SAC decided to expand the capacity of can end production lines in the existing factory located in the northern part of Vietnam. Hanacans Joint Stock Company (Hanacans), an affiliated company of SAC incorporated in Vietnam, has lines to produce can bodies and can ends in its Bac Ninh Factory located in the suburbs of Hanoi City in the northern part of Vietnam, and lines to produce can bodies in its Quang Nam Factory located in the suburbs of Da Nang City in the central part of Vietnam. This time, SAC decided to establish the new factory, which is to have capacity to produce 1.3 billion can bodies per year, in the suburbs of Ho Chi Minh City in the southern part of Vietnam, and install in Hanacans' Bac Ninh Factory an additional line to produce can ends with production capacity of 1.1 billion can ends per year. As a result of these measures, Hanacans will have three factories to cover everywhere in Vietnam, and have capacities to produce 3.1 billion can bodies and 3.3 billion can ends per year in total. The total amount of investment in the construction of the new factory and the additional can-end production line is expected to be about ¥7 billion. The new facilities are scheduled to start production in July 2020.