We "Act" to touch the heart and make society better

Third Quarter, 2020 Financial Results

- Consolidated -

SHOWA DENKO K.K.

November 5, 2020

Motohiro Takeuchi, CFO
Representative Director & Managing 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 influence of the coronavirus disease 2019 (COVID-19) on the world economy, 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: 152 (newly consolidated: 91 companies related to former Hitachi Chemical, Showa Denko Materials segment)
  -Major companies

Hitachi Chemical Co., Ltd.
SD (Shanghai) Co., Ltd.
SD Materials (Nantong) Co., Ltd.
SD Electronic Materials (Guangzhou) Co., Ltd.
SD Materials(Suzhou) Co., Ltd.
SD Materials (Dongguan) Co., Ltd.
PT Hitachi Chemical Indonesia
Showa Denko Materials (Johor) Sdn. Bhd.
Showa Denko Materials (Thailand) Co., Ltd.
Hitachi Chemical Co. America, Ltd.
Hitachi Powdered Metals (USA), Inc.
FIAMM Energy Technology S.p.A.

- Equity method applied: 13 (newly applied: 2 companies, former Hitachi Chemical's related companies) (Showa Denko Materials segment)

HD Microsystems L.L.C.
Goi Chemical Co., Ltd.

Selected Data

(Average)

	2019		2020		Increase/decrease	
	Jan.-Sept.	Jul.-Sept.	Jan.-Sept.	Jul.-Sept.	Jan.-Sept.	Jul.-Sept.
■Exchange rate:						
¥/US$	109.2	107.4	107.6	106.2	Yen appreciated by 1.6/$	Yen appreciated by 1.1/$
¥/€	122.7	119.3	120.9	124.1	Yen appreciated by 1.8/€	Yen depreciated by 4.8/€
■Domestic naphtha price: ¥/KL	42,250	40,200	33,350	30,200	-8,900	-10,000
■Aluminum						
LME price: US$/T	1,829	1,788	1,660	1,743	-169	-45
Domestic market*: K¥/T	251	244	226	230	-25	-13

Exchange rate at December 31, 2019 ¥109.6/US$, at September 30, 2020 ¥105.8/US$
⇒Yen appreciated by ¥3.8/US$

*Domestic market: data from Nikkei

Summary

Jan. 1 – Sept. 30, 2019 vs. Jan. 1 – Sept. 30, 2020

(Unit: Billions of Yen)

	Jan.-Sept. 2019	Jan.-Sept. 2020	Increase/ decrease	Full year forecast 2020*
Net sales	695.6	636.0	-59.6	960.0
Operating income	109.3	-15.4	-124.7	-30.0
Non-operating income and expenses, net	-1.7	-21.4	-19.6	-25.0
Interest/Dividends income and expenses	0.1	-2.7	-2.7	
Equity in earnings of affiliates	0.2	1.0	0.8	
Foreign exchange gains or losses	-0.2	-1.8	-1.7	
Other	-1.9	-17.9	-16.0	
Ordinary income	107.6	-36.8	-144.4	-55.0
Extraordinary profit	2.2	2.5	0.3	-24.0
Extraordinary loss	-4.3	-12.1	-7.9	
Income before income taxes	105.5	-46.4	-151.9	
Income taxes	-22.2	-4.1	18.0	
Profit	83.3	-50.6	-133.9	
Net income attributable to non-controlling interests	-2.3	-7.1	-4.8	
Net income attributable to owners of the parent	81.0	-57.7	-138.6	-90.0
EBITDA	137.5	30.3	-107.2	49.8

*announced on Aug. 12, 2020

Special factors (impact on Jan.-Sept., 2020 results)

(Unit: Billions of Yen)

Major item	Breakdown	Jan.-Sept.	Jul.- Sept.
Petrochemical	Negative influence of the difference between the receipts and disbursements of raw materials, reflecting the sharp decline in naphtha prices, time-lag factor	-6.5	+2.0
Graphite Electrodes	Devaluation of inventory in accordance with the “lower of cost or market” accounting method	-18.8	+2.9
Influence of COVID-19 on operating income		-10.5	-8.4
Influence of the integration with Showa Denko Materials Company, Ltd.	Advisory fee, attorney’s fee, etc. (Operating expenses)	-3.5	0
	Post-merger integration (PMI) expenses* (Operating expenses)	-2.2	-1.5
	Expenses related to fund-raising, registration tax, etc. (Non-operating expenses)	-16.1	0
	Interest on borrowing related to share acquisition, etc. (Non-operating expenses)	-3.0	-1.8
	Expenses related to changes in firm names (Extraordinary losses)	-0.4	-0.4
	Preferred stock dividends (Net income attributable to non-controlling interests)	-5.6	-3.3
	Total of integration-related expenses (Jan.- Sept.)	-30.8	-7.0
Extraordinary loss	Closure of Meitingen Plant, Germany, in the graphite electrode business	-5.1	-0.3
	Total amount of the impact of special factors	**-71.7**	**-10.8**

* PMI expenses: expenses related to merger processes such as management and operation to maximize the effect of integration after merger.

Extraordinary Profit/Loss

(Unit: Billions of Yen)

	Jan.-Sept. 2019	Jan.-Sept. 2020	Increase/ decrease	Jul.-Sept. 2020
■Extraordinary Profit	2.2	2.5	0.3	0.4
●Gain on sales of non-current assets	0.7	1.7	1.0	0.1
●Other	1.5	0.8	-0.7	0.3
■Extraordinary Loss	-4.3	-12.1	-7.9	-3.7
●Loss on sales and retirement of non-current assets	-1.9	-2.2	-0.3	-0.7
●Business restructuring expenses	—	-5.7	-5.7	-0.4
●Other	-2.3	-4.3	-1.9	-2.6
■Extraordinary Profit/Loss, Net	-2.1	-9.7	-7.5	-3.3

Quarterly forecast for amortization of goodwill, etc. and expenses for step-up of inventories belonging to the Showa Denko Materials segment

(Unit: Billions of Yen)

	Jul. – Sept., 2020 (actual)	Oct.- Dec., 2020 (difference)	Second half, 2020 (forecast)
■Goodwill, depreciation on intangible fixed assets	6.0*2	12.7	18.7
■Expenses for step-up of inventories*1	0*2	11.8	11.8
■Total	6.0*2	24.5	30.5

*1. Cost of goods sold related to inventory step-up

2. The amount was calculated by tentative treatment which excluded Purchase Price Allocation (PPA) and "squeeze out" procedures because PPA and "squeeze out" procedures were not completed at the end of the third quarter, 2020.

Consolidated Sales and Operating Income by Segment (1)

(Unit: Billions of Yen)

		Jan.-Sept. 2019	Jan.-Sept. 2020	Increase/ decrease	
Petrochemicals	Sales	189.6	142.5	-47.0	Olefins: sales decreased (market prices down, shipment volumes down) Organic chemicals: sales decreased (vinyl acetate, ethyl acetate: shipment volumes down due to shutdown maintenance, market prices down) SunAllomer Ltd.: sales decreased (market prices down, shipment volumes down)
	Operating income	13.3	1.3	-12.0	Olefins: profit decreased (depreciation of naphtha inventory due to a fall in market price, shipment volumes down) Organic chemicals: profit decreased (vinyl acetate, ethyl acetate: shipment volumes down, market prices down) SunAllomer Ltd.: profit decreased (shipment volumes down)
Chemicals	Sales	115.6	113.0	-2.6	Basic chemicals: sales decreased (ammonia: shipment volumes down, AN: market prices down, chloroprene rubber: shipment volumes down) Electronic chemicals: sales increased (shipment volumes up) Industrial gases: sales decreased (shipment volumes down) Functional chemicals: sales decreased (shipment volumes down) Coating materials: sales increased, newly consolidated in 2H, 2019
	Operating income	9.5	9.3	-0.2	Basic chemicals: profit decreased (AN, chloroprene rubber: profit down, ammonia: profit up) Electronic chemicals: profit increased (shipment volumes up) Industrial gases: profit slightly decreased Functional chemicals: profit decreased (shipment volumes down)
Electronics	Sales	70.0	68.7	-1.3	HDs: sales decreased (shipment volumes down) Compound semiconductors: sales increased (shipment volumes for export up) LIB materials: sales increased (shipment volumes of *SPALF*™ up) SiC epitaxial wafers: sales decreased (steady in domestic market, shipment volumes for export down)
	Operating income	3.0	4.8	1.8	HDs: profit decreased (shipment volumes down) Compound semiconductors: profit increased (shipment volumes for export up) LIB materials: profit increased (shipment volumes of *SPALF*™ up) SiC epitaxial wafers: profit decreased (shipment volumes for export down)
Inorganics	Sales	190.1	61.3	-128.8	Ceramics: sales decreased (shipment volumes of abrasives for auto and steel industry down) Graphite electrodes: sales significantly decreased (shipment volumes down due to further reduced production, market prices down)
	Operating income	84.9	-26.2	-111.1	Ceramics: profit maintained at the year-earlier level Graphite electrodes: profit significantly decreased (devaluation of inventory in accordance with the "lower of cost or market" accounting method, shipment volumes down due to further reduced production, market prices down)

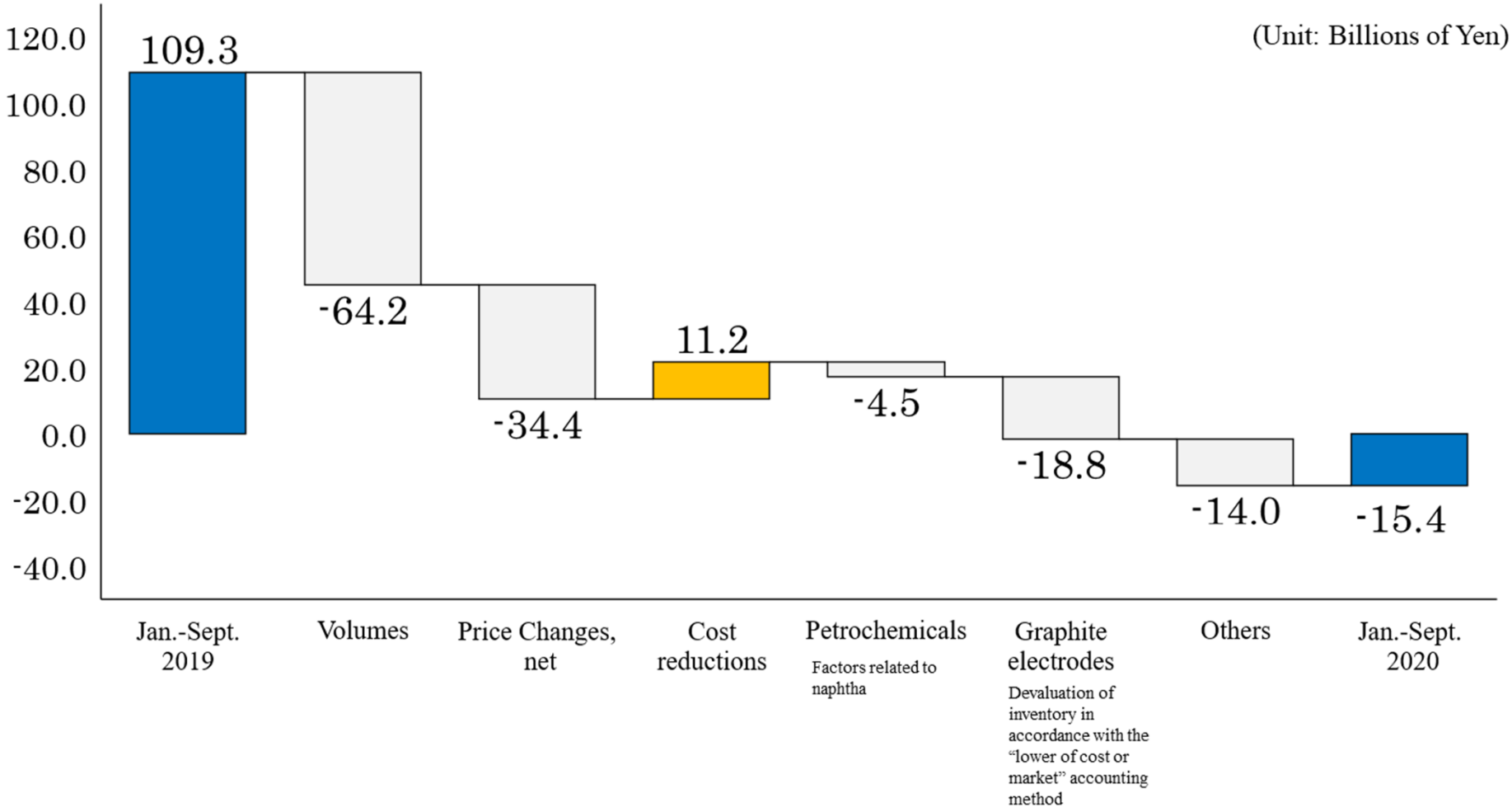
Consolidated Sales and Operating Income by Segment (2)

(Unit: Billions of Yen)

		Jan.-Sept. 2019	Jan.-Sept. 2020	Increase/ decrease	
Aluminum	Sales	73.7	58.4	-15.3	High-purity foil for capacitors: sales decreased (shipment volumes down) Aluminum specialty components: sales decreased (shipment volumes for auto application, OA and FA industries down) Aluminum cans: sales decreased (shipment volumes for Japan and Vietnam down)
	Operating income	1.4	-0.3	-1.7	High-purity foil for capacitors: profit maintained at the year-earlier level Aluminum specialty components: profit decreased (shipment volumes down) Aluminum cans: profit decreased (shipment volumes for Japan and Vietnam down)
Showa Denko Materials	Sales	—	144.8	144.8	At the beginning of the third quarter 2020, we started to incorporate net sales, profit and loss of Showa Denko Materials Co., Ltd. into the consolidated financial statements.
	Operating income	—	2.8	2.8	Operating income includes expense of 6.0 billion yen to cover amortization of goodwill which was reckoned as a result of acquisition of shares in Showa Denko Materials.
Others	Sales	95.8	80.0	-15.8	SHOKO: sales decreased (market prices down in metal ceramics business)
	Operating income	0.9	0.6	-0.3	
Adjustments	Sales	-39.2	-32.9	6.3	
	Operating income	-3.7	-7.7	-4.0	
Total	Sales	695.6	636.0	-59.6	
	Operating income	109.3	-15.4	-124.7	

Operating Income Breakdown by Factor

(Jan. – Sept. 2019 vs. Jan. – Sept. 2020)



Summary

CQ2 (Apr.1 – Jun.30), 2020 vs. CQ3 (Jul.1 – Sept.30), 2020

(Unit: Billions of Yen)

	CQ2, 2020	CQ3, 2020	Increase/ decrease
Net sales	154.9	309.4	154.5
Operating income	-28.3	10.4	38.6
Non-operating income and expenses, net	-18.2	-3.9	14.2
Interest/Dividends income and expenses	-1.0	-1.8	-0.7
Equity in earnings of affiliates	0	0.6	0.6
Foreign exchange gains or losses	-0.5	-1.9	-1.3
Other	-16.7	-0.9	15.8
Ordinary income	-46.4	6.4	52.9
Extraordinary profit	0.3	0.4	0.1
Extraordinary loss	-6.9	-3.7	3.3
Income before income taxes	-53.1	3.2	56.2
Income taxes	-2.0	-2.4	-0.4
Profit	-55.1	0.7	55.8
Net income attributable to non-controlling interests	-2.2	-3.8	-1.6
Net income attributable to owners of the parent	-57.3	-3.1	54.2
EBITDA	-18.4	36.6	55.0

Consolidated Sales and Operating Income by Segment (1)

(Unit: Billions of Yen)

		CQ2, 2020	CQ3, 2020	Increase/ decrease	
Petrochemicals	Sales	40.7	46.8	6.1	Olefins: sales increased (shipment volumes up, market prices up) Organic chemicals: sales decreased SunAllomer Ltd.: sales increased
	Operating income	-3.5	5.0	8.5	Olefins: profit significantly increased (recovery of depreciation of naphtha inventory due to a fall in market price, shipment volumes up) Organic chemicals: profit decreased (cost of ethylene up) SunAllomer Ltd.: profit decreased (cost of propylene up)
Chemicals	Sales	35.7	41.0	5.2	Basic chemicals: sales increased (ammonia, AN, chloroprene rubber: shipment volumes up) Electronic chemicals: sales increased (shipment volumes up) Industrial gases: sales increased (shipment volumes up) Functional chemicals: sales increased Coating materials: sales increased (shipment volumes up)
	Operating income	2.7	4.3	1.6	Basic chemicals: profit increased (ammonia, AN: profit up, chloroprene rubber: profit down) Electronic chemicals: profit maintained at CQ2, 2020 level Industrial gases: profit increased Functional chemicals: profit increased Coating materials: profit increased (shipment volumes up)
Electronics	Sales	21.0	24.1	3.1	HDs: sales increased (shipment volumes up) Compound semiconductors, SiC epitaxial wafers: sales maintained at CQ2, 2020 level LIB materials: sales increased (shipment volumes of *SPALF*™ up)
	Operating income	0.8	3.0	2.3	HDs: profit increased (shipment volumes up) Compound semiconductors, LIB materials: profit maintained at CQ2, 2020 level SiC epitaxial wafers: profit increased
Inorganics	Sales	21.6	18.3	-3.3	Ceramics: sales decreased (shipment volumes of abrasives for auto and steel industry down) Graphite electrodes: sales decreased (market prices down)
	Operating income	-23.8	-3.3	20.4	Ceramics: profit decreased Graphite electrodes: profit increased (devaluation of inventory in accordance with the "lower of cost or market" accounting method, shipment volumes down due to further reduced production at CQ2, 2020)

Consolidated Sales and Operating Income by Segment (2)

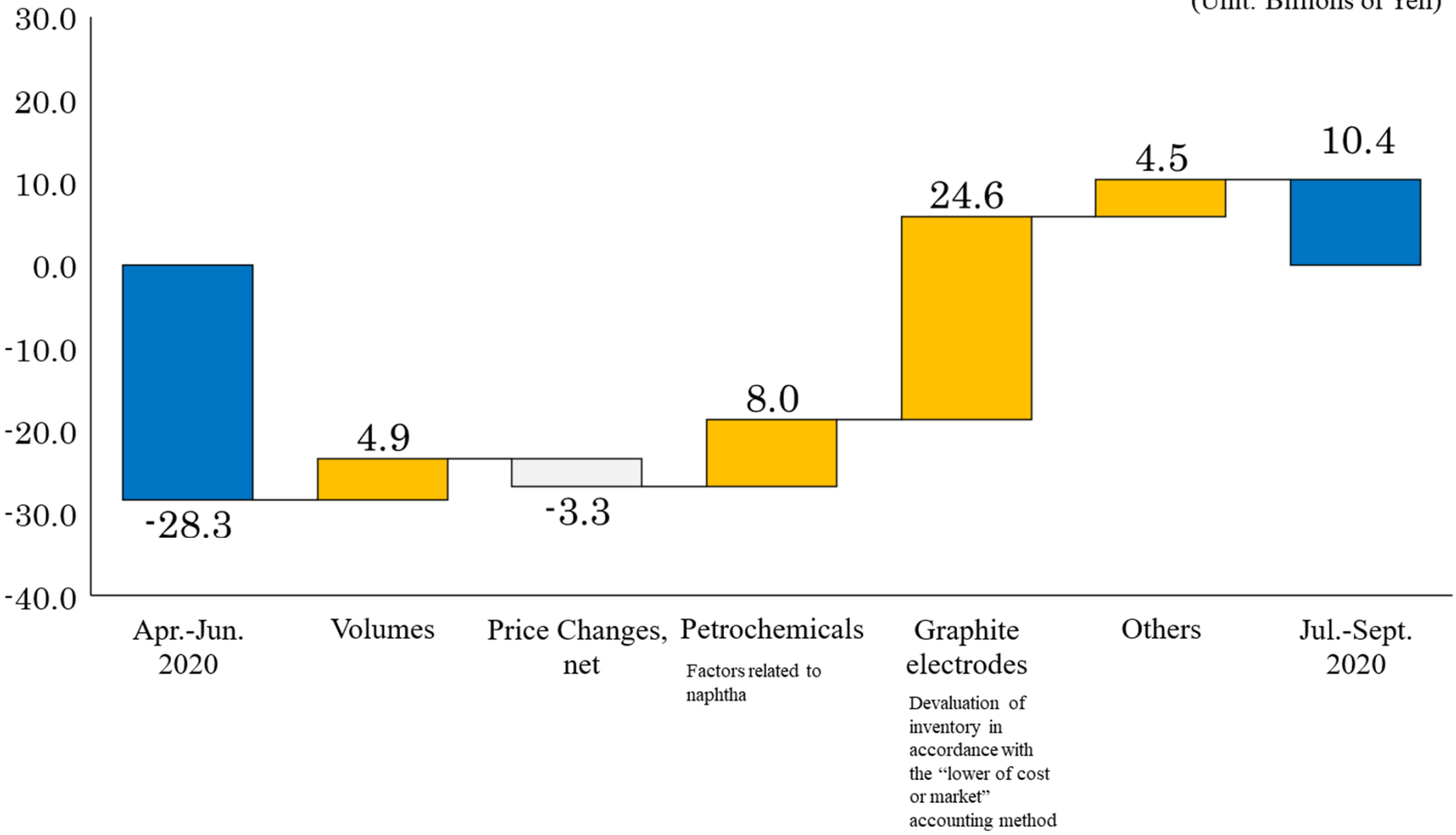
(Unit: Billions of Yen)

		CQ2, 2020	CQ3, 2020	Increase/ decrease	
Aluminum	Sales	19.7	19.6	-0.1	High-purity foil for capacitors: sales decreased (shipment volumes down) Aluminum specialty components: sales increased (shipment volumes for auto application partially up) Aluminum cans: sales slightly increased
	Operating income	-0.3	-0.1	0.2	High-purity foil for capacitors: profit decreased Aluminum specialty components: profit increased (shipment volumes up) Aluminum cans: profit increased
Showa Denko Materials	Sales	—	144.8	144.8	At the beginning of the third quarter 2020, we started to incorporate net sales, profit and loss of Showa Denko Materials Co., Ltd. into the consolidated financial statements.
	Operating income	—	2.8	2.8	Operating income includes expense of 6.0 billion yen to cover amortization of goodwill which was reckoned as a result of acquisition of shares in Showa Denko Materials.
Others	Sales	27.0	24.5	-2.5	SHOKO: sales decreased (market prices down in metal ceramics business)
	Operating income	0.3	0.1	-0.2	
Adjustments	Sales	-10.8	-9.8	1.0	
	Operating income	-4.6	-1.4	3.1	Accounted expenses related to Hitachi Chemicals' share acquisition in 2Q, 2020 (Advisory fee, attorney's fee, etc.)
Total	Sales	154.9	309.4	154.5	
	Operating income	-28.3	10.4	38.6	

Operating Income Breakdown by Factor

CQ2 (Apr.1 – Jun.30), 2020 vs. CQ3 (Jul.1 – Sept.30), 2020

(Unit: Billions of Yen)



Consolidated Balance Sheet

(Unit: Billions of Yen)

Assets	Dec. 31, 2019	Sep. 30, 2020	Increase/ decrease	Liabilities and net assets	Dec. 31, 2019	Sep. 30, 2020	Increase/ decrease
Cash and deposits	122.1	184.8	62.8	Notes and accounts payable	117.5	145.2	27.7
Notes and accounts receivable	170.3	266.0	95.7	Interest-bearing debt	303.2	997.7	694.5
Inventories	173.7	217.2	43.5	Net defined benefit liability	10.0	25.5	15.5
Other current assets	31.0	56.2	25.1	Other liabilities	126.3	177.5	51.2
Total current assets	497.1	724.2	227.1	Total liabilities	556.9	1,345.8	788.9
Buildings and structures	77.1	145.3	68.2	Capital stock	140.6	140.6	0
Machinery and equipment	140.3	224.1	83.8	Capital surplus	78.9	78.6	-0.3
Land	224.0	248.0	24.0	Retained earnings	249.2	180.4	-68.9
Other tangible fixed assets	31.7	97.0	65.3	Treasury stock	-11.7	-11.7	0
Total tangible fixed assets	473.2	714.5	241.3	Total shareholders' equity	457.1	387.9	-69.2
Goodwill	3.3	476.4	473.1	Valuation difference on available-for-sale securities	9.8	4.3	-5.5
Other intangible fixed assets	19.3	30.5	11.2	Deferred gains or losses on hedges	0.4	0.2	-0.2
Total intangible fixed assets	22.6	507.0	484.3	Revaluation reserve for land	33.1	32.8	-0.2
Investments and other assets	83.5	126.4	42.9	Foreign currency translation adjustment	4.1	-2.0	-6.1
incl. investment securities	71.8	75.5	3.7	Remeasurements of defined benefit plans	-5.1	-5.0	0.1
				Total accumulated other comprehensive income	42.3	30.4	-11.9
				Non-controlling interests	20.1	307.9	287.9
Total fixed assets	579.3	1,347.8	768.5	Total net assets	519.4	726.2	206.8
Total assets	**1,076.4**	**2,072.0**	**995.6**	**Total liabilities and net assets**	**1,076.4**	**2,072.0**	**995.6**

Showa Denko K.K. (SDK) has made Hitachi Chemical Company, Ltd. a consolidated subsidiary, considering the end of this second quarter (June 30, 2020) as acquisition date, and consolidated Hitachi Chemical's financial results into Showa Denko's consolidated financial statements. SDK started to include leasing liabilities in interest-bearing debts in this third quarter. Accordingly, we retrospectively adjusted interest-bearing debts as of December 31, 2019 and June 30, 2020 in the same way.

Total Assets
Interest-bearing Debt and D/E ratio

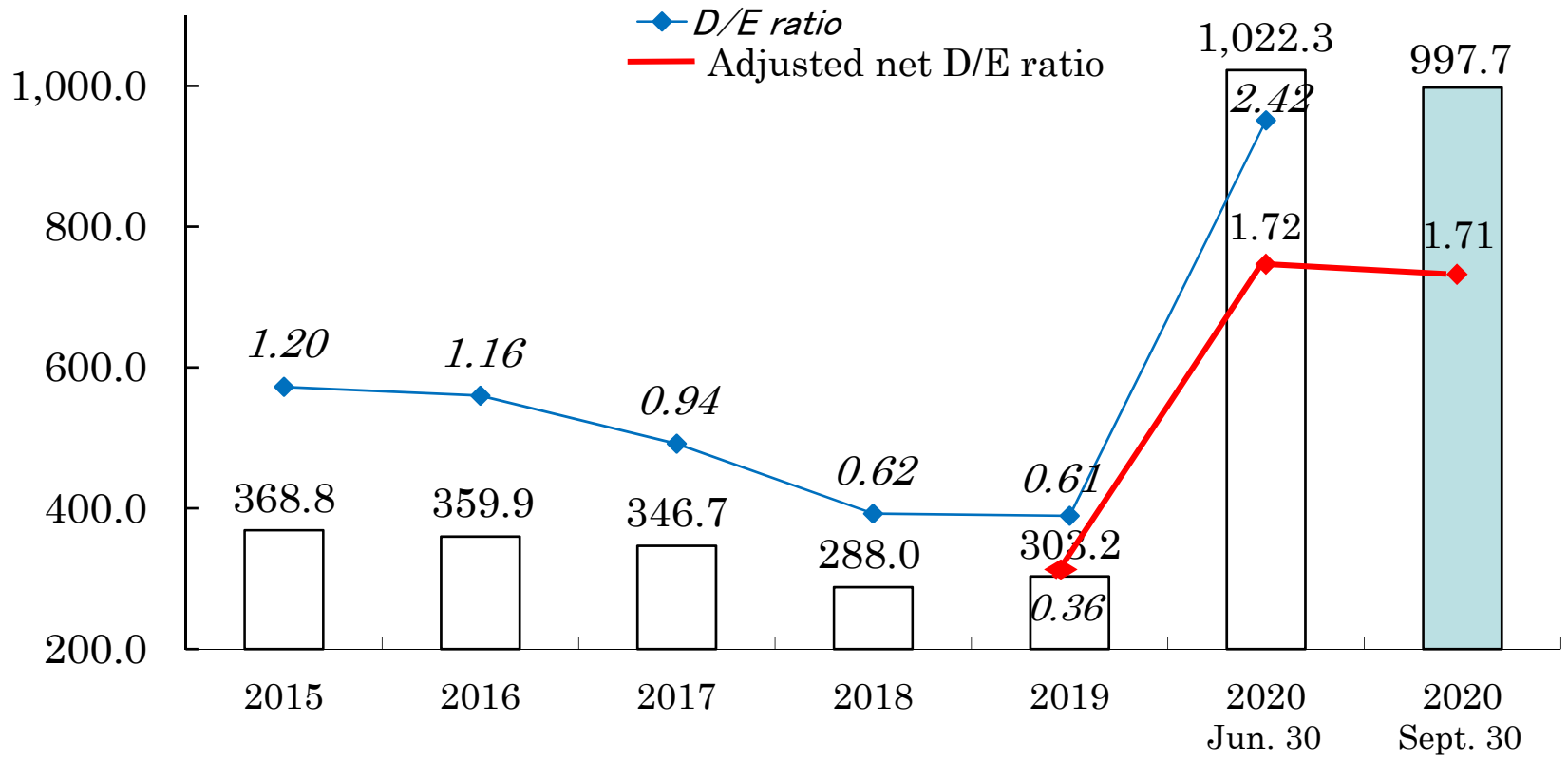
(Unit: Billions of Yen)

	Dec. 31, 2019	Jun. 30, 2020	Sept. 30, 2020
● Total assets	1,076.4	2,106.3	2,072.0
● Interest-bearing debt	303.2	1,022.3	997.7
● Adjusted net D/E ratio	0.36 times	1.72 times	1.71 times
● Stockholders' Equity ratio	46.4%	20.0%	20.2%

(note) SDK started to include leasing liabilities in interest-bearing debts in this third quarter. Accordingly, we retrospectively adjusted interest-bearing debts as of December 31, 2019 and June 30, 2020 in the same way. In accordance with the consolidation of Showa Denko Materials Company, Ltd., SDK calculated its D/E ratio with an assumption as follows, starting from the third quarter of the fiscal year ending December 31, 2020. Regarding preferred stocks issued by HC Holdings K.K., which is a subsidiary of SDK, we will add the amount equivalent to 50% of the value of issued preferred stocks to interest-bearing debts and the remaining 50% of it to the equity capital of SDK. We will also add lease liability to the equity capital of SDK, and use net interest-bearing debt (interest-bearing debt minus cash and deposits) in calculation of D/E ratio. The assumption that we consider 50% of the total value of issued preferred stocks as equity capital is based on the credit rating given by Japan Credit Rating Agency, Ltd. On April 21, 2020.

Interest-bearing Debt and D/E ratio

(Unit: Billions of Yen)



Equity ratio	31.5%	31.8%	34.3%	41.5%	46.4%	20.0%	20.2%

(Reference) Summary

CQ3 (Jul.1 – Sept.30), 2019 vs. CQ3 (Jul.1 – Sept.30), 2020

(Unit: Billions of Yen)

	CQ3, 2019	CQ3, 2020	Increase/ decrease
Net sales	220.1	309.4	89.3
Operating income	23.8	10.4	-13.5
Non-operating income and expenses, net	-1.1	-3.9	-2.9
Interest/Dividends income and expenses	-0.1	-1.8	-1.6
Equity in earnings of affiliates	-0.3	0.6	0.9
Foreign exchange gains or losses	-0.2	-1.9	-1.6
Other	-0.4	-0.9	-0.5
Ordinary income	22.8	6.4	-16.3
Extraordinary profit	0.3	0.4	0.1
Extraordinary loss	-1.3	-3.7	-2.4
Income before income taxes	21.8	3.2	-18.7
Income taxes	-6.0	-2.4	3.6
Profit	15.8	0.7	-15.1
Net income attributable to non-controlling interests	-0.7	-3.8	-3.2
Net income attributable to owners of the parent	15.1	-3.1	-18.2
EBITDA	33.4	36.6	3.2

Consolidated Sales and Operating Income by Segment (1)

(Unit: Billions of Yen)

		CQ3, 2019	CQ3, 2020	Increase/ decrease	
Petrochemicals	Sales	62.1	46.8	-15.3	Olefins: sales decreased (market prices down) Organic chemicals: sales decreased (shipment volumes of vinyl acetate down) SunAllomer Ltd.: sales decreased
	Operating income	4.8	5.0	0.1	Olefins: profit increased (recovery of depreciation of naphtha inventory due to a fall in market price) Organic chemicals: profit decreased (shipment volumes of vinyl acetate down) SunAllomer Ltd.: profit decreased
Chemicals	Sales	42.1	41.0	-1.1	Basic chemicals: sales decreased (ammonia: shipment volumes down, AN: market prices down) Electronic chemicals: sales increased (shipment volumes up) Industrial gases: sales decreased (shipment volumes down) Functional chemicals: sales decreased (shipment volumes down) Coating materials: sales decreased
	Operating income	4.0	4.3	0.3	Basic chemicals: profit decreased (ammonia: profit up, AN, chloroprene rubber: profit down) Electronic chemicals: profit increased (shipment volumes up) Industrial gases, Functional chemicals: profit maintained at the year-earlier level Coating materials: profit increased
Electronics	Sales	25.4	24.1	-1.3	HDs: sales decreased (shipment volumes down) Compound semiconductors: sales increased (shipment volumes for export up) LIB materials: sales increased (shipment volumes of *SPALF*™ up) SiC epitaxial wafers: sales increased (steady in domestic market)
	Operating income	2.0	3.0	1.0	HDs: profit decreased (shipment volumes down) Compound semiconductors: profit increased (shipment volumes for export up) LIB materials: profit increased (shipment volumes of *SPALF*™ up) SiC epitaxial wafers: profit increased (steady in domestic market)
Inorganics	Sales	47.4	18.3	-29.1	Ceramics: sales decreased (shipment volumes of abrasives for auto and steel industry down) Graphite electrodes: sales significantly decreased (shipment volumes down due to further reduced production, market prices down)
	Operating income	13.1	-3.3	-16.4	Ceramics: profit maintained at the year-earlier level Graphite electrodes: profit significantly decreased (shipment volumes down due to further reduced production, market prices down)

Consolidated Sales and Operating Income by Segment (2)

(Unit: Billions of Yen)

		CQ3, 2019	CQ3, 2020	Increase/ decrease	
Aluminum	Sales	24.7	19.6	-5.1	High-purity foil for capacitors: sales decreased (shipment volumes down) Aluminum specialty components: sales decreased (shipment volumes for auto application down) Aluminum cans: sales decreased (shipment volumes down)
	Operating income	0.9	-0.1	-1.0	High-purity foil for capacitors: profit decreased (shipment volumes down) Aluminum specialty components: profit decreased (shipment volumes down) Aluminum cans: profit decreased (shipment volumes down)
Showa Denko Materials	Sales	—	144.8	144.8	At the beginning of the third quarter 2020, we started to incorporate net sales, profit and loss of Showa Denko Materials Co., Ltd. into the consolidated financial statements.
	Operating income	—	2.8	2.8	Operating income includes expense of 6.0 billion yen to cover amortization of goodwill which was reckoned as a result of acquisition of shares in Showa Denko Materials.
Others	Sales	31.5	24.5	-7.0	SHOKO: sales decreased
	Operating income	0.3	0.1	-0.2	
Adjustments	Sales	-13.1	-9.8	3.3	
	Operating income	-1.3	-1.4	-0.1	
Total	Sales	220.1	309.4	89.3	
	Operating income	23.8	10.4	-13.5	

(Reference) Quarterly Summary 2020

(Unit: Billions of Yen)

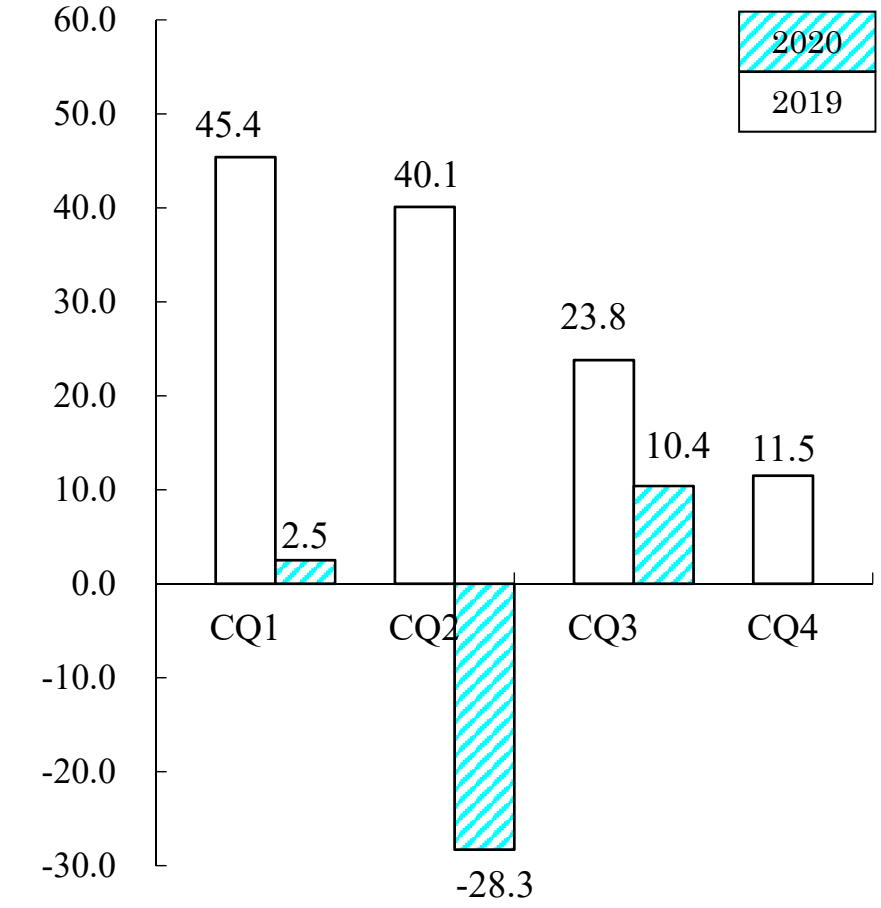
	CQ1, 2020	CQ2, 2020	CQ3, 2020	Jan.－Sept. 2020	2020 Forecast*
Net sales	171.7	154.9	309.4	636.0	960.0
Operating income	2.5	-28.3	10.4	-15.4	-30.0
Net income attributable to owners of the parent	2.7	-57.3	-3.1	-57.7	-90.0
EBITDA	12.2	-18.4	36.6	30.3	49.8

*Announced on Aug. 12, 2020.

(Reference) Quarterly Operating Income

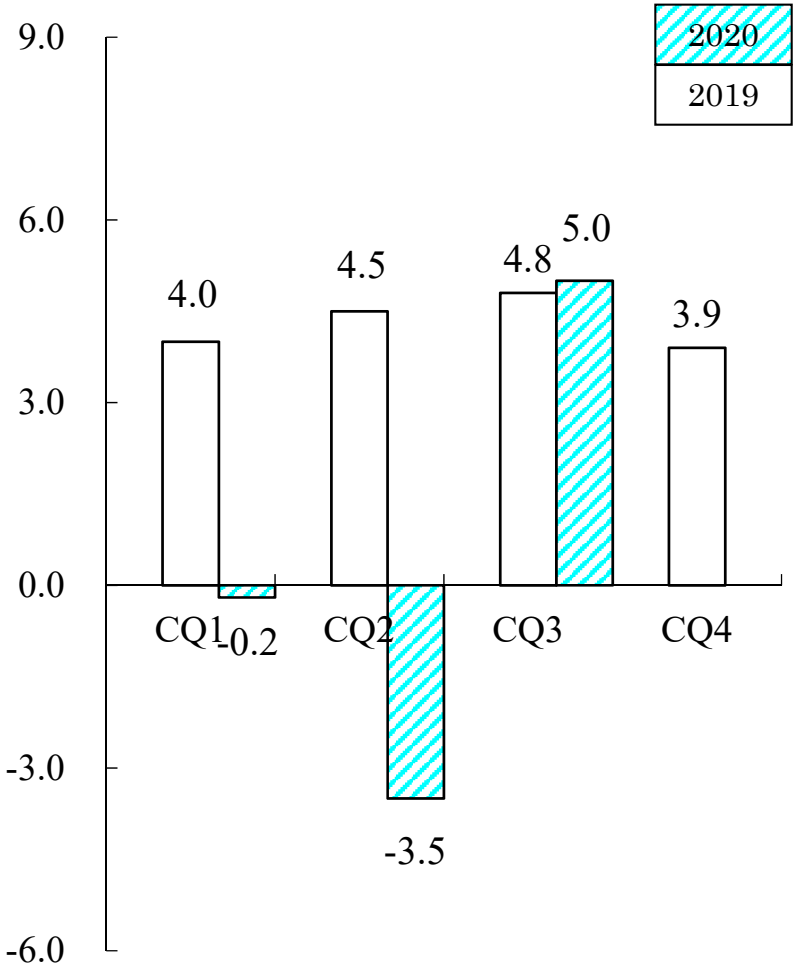
《Total》

(Unit: Billions of Yen)



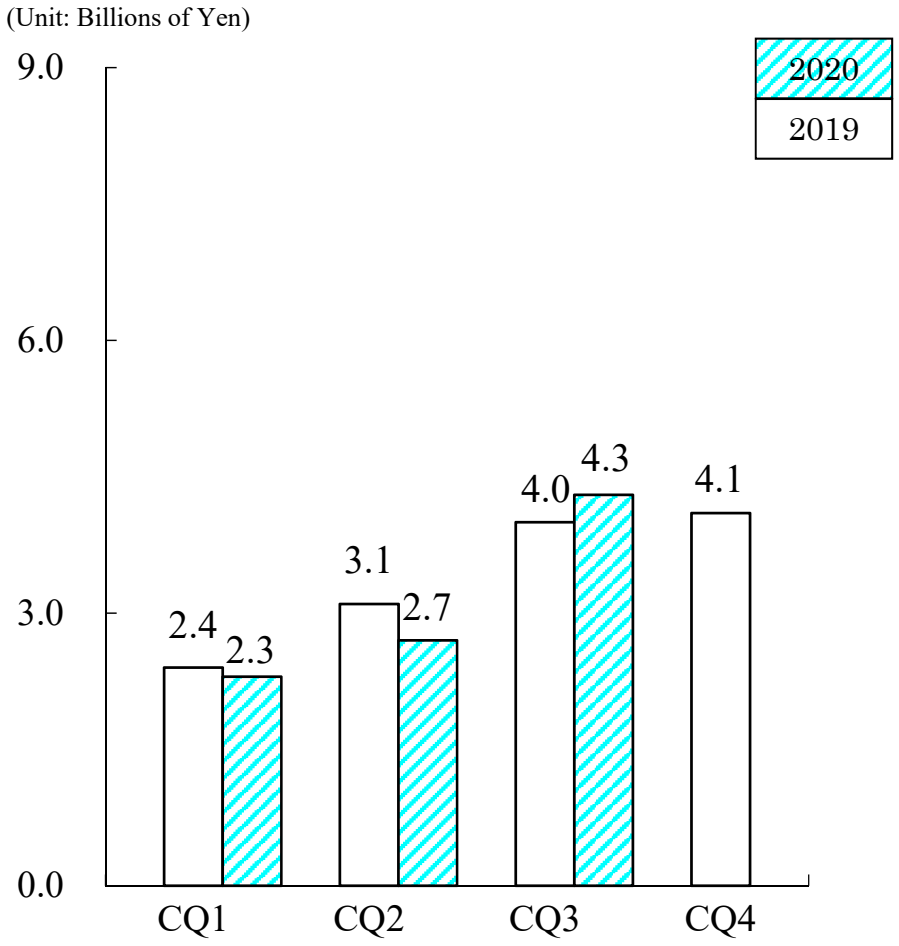
《Petrochemicals》

(Unit: Billions of Yen)

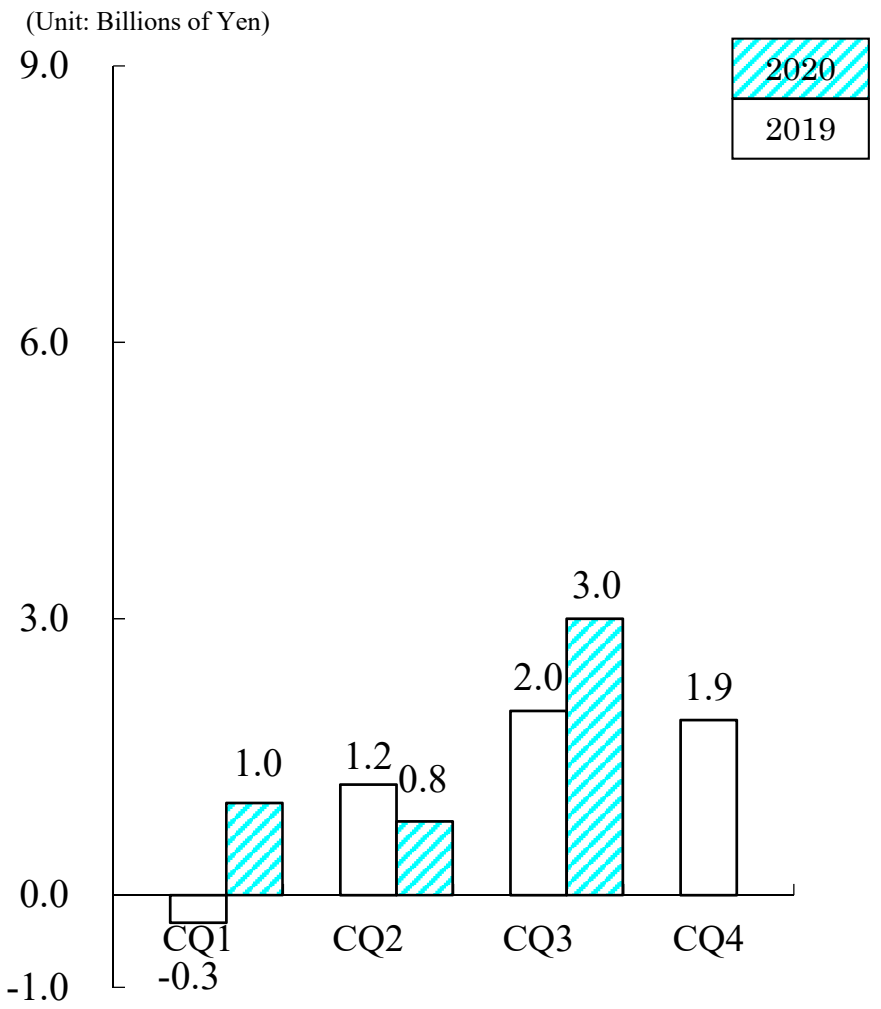


(Reference) Quarterly Operating Income by Segment

《Chemicals》

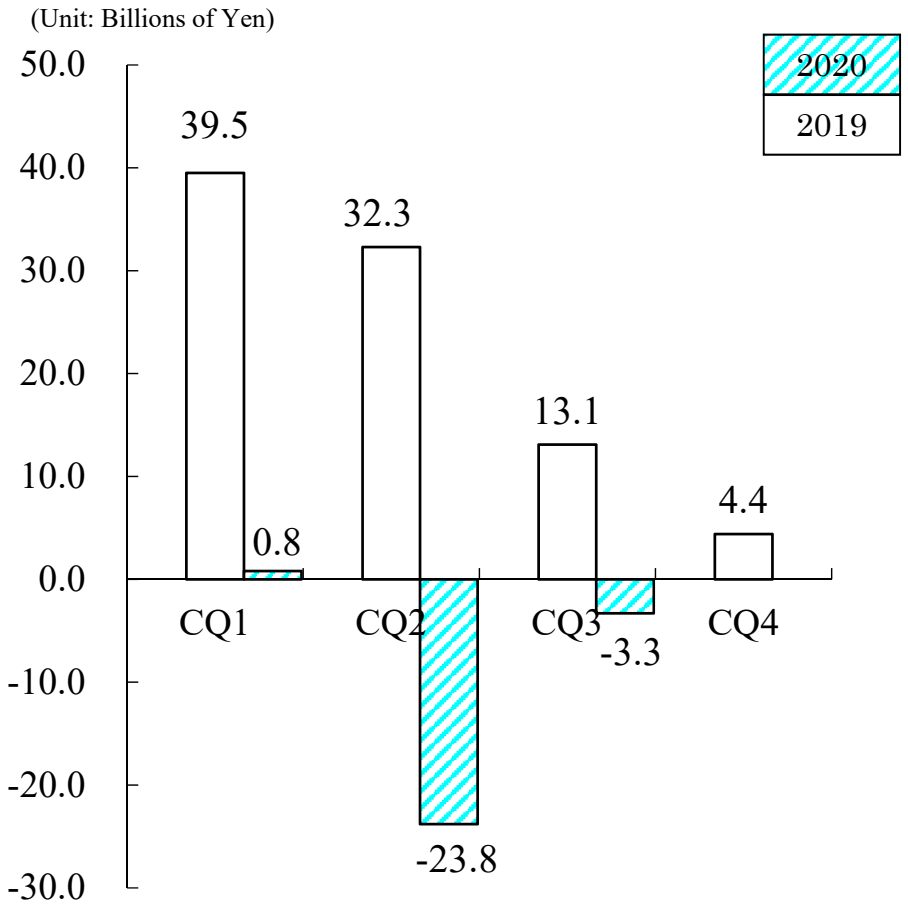


《Electronics》

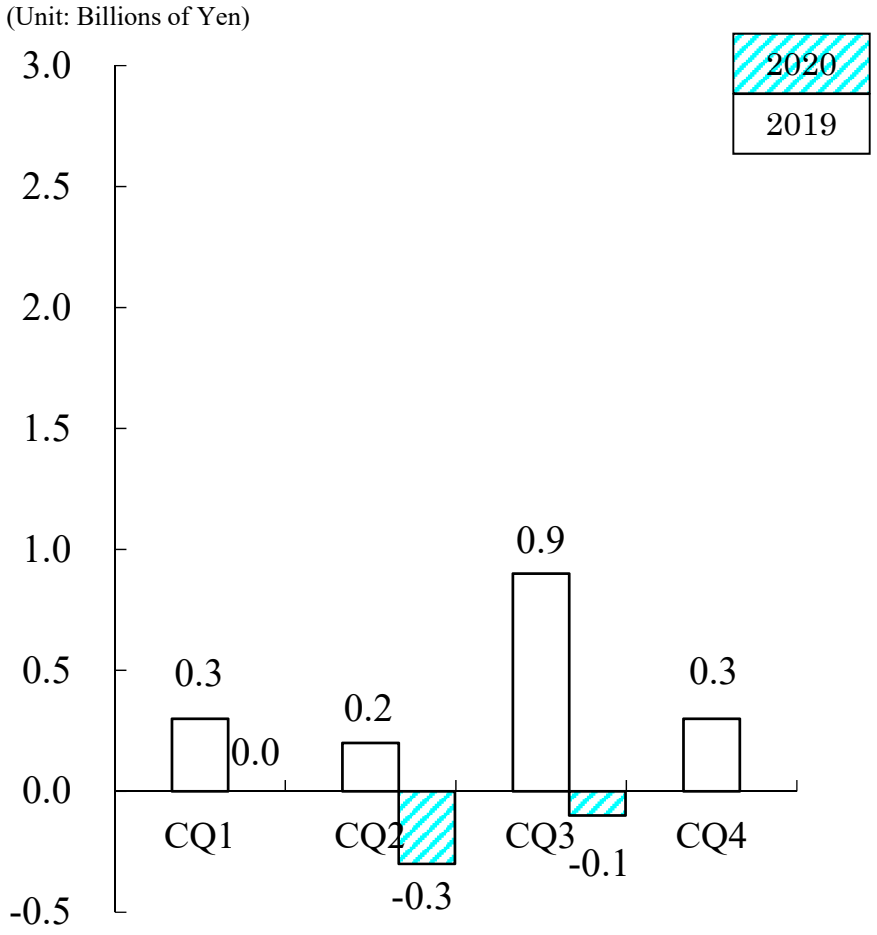


(Reference) Quarterly Operating Income by Segment

《Inorganics》



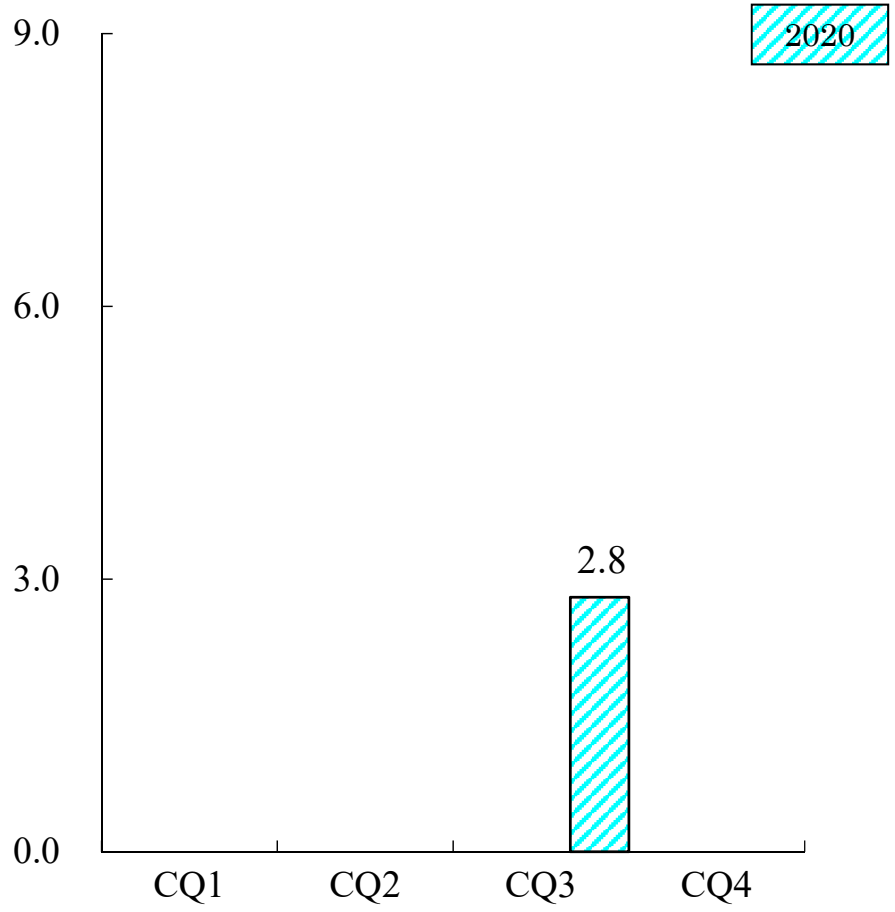
《Aluminum》



(Reference) Quarterly Operating Income by Segment

《Showa Denko Materials》

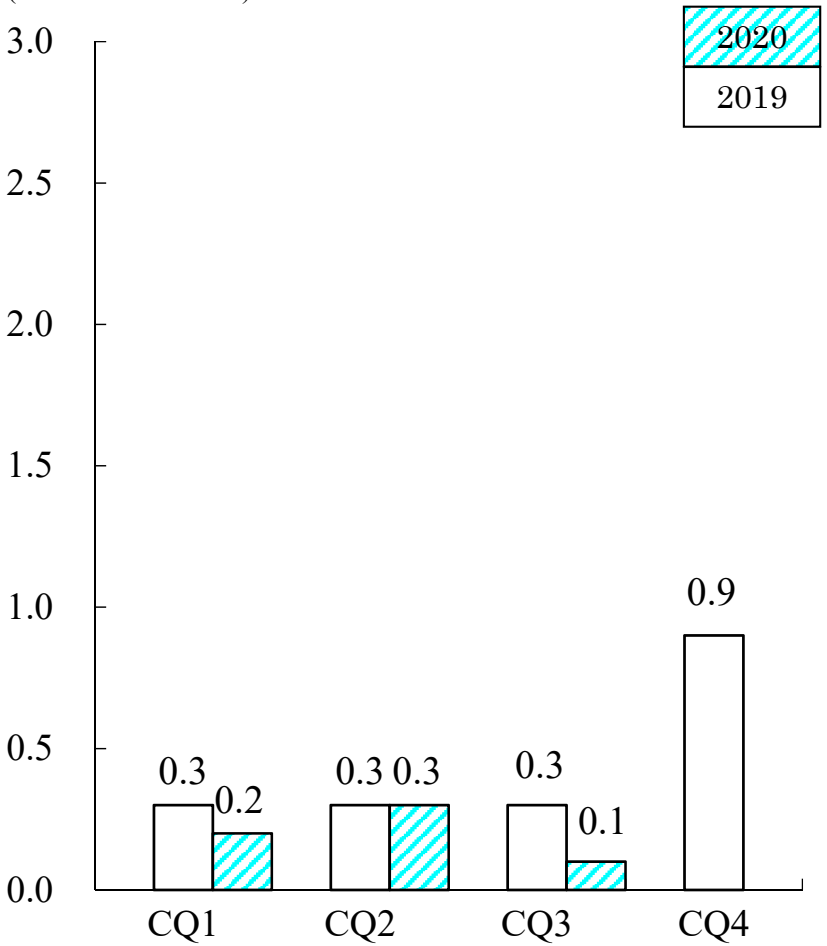
(Unit: Billions of Yen)



Showa Denko K.K. made Showa Denko Materials Co., Ltd. a consolidated subsidiary and started on July 1, 2020 to incorporate Showa Denko Materials' sales figures and incomes/losses into its consolidated financial statements.

《Others》

(Unit: Billions of Yen)



Topics

[General]

- Hitachi Chemical changed firm name

  Hitachi Chemical Company, Ltd., a consolidated subsidiary of SDK, changed its firm name into Showa Denko Materials Co., Ltd. (SDMC) on October 1. 2020. We chose the new firm name because SDMC started its new history as a consolidated subsidiary of SDK, and now SDK and SDMC share the idea of offering their customers and society optimum solutions which can be realized through fusion of the Showa Denko Group's wide ranging material technologies and SDMC's material design technologies utilizing characteristics of raw materials, ability to evaluate functions leading to process technology, including module segmentation.

Topics

[General]

- Joined “The Valuable 500”

In September 2020, SDK signed a document to declare joining “The Valuable 500,” an international initiative to promote inclusion of persons with disabilities, because the Company endorsed the aim and activities of the initiative. The Valuable 500 was launched to promote inclusion of persons with disabilities under an idea that “inclusive business creates inclusive society.” The Valuable 500 aims to encourage business leaders to make their own companies’ businesses inclusive ones in order to let persons with disabilities demonstrate their potential to add value to businesses, society and economy. The Showa Denko Group will promote diversity and inclusion, aiming to let all employees shine in the company as a stage, regardless of whether each employee has been disabled or not. We will act to move people’s heart and society, and provide the world with surprises and excitements.

1. Under the slogan that “We change unique personality into power” which aims to promote inclusion of persons with disabilities, the Showa Denko Group will promote establishment of inclusive workplaces where each employee, whether with or without disabilities or medical conditions, can feel peace of mind and show what everybody can do.
2. We will provide differently abled employees with environment and opportunities that enable them to show what they can do, career vision that fit to their personalities, and support to realize these.
3. We will promote employment of persons with disabilities (inclusion of persons with disabilities) with specific targets.

With this signing as motivation, the Showa Denko Group will start an in-house campaign named “Uniqueness Supporter 500.” In this campaign, we will call for 500 or more employees who voluntarily support the idea to establish inclusive workplaces.

Topics

[General]

- **Merger between consolidated subsidiaries and change of company name**

SDK decided at its Board of Directors meeting held on September 24, 2020 that its consolidated subsidiary Showa Denko Carbon Holding GmbH (SDCH) will merge with its consolidated subsidiary Showa Denko Europe GmbH (SDE), and that the surviving company SDCH will change its company name into Showa Denko Europe GmbH (new SDE) effective as of January 1, 2021. This time, SDK decided to merge these two companies for the purpose of expanding its business operation in Europe further by fusing SDCH's business management function and SDE's business support function into one.

In order to clarify its business management function in Europe, SDCH will change its company name into "Showa Denko Europe GmbH" at the same date of the merger.

[Chemicals segment]

- **Got a license to process industrial waste, aiming to promote plastic chemical recycling**

In July 2020, SDK obtained a license to process industrial waste, and started to accept used plastics which were crushed and molded. Since 2003, SDK's Kawasaki Plant has been operating "plastic chemical recycling business," a business to recycle used plastics as raw materials for chemicals under the provisions of Containers and Packaging Recycling Law. We gasify used plastics under high temperature, and decompose them to the level of molecules. Then gasified plastics are converted into hydrogen (low-carbon hydrogen) and carbon dioxide (CO_2). We use low-carbon hydrogen as raw material to produce ammonia, and CO_2 as raw material to produce dry ice and carbonated drinks. This acquisition of the license to process industrial waste enables SDK to diversify sources of used plastics. Thus, SDK has established a used-plastics procurement system that supports stable operation of our plastic chemical recycling business. SDK has been promoting businesses that support resources-recycling oriented society, aiming to contribute to solution of issues related to SDGs. Through provision of various products and services, we will continue contributing to creation of society where affluence and sustainability are harmonized.

Topics

[Inorganics segment]

- **Developed highly wet-resistant, highly heat-conductive aluminum nitride filler**

SDK developed highly wet-resistant, highly heat-conductive aluminum nitride filler to be used as heat-radiation filler for semiconductor devices, and started to offer samples of the aluminum nitride filler in July 2020. In accordance with the development of more powerful semiconductor devices, heat generated in semiconductor devices continues to increase. On the other hand, accumulated heat may have harmful effects including a decline in efficiency, reliability and safety not only on semiconductor devices themselves but also on electronic devices in which those semiconductor devices are installed. Thus, it is very important for electronic device manufacturers to remove generated heat quickly in order to avoid these harmful effects of accumulated heat. Aluminum nitride has excellent properties including high insulation against electricity, almost the same coefficient of thermal expansion as that of silicon, and corrosion resistance against chlorinated gases which are used in the process to produce semiconductors. Aluminum nitride also has thermal conductivity higher than those of other materials for fillers such as alumina and boron nitride. However, if moisture sticks to the surface of aluminum nitride, aluminum nitride starts to hydrolyze, and corrosive ammonia is produced. It is a weakness of aluminum nitride. This time, however, SDK successfully developed a technology to treat the surface of aluminum nitride with ultra-thin film which drastically reduces the amount of corrosive ammonia produced as hydrolysate of the material to ten-thousandth of that of aluminum nitride without the surface treatment. This surface treatment does not reduce thermal conductivity of aluminum nitride filler injected into resins. Through offer of samples, we will develop a new market for this aluminum nitride filler, and plans to start mass production of the filler in 2023. Through offer of best solutions, SDK will respond to the demands of customers in the semiconductor device industry which is expected to continue showing rapid growth in accordance with the development of new technologies including 5G mobile communication technology and CASE (Connected, Autonomous/Automated, Shared, and Electric) related technologies in the automotive industry.

Topics

[Aluminum segment]

- **Showa Aluminum Can had a ceremony to celebrate the compilation of the third production base in Vietnam**

In July 2020, Showa Aluminum Can Corporation (SAC), a consolidated subsidiary of SDK, started operation of its third base in Vietnam to produce aluminum cans. This new production base (Ba Ria-Vung Tau Factory) is in Ba Ria-Vung Tau Province, which is in the southern part of Vietnam. Ba Ria-Vung Tau Factory is the third production base of Hanacans Joint Stock Company (Hanacans), which is a consolidated Vietnamese subsidiary of SAC, and has production lines with a capacity to produce 1.3 billion can bodies per year. In addition to the construction of Ba Ria-Vung Tau Factory, Hanacans is now installing an additional line to produce can ends in its Bac Ninh Factory located in Bac Ninh Province, which is in the suburb of Hanoi. SAC acquired shares in Hanacans in May 2014, and continues to have Hanacans introduce SAC's leading production technologies and quality control system since then. Hanacans has been successfully increasing the sales of aluminum cans in northern and central parts of Vietnam. As a result of the completion of Ba Ria-Vung Tau Factory, Hanacans has established an aluminum can production system with three production bases that covers northern, central, and southern parts of Vietnam. Now Hanacans has a capacity to produce 3.3 billion can bodies and 3.3 billion can ends per year. In Vietnam which extends north and south, the Showa Denko Group will make the most of its aluminum can production system that can quickly respond to the demand of the market. Thus, the Showa Denko Group will establish a KOSEIHA Business in the rapidly growing Vietnamese market.

Topics

[Showa Denko Materials segment]

- **Showa Denko Materials launched mass production of 5G-compatible printed wiring board material “MCL-HS200” with low transmission loss and low warpage properties**

Showa Denko Materials Co., Ltd. (SDMC) launched mass production of “MCL-HS200,” an advanced functional laminate material for printed wiring boards, with low transmission loss and low warpage properties required for semiconductor packaging substrates used in such fields as fifth-generation mobile communications systems (5G), advanced driverassistance systems (ADAS)*1, and artificial intelligence (AI) in March. With technological innovations like the Internet of Things (IoT) for electronics-related products, ADAS, and AI making strides in recent years, 5G networks providing high speed, high capacity, low latency, and multiple connections have become indispensable for the widespread use of these technologies. Demand for 5G is also rising as people around the world spend more time working remotely amid the coronavirus pandemic. Applications such as 5G and ADAS require higher frequency bands than electric signals used by fourth-generation mobile communications systems (4G), but with electric signals suffering significant attenuation (transmission loss) at higher frequencies, lower transmission loss is required for high frequency circuit boards. Reducing signal delay is also an important requirement.

Furthermore, as devices mounted on smartphones, etc. become smaller and more functionally sophisticated, demand is growing for thinner circuit boards that also minimize warpage caused by semiconductor packaging. However, creating a material capable of not only reducing transmission loss and signal delay but also minimizing warpage presented a difficult challenge. By applying low polarity resin materials and low dielectric glass cloth, SDMC achieved lower transmission loss properties (low dielectric loss tangent) and lower dielectric constant*2, reducing signal delay. In addition, SDMC attained superior low warpage properties required for thinner modules by using low coefficient of thermal expansion (CTE) resins and increasing the filler content. SDMC combined its low CTE technology for semiconductor packaging substrates and low dielectric constant technology for multilayer substrate materials designed for high-speed communications, which successfully developed a material with high-dimensional properties of low CTE 10 ppm/℃ and low dielectric constant (Dk) 3.4 (10 GHz). SDMC is currently pursuing the development of even thinner and lower dielectric constant materials. SDMC will continue to contribute to more advanced functional printed wiring boards through our superior technologies and new product development.

*1: Advanced driver-assistance systems (ADAS) are systems to prevent accidents by detecting the vehicle's surroundings through sensors mounted on its front, sides and rear.

*2: Dielectric constant is the value representing the degree of electronic polarization of a substance in an electric field that exerts force on a charged object, expressed as the ratio of the dielectric constants of two substances.