

FY2018 2Q Financial Results Presentation: Summary and Q&A

(held on November 7, 2018)

(1) Progress in the “Denka Value-Up” Management Plan

Having got off to a strong start, we forecast that full-year fiscal 2018 operating income will total ¥36.0 billion and intend to steadily pursue the plan’s numerical targets for fiscal 2020, namely, consolidated operating income of ¥42.0 billion and an operating income ratio of 10% or more, while striving to raise the ratio of sales by specialty businesses to 75% or more.

Reference: Operating income breakdown

	Operating income from specialty businesses	Consolidated operating income	Operating income ratio
			(Billions of yen)
FY2017 results	16.7	33.7	8.5%
FY2018 forecasts	19.5	36.0	8.8%
FY2020 targets	31.5	42.0	10.0% or more

(2) Overview of Financial Results for FY2018 First Half (year-on-year changes)

(Billions of yen)

① Net sales:	198.3 (+10.5)
	Growth in sales volume (+1.5)
	Differences in sales prices (+9.0)
② Operating income:	14.6 (+0.3)
	Growth in sales volume (+2.0): Electronics & Innovative Products, etc.
	Improvement in spread (+2.6):
	Sales prices (+10.9)
	Rises in raw material and fuel prices (-8.2)
	Effect of foreign exchange (-0.1)
	Sales prices (-1.8)
	Raw material prices, etc. (+1.7)
	Other cost elements
	Periodic repair of styrene monomer (SM) production facilities (-1.4)
	Damage incurred by Denka Performance Elastomer (DPE) in the United States due to cold wave (-1.0)
	Decrease in the Omi Plant’s hydroelectric power generation capacity due to water depletion (-0.3)
	Other manufacturing costs (-0.4): Labor costs, etc.
	Forward-looking investments, etc. (-1.0): Rise in R&D expenses

	Net increase due to factors listed above: (+0.3)

Net sales increased thanks to sales volume growth in Electronics & Innovative Products and upward revisions in petrochemical product prices in step with rises in raw material and fuel prices

Operating income increased due to sales volume growth and improved trade conditions together offsetting such negative factors as costs for the periodic repair of SM production facilities, the impact of a cold wave that hit the United States, a decline in the Omi Plant's hydroelectric power generation capacity due to water depletion and rising expenses for R&D and forward-looking investments.

(3) Full-Year Operating Results Forecasts for FY2018 (year-on-year changes)

(Billions of yen)

① Net sales:	410.0 (+14.4)
	Growth in sales volume (+2.0)
	Differences in sales prices (+12.4)
② Operating income:	36.0 (+2.3)
	Growth in sales volume (+7.6): Electronics & Innovative Products, etc.
	Improvement in spread (+2.6):
	Sales prices (+15.4)
	Rises in raw material and fuel prices (-12.7)
	Effect of foreign exchange (-0.4)
	Sales prices (-2.9)
	Raw material prices, etc. (+2.5)
	Other cost elements
	Periodic repair of SM production facilities (-1.4)
	Damage incurred by DPE in the United States due to cold wave (-1.0)
	Decrease in the Omi Plant's hydroelectric power generation capacity due to water depletion (-0.3)
	Other manufacturing costs (-3.6): Labor costs, etc.
	Forward-looking investments, etc. (-1.1): Rise in R&D expenses

	Net increase due to factors listed above: (+0.3)

Net sales are expected to grow due to a significant increase in the volume of shipments of items produced by the Electronics & Innovative Products Div. for automotive-related applications and upward revisions in the sales prices of chloroprene rubber (CR) and styrene-based products in step with rises in raw material and fuel prices

Operating income is expected to increase due to sales volume growth and improved trade conditions together offsetting such negative factors as costs for the periodic repair of SM production facilities, the impact of the cold wave that hit the United States, a decline in the Omi Plant's hydroelectric power generation capacity due to water depletion and rising expenses for R&D and forward-looking investments

(4) Shareholder Returns

Policies under the Denka Value-Up management plan: Remain committed to a targeted total shareholder return ratio of 50%; prioritize cash dividends; flexibly execute share repurchases
Forecasts for dividends per share for fiscal 2018:
Interim: ¥60; year-end: ¥60; full-year: ¥120; (dividend payout ratio: 42%)

(5) Topics: Current Status of and Future Outlook for Denka's Growth Strategies in the Automotive Field

- **Ceramics-based electronic circuit substrates:** For use in invertors controlling large driving motors

The lineup comprises two key offerings: aluminum nitride (boasting thermal conductivity) and silicon nitride (boasting toughness and reliability)

Denka is the single domestic company equipped with an end-to-end system encompassing every process ranging from the production of raw material powder to the manufacture of circuit substrates

Sales plan: ¥13.0 billion in fiscal 2020; ¥19.0 billion in fiscal 2025

- **Acetylene black:** For use in cathode materials for LiBs to provide active materials with electro-conductivity

Helping create high-performance, highly reliable batteries for automobiles thanks to Denka technologies that realize ultra-high purity from raw material acetylene

Denka boasts the world's largest acetylene black production capacity and is capable of meeting sudden demand surges

Sales plan: ¥5.5 billion in fiscal 2020; ¥7.5 billion in fiscal 2025

- **Spherical alumina filler:** For use in thermal solutions for LiBs (i.e., fillers for the manufacture of sheets and greases)

The lineup boasts a range of particle diameters and is backed by sophisticated particle design technologies, contributing to the creation of various materials with improved thermal conductivity

Denka is equipped with highly productive manufacturing processes and the world's largest production capacity

Sales plan: ¥7.0 billion in fiscal 2020; ¥8.5 billion in fiscal 2025

- **Solutions associated with lightweight vehicles, autonomous driving systems and connected cars**

Lightweight vehicles: ALONBRIGHT, a phosphor for use in LEDs for lighting devices and blinkers; HITTPATE, a metal circuit substrate for use in LED-based automobile headlamps

Autonomous driving systems and connected cars: Development of fillers that reduce transmission loss for use in automobile millimeter-wave radars, OLED sealants, and adhesives for LCDs

- **Forecast of demand for Denka products on the back of trend toward the intensive use of car electronics**

Despite an anticipated decline in demand for elastomer-based products due to the growing popularity of EVs, the current trend toward the intensive use of car electronics is expected to help Denka achieve business expansion in automobile-related fields, thanks to a significant surge in demand for ceramics-based electronic circuit substrates, acetylene black and spherical alumina fillers.

•Sales targets (automobile-related products)

			(Billions of yen)
	Net sales	Operating income	Operating income ratio
FY2018	37.0	6.0	16%
FY2020	50.0	9.0	18%
FY2022	70.0	15.0	21%

(6) Summary of Q&A Sessions

1. About overview of fiscal 2018 first-half operating results and full-year performance forecasts

1-1 Performance forecasts for Elastomers & Performance Plastics

Aiming to counter a surge in prices of raw material butadiene, DPE intends to push ahead with ongoing negotiations with clients that the company has signed long-term price formula contracts with, in an effort to upwardly revise product prices and reclaim profitability. In addition, prices for the raw materials of calcium carbide and acetylene-based CR are also rising. Taking this into account, we have decided not to downwardly revise product prices despite a fall in butadiene price since October. We will also upwardly revise prices of CR produced by the Omi Plant.

For fiscal 2019, we expect the completion of expanded CR production facilities in Germany to yield a 7,000 ton increase in overall annual production capacity. Nevertheless, we believe that burgeoning demand will soon catch up to growth in our supply capacity and force us to operate amid a tight supply-demand balance.

DPE also aims to achieve growth in profit from its CR business in fiscal 2019 by resolving issues attributable to the impact of a cold wave and by raising profitability.

1-2 Performance forecasts for Infrastructure & Social Solutions in the second half

We will strive to ensure customers' understanding of the rationale behind higher cement prices while resolving issues attributable to the impact of natural disasters that caused sales volumes to decline in the first half.

1-3 Full-year performance forecasts for influenza vaccines and diagnostic reagents and progress in operations related to the reagent for measuring sd-LDL-C

We faced challenges in cultivating the influenza virus strains produced for vaccines. However, this was anticipated at the beginning of the fiscal year. Thanks to our efforts to stabilize production volume, we are now shipping a steady stream of vaccines, with no product units being rejected by customers.

Diagnostic reagents contributed to growth in sales in the first half due to an outbreak of measles in spring and an increase in exports of diagnostic reagents for inflammation marker to China.

Our reagent for measuring sd LDL-C, a risk marker for various critical diseases, was officially released on the U.S. market in July 2018 and is being used by major medical inspection facilities. Currently, procedures are under way to include this reagent among items covered by medical insurance. In China, we have signed a supply agreement with another local facility, thus securing two clients. Domestically, all major inspection facilities have decided to use this reagent in health checkups, and procedures are under way to apply for approval from relevant authorities for its use as an in-vitro diagnostic reagent. Moreover, we will strive to facilitate public awareness of its usefulness by stepping up involvement in academic circles in countries around the world. In these ways, we will raise the number of health checkups in which this reagent is used.

2. Current status of and future outlook for Denka's growth strategies in the automotive field

2-1 Performance requirements for ceramics-based electronic circuit substrates

The driving components of EVs and PHEVs get even hotter than those of conventional vehicles because their motors are so large. Accordingly, automakers are in need of ceramics-based electronic circuit substrates made of silicon nitride and aluminum nitride to ensure superior thermal conductivity. Although these materials had previously been deemed not optimal for automotive applications as their properties are far in excess of requirements for conventional vehicles, they are now considered more appropriate than metal substrates like HITTPLATE.

With this in mind, Denka has launched a co-development project with Mitsubishi Material, as announced via a press release. Bringing together Mitsubishi Materials' circuit formation technologies and Denka's ceramic sintering technologies, plans call for creating ceramics-based electronic circuit substrates with superior thermal conductivity and world-leading competitiveness.

2-2 An increase in acetylene black production volume

With the expectation of growth in acetylene black demand, discussions incorporating a global perspective about how to increase our production volume are now under way. Our possible options include increasing the volume of acetylene gas procurement at the Chiba Plant, appropriating raw materials originally earmarked by Singaporean production sites for use in manganese batteries and establishing a third manufacturing base.

2-3 Demand for spherical alumina filler

Not only have we delivered our products to U.S. automakers for use in their EVs, we have also served European automakers. Although the number of EV makers is expected to increase going forward, we believe that spherical alumina will remain an essential component of sealant for automotive-use thermal materials due to its thermal conductivity.

2-4 Capital investment in the automotive field

As part of a ¥60 billion budget earmarked for strategic investment under the Denka Value-Up management plan, plans call for undertaking capital investment in ceramics-based electronic circuit substrates, acetylene black and spherical alumina production facilities.

From a BCP perspective, we will also secure multiple manufacturing bases. For example, our spherical alumina is produced by the Omuta Plant and another facility in Singapore, while acetylene black will be manufactured at a total of three sites, namely, the Chiba Plant, the aforementioned facility in Singapore and a third facility we expect to construct. By doing so, we will maintain high market share. We believe that before long, these investments will be recovered and the resulting profit will offset fixed costs.