

**ACHIEVING  
SUSTAINABLE  
GROWTH  
THROUGH  
INNOVATION**



**ANNUAL REPORT  
2019**



# Our Mission

## We will satisfy all stakeholders

We at the Showa Denko Group will provide products and services that are useful and safe and exceed our customers' expectations, thereby enhancing the value of the Group, giving satisfaction to our shareholders, and contributing to the sound growth of international society as a responsible corporate citizen.



### Forward-Looking Statements:

This annual report contains statements relating to management's projections of future profits, the possible achievement of the Company's financial goals and objectives, and management's expectations for the Company's product development program. The Company cannot guarantee that these expectations and projections will be realized or correct. Actual results may differ materially from the results anticipated in the statements included herein due to a variety of 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. The timely commercialization of products under development by the Company may be disrupted or delayed by a variety of factors, including market acceptance, the introduction of new products by competitors, and changes in regulations or laws. The foregoing list of factors is not inclusive. We undertake no obligation to update the forward-looking statements unless required by law.

## Profile

Showa Denko K.K. (SDK) was founded in 1939. Ranked as one of Japan's leading chemical companies, SDK operates in six major segments: petrochemicals, chemicals, electronics, inorganics, aluminum, and others.

The Showa Denko Group noticed high potential for abundant hydro power, a major resource in Japan. The Group began by focusing on the promising future of the electrochemical industry, which can make the most of hydroelectric power, and expanded business domains to cover inorganic chemicals, organic chemicals, and metallic materials. Today, the Group is a unique chemical manufacturer that supplies petrochemicals, chemicals, electronics, inorganics, and aluminum. In these fields, SDK produces a broad spectrum of materials and parts, and has wide-ranging technologies. By taking advantage of this uniqueness as well as by deepening and fusing our inorganic, metal, and organic technologies, we will produce excellent *Koseiha* products, aiming to become a "social contribution company" that helps to create a society where wealth and sustainability are harmonized.

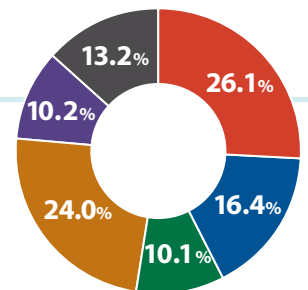
The Group will strengthen earning power and reduce fluctuations in income by promoting The TOP 2021 medium-term business plan, which was launched in January 2019, by enhancing the value of the Group, and by establishing a stable foundation that will always support the Group's growth far into the future.

The Group is also committed to the principles of Responsible Care and is vigorously carrying out an action plan to protect the environment as well as health and safety.

## Showa Denko at a Glance

Net sales 2019 **¥906.5 billion**

Note: The ratios of respective segments have been calculated after adding the amount of adjustments to net sales.



### Petrochemicals

Olefins (ethylene and propylene), organic chemicals (vinyl acetate monomer, ethyl acetate, and allyl alcohol), and polymer (polypropylene)



### Chemicals

Functional chemicals (polymer emulsion and unsaturated polyester resin), industrial gases (liquefied carbon dioxide, dry ice, oxygen, nitrogen, and hydrogen), basic chemicals (liquefied ammonia, acrylonitrile, and chloroprene rubber), electronic chemicals (high-purity gases for electronics), and coating materials



### Electronics

Hard disks (HDs), SiC epitaxial wafers for power devices, compound semiconductors (LED chips), and lithium-ion battery (LIB) materials



### Inorganics

Graphite electrodes and ceramics (alumina, abrasives, and ultrafine titanium oxide)



### Aluminum

Rolled products (high-purity foils for capacitors), specialty components (cylinders for laser beam printers [LBPs], extrusions, forged products, and heat exchangers), and beverage cans



### Others

Building materials and general trading

See pages 8-9 for Business Segments.

## About Annual Report 2019

This report mainly covers the Showa Denko Group's financial information such as business strategies, outline of businesses, and financial results. PDF and online versions of this report are available on the Web. <https://www.sdk.co.jp/english/ir/library/annual.html>

In addition, various materials which help you understand the Group are available on our website. The latest information is also available.

**IR Information** <https://www.sdk.co.jp/english/ir.html>

Financial statements (annual, quarterly), corporate performance (performance forecasts and performance

trends), and stock price information are available at this site. Taking advantage of the latest technology, we offer interactive charts enabling you to see charts of indicators that you choose.

**ESG Information** <https://www.sdk.co.jp/english/csr.html>

At this site, you can see our measures and performance data for environment (E), social (S), and governance (G).

We issue the integrated report *SHOWA DENKO REPORT* covering the general outline of the Showa Denko Group and annual major topics. PDF and HTML versions of the above are available on the Web.

# Our Strengths

Showa Denko has many products maintaining high world market shares. Some of our high-priority products in our business segments are shown here.

## Chemicals



### High-purity gases for electronics

The world's largest manufacturer of specialty gases, such as C<sub>4</sub>F<sub>6</sub>, HBr, Cl<sub>2</sub>, NH<sub>3</sub>

High-purity gases for electronics are used as etching and cleaning gases as well as materials for making the membranes necessary for producing electronic devices, including semiconductors, LCD panels, and solar batteries.

In 2020, we decided to establish the second plant in Shanghai to make high-purity nitrous oxide (N<sub>2</sub>O) with annual production capacity of 1,000 tons and high-purity octafluorocyclobutane (C<sub>4</sub>F<sub>8</sub>) with annual production capacity of 600 tons. The new plant will start operating in the second half of 2021. In addition, we will establish a new production line in Taiwan to produce high-purity C<sub>2</sub>F<sub>4</sub> with annual production capacity of 150 tons. Startup of operations of the new line is scheduled for the spring of 2020.

## Electronics



### HD media

The world's largest independent manufacturer

HD media, one of the major parts of hard disk drives (HDDs), are used in notebook PCs and consumer electronics. Demand is expected to continue growing for use in largescale data centers. We are developing next-generation recording technologies for HDDs,

including microwave-assisted magnetic recording (MAMR) technology and heat-assisted magnetic recording (HAMR) technology. We started shipments of our newly developed 3.5-inch MAMR HD media in 2019 and have developed technology to manufacture HAMR HD media in 2020. HD media have a significant effect on HDD storage capacity. We will continue contributing to the expansion of storage capacities of HDDs using our motto "Best in Class."



### SiC epitaxial wafers for power devices

The second largest independent manufacturer in the world

We have been contributing to the commercialization and market expansion of "full SiC" power modules through production of high-grade SiC epi-wafers for power transistors since 2015, in addition to those for diodes. SiC-based power devices are attracting attention due to their features that enable production of smaller, lighter, and more energy-efficient next-generation power control modules. In 2019, we developed a second generation of high-grade SiC epitaxial wafers (HGE-2G) for power semiconductors.



### Aluminum laminated film for LIB packaging

The second largest manufacturer in the world

We provide packaging materials for pouch lithium-ion batteries (LIBs) used in smartphones and tablet PCs. Demand for pouch LIBs is growing due to their advantages, such as high levels of heat dissipation and flexibility in molding.

## Inorganics



### Graphite electrodes

The world's largest manufacturer

Graphite electrodes are used in electric arc furnaces for steel production. In 2017, we acquired a German graphite electrode company. We now have graphite electrode production bases in Europe and Southeast Asia, in addition to our existing bases in Japan, the

United States, and China, and became the leading supplier in the global graphite electrode industry. We are investing in plants and equipment to improve product quality and to realize the effect of business integration as soon as possible, in this way strengthening the competitiveness of our graphite electrodes.

## Aluminum



### High-purity aluminum foil for capacitors

The world's largest manufacturer

We provide high-purity aluminum foil for aluminum electrolytic capacitors, which are widely used in air conditioners, automotive parts, and solar

power generation. Our proprietary manufacturing process has enabled us to realize high productivity and quality.



### Aluminum cans

The second largest manufacturer in Vietnam and the fourth largest in Japan

Since 1971, we have been operating our aluminum can business as a pioneer who produced the first aluminum can for beverages in Japan.

We have been expanding our aluminum can business in Vietnam and Thailand, focusing on the rapidly growing Southeast Asian market. In 2019, we decided to establish our third plant in Vietnam (in the southern part of the country) and we expanded the capacity of can-end production lines in the existing factory in northern Vietnam. The Group will have three plants to cover all of Vietnam with the capacity to produce 3.3 billion sets of can bodies and can ends per year. The new facilities are scheduled to start production in July 2020.

Note: The worldwide or global market positions shown on this page are SDK's estimates.

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# Consolidated 11-Year Summary

## Financial Highlights

Showa Denko K.K. and Consolidated Subsidiaries		Millions of yen					
December 31	2009	2010 (Note 2)	2011 (Note 2)	2012	2013	2014	
<b>For the year</b>							
Net sales	¥678,204	¥797,189	¥854,158	¥739,675	¥847,803	¥ 872,785	
Petrochemicals	235,999	199,590	250,396	190,939	286,732	281,400	
Chemicals	91,887	133,578	130,203	127,252	130,402	138,695	
Electronics	127,807	147,988	165,011	163,306	136,548	138,537	
Inorganics	53,711	77,958	77,564	65,573	65,919	67,557	
Aluminum	168,799	130,084	124,280	92,194	90,369	97,946	
Others	—	154,084	150,583	135,280	176,516	191,610	
Adjustments	—	(46,093)	(43,879)	(34,870)	(38,684)	(42,959)	
Operating income	(4,983)	38,723	47,357	28,108	25,953	20,551	
Petrochemicals	7,992	2,278	3,484	(977)	4,398	(4,930)	
Chemicals	446	5,618	2,035	(875)	2,559	5,460	
Electronics	(9,775)	14,909	30,242	32,311	21,940	25,770	
Inorganics	3,603	10,085	9,640	2,954	(838)	(300)	
Aluminum	(4,217)	8,543	6,212	1,581	5,845	2,999	
Others	—	2,041	1,860	89	(626)	(1,041)	
Adjustments	(3,032)	(4,752)	(6,116)	(6,975)	(7,324)	(7,406)	
Net income attributable to owners of the parent	(37,981)	12,706	16,980	9,368	9,065	2,929	
Net cash provided by operating activities	19,846	66,293	69,437	53,310	63,565	66,996	
Net cash provided by (used in) investing activities	(26,595)	(49,074)	(38,671)	(41,741)	(55,203)	(46,876)	
Free cash flow	(6,749)	17,218	30,766	11,569	8,362	20,120	
R&D expenditures	20,743	20,670	21,597	20,633	20,435	20,362	
Capital expenditures	38,666	58,035	38,794	42,503	44,370	47,318	
Depreciation and amortization	54,178	50,678	49,413	46,232	39,779	40,673	
<b>At year-end</b>							
Total assets	958,303	924,484	941,303	933,162	985,771	1,009,843	
Total net assets	286,722	284,965	295,745	314,966	345,811	319,087	
Interest-bearing debt	373,911	351,034	347,308	342,262	353,686	383,124	
Debt/equity ratio (gross, times)	1.30	1.23	1.17	1.09	1.02	1.20	
Yen							
<b>Per share</b> (Note 4)							
Net income—primary (Note 5)	¥ (29.44)	¥ 8.49	¥ 11.35	¥ 6.26	¥ 6.06	¥ 1.99	
Net income—fully diluted (Note 5)	—	—	11.20	—	—	—	
Net assets	163.11	161.47	168.33	182.24	201.27	209.76	
Cash dividends (applicable to the period) (Note 6)	3.00	3.00	3.00	3.00	3.00	3.00	
<b>Number of employees at year-end</b>	11,564	11,597	11,542	9,890	10,234	10,577	

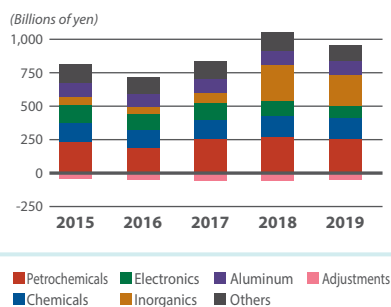
Notes: 1. Yen amounts have been translated into U.S. dollars, for convenience only, at the rate of ¥109.56 to US\$1.00, the approximate rate of exchange at December 31, 2019.

2. Changing the segmentation

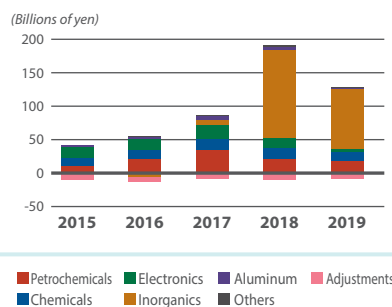
Effective from the year ended December 31, 2011, the Companies have applied "Accounting Standard for Disclosures about Segments of an Enterprise and Related Information" (Accounting Standards Board of Japan (ASBJ) Statement No.17, issued on June 30, 2010) and "Guidance on the Accounting Standard for Disclosures about Segments of an Enterprise and Related Information" (ASBJ Guidance No. 20, issued on March 21, 2008). The segment information for the year ended December 31, 2010, which is restated under the accounting standard, is disclosed for comparison purposes.

LIB materials was transferred from "Others" to "Electronics" from the year ended December 31, 2017. The segment information for the year ended December 2016 in the above table are based on the new segmentation. SiC epitaxial wafers for power devices was also transferred from "Others" to "Electronics" from the year ended December 31, 2019. The segment information for the year ended December 2018 in the above table are based on the new segmentation.

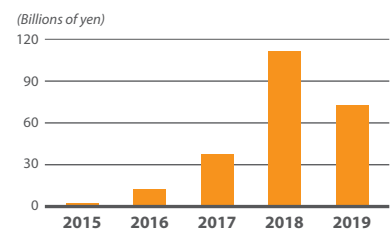
### Net Sales by Segment



### Operating Income by Segment



### Net Income Attributable to Owners of the Parent





Showa Denko K.K. and Consolidated Subsidiaries					Millions of yen		Thousands of U.S. dollars (Note 1)	
December 31	2015	2016 (Note 2)	2017 (Note 3)	2018 (Note 2)	2019			
<b>For the year</b>								
Net sales	¥775,732	¥671,159	¥ 780,387	¥ 992,136	¥ 906,454	\$8,273,583		
Petrochemicals	231,288	185,783	251,128	268,879	250,678	2,288,046		
Chemicals	142,292	134,529	148,758	156,541	157,480	1,437,386		
Electronics	131,492	120,461	123,064	111,912	96,445	880,295		
Inorganics	63,476	50,870	73,442	266,149	230,135	2,100,536		
Aluminum	100,756	98,575	105,439	108,254	97,542	890,308		
Others	147,233	128,740	133,624	137,324	126,163	1,151,542		
Adjustments	(40,805)	(47,800)	(55,067)	(56,922)	(51,989)	(474,529)		
Operating income	33,508	42,053	77,708	180,003	120,798	1,102,574		
Petrochemicals	10,543	20,690	33,357	20,333	17,201	156,997		
Chemicals	10,707	13,824	16,474	17,393	13,656	124,644		
Electronics	17,472	15,015	21,925	13,557	4,880	44,540		
Inorganics	(1,249)	(5,758)	6,979	132,445	89,256	814,673		
Aluminum	2,563	4,416	6,697	4,942	1,746	15,939		
Others	1,329	623	633	1,734	1,819	16,602		
Adjustments	(7,857)	(6,758)	(8,357)	(10,400)	(7,759)	(70,821)		
Net income attributable to owners of the parent	921	12,305	37,404	111,503	73,088	667,108		
Net cash provided by operating activities	61,170	68,949	67,235	149,785	78,554	716,991		
Net cash provided by (used in) investing activities	(42,497)	(53,754)	(29,866)	(49,338)	(48,156)	(439,542)		
Free cash flow	18,674	15,195	37,369	100,447	30,397	277,449		
R&D expenditures	20,289	17,313	18,539	19,735	20,605	188,069		
Capital expenditures	44,059	39,276	41,787	41,727	50,216	458,343		
Depreciation and amortization	42,137	38,761	38,565	39,459	37,704	344,141		
<b>At year-end</b>								
Total assets	940,494	932,698	1,026,999	1,074,983	1,076,381	9,824,584		
Total net assets	308,142	311,231	368,994	465,340	519,433	4,741,082		
Interest-bearing debt	368,835	359,929	346,726	287,968	298,524	2,724,750		
Debt/equity ratio (gross, times)	1.20	1.16	0.94	0.62	0.60			
					Yen		U.S. dollars (Note 1)	
<b>Per share (Note 4)</b>								
Net income—primary (Note 5)	¥ 6.45	¥ 86.27	¥ 262.44	¥ 758.15	¥ 501.03	\$ 4.57		
Net income—fully diluted (Note 5)	—	—	—	—	—	—		
Net assets	2,076.05	2,080.85	2,473.06	3,057.16	3,423.25	31.25		
Cash dividends (applicable to the period) (Note 6)	3.00	—	80.00	120.00	130.00	1.19		
<b>Number of employees at year-end</b>	10,561	10,146	10,864	10,476	10,813			

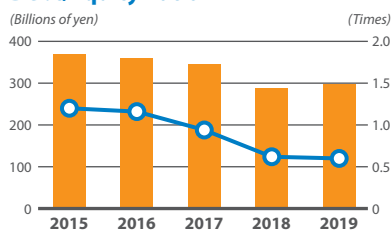
3. The tentative accounting policy applied to calculation of 2017 financial results due to consolidation of former SGL GE Holding GmbH was finalized when the Company settled accounts for the third quarter of 2018. Accordingly, the amounts of depreciation and amortization and some other costs for the year ending December 2017 were changed. The amount in the above table includes those retroactively changed numbers for the year ending December 2017.

4. SDK consolidated every ten shares of common stock into one share on July 1, 2016. "Per share" indicators for 2015 and 2016 (except for cash dividends) are calculated on the basis of the number of outstanding shares after this consolidation.

5. Net income per share has been computed based on the average number of shares of common stock outstanding during the respective fiscal year. Fully diluted net income per share additionally assumes the conversion of the convertible bonds. Diluted net income per share for 2015 and 2014 were not disclosed because there were no dilutive shares. Diluted net income per share for 2013 was not disclosed because the Company had no securities with dilutive effects.

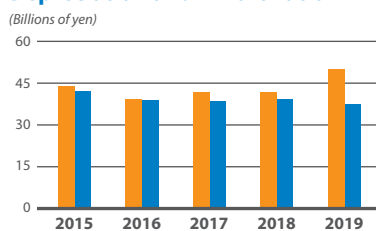
6. SDK resolved payment of dividends of Yen 30.00 per share based on the record date of May 11, 2017 at the extraordinary general meeting of shareholders held in June 2017. Cash dividends applicable to 2017 includes this amount.

### Interest-Bearing Debt Debt/Equity Ratio



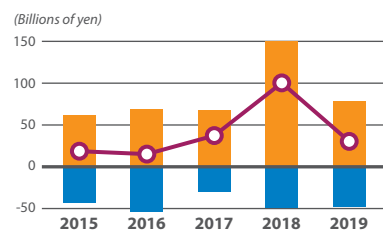
■ Interest-bearing debt (left axis)  
● Debt/Equity ratio (right axis, gross)

### Capital Expenditures Depreciation and Amortization



■ Capital expenditures  
■ Depreciation and amortization

### Cash Flows



■ Cash flows from operating activities  
■ Cash flows from investing activities  
○ Free cash flow