

## The Nippon Synthetic Chemical Industry Co., Ltd.

(4201 TSE 1st Section)

Issue Date: June 6, 2016

## Steady core business despite lower income expected in FY2017-3 due to Kumamoto Earthquakes

### EVOH resin "Soarnol" maintains strong performance

In FY2016-3, sales amounted to 104.6 billion yen, a slight decrease year-on-year, but operating income increased from 11.2 billion yen in the previous year to 13.6 billion yen with operating margin significantly improving from 10.6% to 13.0%. A largely flat year-on-year sales growth was driven by a decrease in the sales volume associated with withdrawal from unprofitable businesses and a change in selling prices due to a drop in the domestic naphtha price, while the sales volume of core products increased year-on-year. Particularly strong results came from EVOH resin "Soarnol", which enjoyed strong demand centered on food packaging applications in the U.S. and Europe and led the performance this year. Despite a decrease in sales, operating income achieved an increase by c.2.4 billion yen, driven by effects of an increase in sales of "Soarnol" as well as lower raw materials prices due to stabilization of the surged price of vinyl acetate monomers in Europe and a decline in the domestic naphtha price.

A strong growth is expected in EVOH resins, as demand for barrier is increasing in response to needs of a shelf life extension for foods in the developed market and a sign of growing demand has started to be seen in the emerging market. As for "OPL Film", an optical-use PVOH film for polarizing plates, some speculates that adoption of organic EL (OEL) panels to smartphones has a negative effect(\*), but the impact of a shift to OEL panels for use in smartphones is limited as around 70% of demand is for use in TVs.

(\*) Two polarizing plates are necessary for a liquid crystal panel, but one polarizing panel is necessary for an OEL panel.

### Expect performance to deteriorate in FY2017-3 due to Kumamoto Earthquakes but recover in the following year

In FY2017-3, as the Kumamoto Plant was damaged by "2016 Kumamoto Earthquakes", estimated loss related to the disaster is c.3.0 billion yen in total. The Kumamoto Plant is currently under restoration work and is scheduled to resume production in sequence from June. Under IFRS which the Company has decided to adopt voluntarily from FY2017-3, disaster-related loss will be reported as operating loss. Given these impact, the Company forecasts operating income to decrease from 13.6 billion yen in FY2016-3 to 9.2 billion yen in FY2017-3 with operating margin deteriorating from 13.0% to 8.9%. However, performance will deteriorate in FY2017-3 only temporarily, and operating income is expected to recover at least to the normal level in FY2018-3.

#### ◆ Business Trend

(JPY M)

FY	Revenue	y/y	Operating income	Operating margin	Ordinary profit	Ordinary profit margin	Net income*	Net margin	EBITDA	EPS (yen)
Mar-12 Actual	87,243	95.6%	7,117	8.2%	6,763	7.8%	3,154	3.6%	13,714	32.38
Mar-13 Actual	91,976	105.4%	11,859	12.9%	12,375	13.5%	8,158	8.9%	18,792	83.75
Mar-14 Actual	111,151	120.8%	16,229	14.6%	16,712	15.0%	8,018	7.2%	23,358	82.32
Mar-15 Actual	105,202	94.6%	11,186	10.6%	11,296	10.7%	6,648	6.3%	18,238	68.25
Mar-16 Actual	104,630	99.5%	13,584	13.0%	13,655	13.1%	8,971	8.6%	21,746	92.11
Mar-17 Company Est**	103,500	98.9%	9,200	8.9%	n.a.	n.a.	6,200	6.0%	19,000	63.66

\*Net income attributable to parent company shareholders, \*\* "y/y" is for reference purpose (estimation is based on IFRS).

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### Basic Report (FY2016-3)

SQUADD Research &amp; Consulting, Inc.

Tomoko Okuyama

#### Company Information

Name	NIPPON GOHSEI
Equity Code	4201
Market Section	TSEs 1st Section
Location	Komatsubara-cho, Kita-ku, Osaka
President	Katsumi Kimura
Foundation Date	1927/3/30
Capital	17,989 mil yen
Listed Date	May of 1949
URL	<a href="http://www.nichigo.co.jp/">http://www.nichigo.co.jp/</a>
Industry	Material >Chemistry >Synthetic Resins
Accounting Period	March

#### Key Indicators

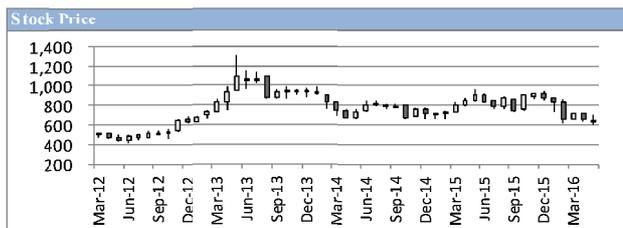
As of 2016/5/30

Stock Price	641 yen
Yearly High	872 yen (2016/1/4)
Yearly Low	599 yen (2016/5/11)
Shares Outstanding	98,369,186 Stock
Unit of Trading	1,000 Stock
Market Cap	63,055 mil yen
Dividend (Est)	20.00 yen (FY2017/3)
Div-Yield (Est)	3.12 (FY2017/3)
EPS (Est)	63.66 yen (FY2017/3)
EPS (Act)	92.11 yen (FY2016/3)
PER (Est)	10.07 times (FY2017/3)
PBR (Act)	0.71 times (2016/3)

## Brief Investor Summary

(JPY M)

Name(J)	日本合成化学工業株式会社	Company Name(E)	NIPPON GOHSEI	Foundation Date	1927/3/30
Location	2-4, Komatsubara-cho, Kita-ku, Osaka	URL	<a href="http://www.nichigo.co.jp/">http://www.nichigo.co.jp/</a>	President	Katsumi Kimura
Market Section	TSE's 1st Section	Equity Code	4201	Company Rating	A- (格付投資情報センター)
Industry	Material > Chemistry > Synthetic Resins	Capital	17,989 mil yen	Number of Employees	non-consolidated 1,075 consolidated 1,737
Underwriter	SMBN Nikko Sec	Main Bank	Mizuho Bank, Ltd.	Average Salary*	non-consolidated (thousand yen) 7,401
Auditor	Ernst & Young ShinNihon LLC	Going concern note	none		
Business Profile	Main businesses are (1) polyvinyl alcohol (PVOH), (2) ethylene vinyl alcohol copolymer (EVOH) and (3) pressure sensitive adhesive resins (Specialty Polymers), of which PVOH film for polarizing plates "OPL film" and EVOH resin "SOARNOL" are two flagship products. These two core products are dominated by NIPPON GOHSEI and KURARAY, two leaders in the industry. The Company is currently focusing on establishment of new core products following two core products by not only developing new products but also cultivating demand through expanding applications of existing products.				
Future Outlook	With strong performance of two core products, the Company seeks to expand the business scale by enhancing production capacity through active capital investment. As for "OPL film", although adoption of organic EL to smartphones is a popular topic, as 70% of demand for polarizing plates comes from TVs, impact of a shift to organic EL in smartphones is limited. "SOARNOL" market continues expanding along with increasing needs of a shelf life extension for foods and growing demand in the emerging market. As the Kumamoto Plant was damaged by "2016 Kumamoto Earthquakes", performance in FY2017-3 is expected to temporarily deteriorate (impact on operating income: c.3.0 billion yen). The Kumamoto Plant is currently under restoration work and is scheduled to resume production in sequence from June 2016.				



Close Price	Market Cap	EV	PER	PBR	Div-Yield**
641	63,055	80,207	10.07	0.71	3.12%
FY	Mar-13	Mar-14	Mar-15	Mar-16	Latest
FYE Price	839	741	797	713	n.a.
High Price	869	1,306	853	966	872
Low Price	408	686	656	614	599
EPS	83.75	82.32	68.25	92.11	n.a.
PER	10.02	9.00	11.68	7.74	n.a.
PBR	1.25	0.94	0.93	0.79	n.a.

\* Forecast

Income Statement	Mar-13	Mar-14	Mar-15	Mar-16
Revenue	91,976	111,151	105,202	104,630
Gross profit	26,662	32,893	27,713	30,058
Operating income	11,859	16,229	11,186	13,584
Ordinary profit	12,375	16,712	11,296	13,655
Net income	8,158	8,018	6,648	8,971
Depreciation	6,933	7,129	7,052	8,162
R & D Costs	3,388	3,458	3,575	4,000
Interest expenses	224	200	64	86
EBITDA [ i ]	18,792	23,358	18,238	21,746
CAPEX [ ii ]	10,772	20,263	14,512	10,028
EBITDA-CAPEX	8,020	3,095	3,726	11,718

[ i ] EBITDA=Operating Income+Depreciation

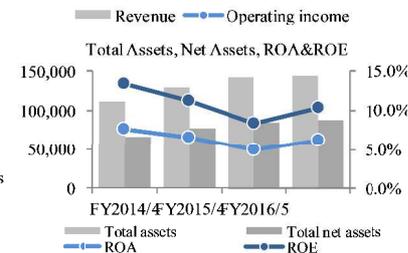
[ ii ] CAPEX=Capital Expenditure on CF Statement

Balance Sheet	Mar-13	Mar-14	Mar-15	Mar-16
Cash and deposits	8,433	5,785	7,312	7,728
Accounts receivable	25,120	24,478	27,375	26,236
Inventory	19,788	24,134	23,074	23,794
Other current assets	3,711	2,510	2,955	3,914
Total current assets	57,054	56,907	60,716	61,672
Tangible fixed assets	48,762	66,511	73,078	75,842
Intangible assets	489	496	407	353
Investment & other assets	5,873	6,193	7,909	6,899
Total fixed assets	55,125	73,200	81,394	83,094
Total assets	112,180	130,107	142,110	144,766
Total current liabilities	33,148	38,877	41,997	43,485
Non-current liabilities	13,587	14,515	16,398	13,020
Total Liabilities	46,735	53,392	58,395	56,505
Stockholders' equity	66,222	72,481	77,111	84,229
Other net assets	(778)	4,289	6,609	4,032
Total net assets	65,444	76,770	83,720	88,261
Interest Bearing Debt	10,040	15,350	25,237	17,798

Cash flow Statement	Mar-13	Mar-14	Mar-15	Mar-16
CF from operating activities	16,365	14,150	9,552	17,445
CF from investing activities	(10,557)	(20,033)	(14,618)	(8,168)
Free CF	5,808	(5,883)	(5,066)	9,277
CF from financing activities	(3,319)	1,996	6,263	(8,737)
Translation adjustments	425	954	330	(174)
Net CF	2,914	(2,933)	1,527	366

EV: Enterprise Value, EV=MarketCap + (Interest Bearing Debt - Cash and Deposits - Securities)

Major Shareholders	Share
Mitsubishi Chemical	51.5%
Norhan Trust Company (AVFC) RE-HCR00	2.3%
Japan Trustee Services Bank	1.8%
RBC ISB S/A DUBNON RESIDENT	1.5%
State Street Bank and Trust Company	1.2%
Others	41.7%
Total	100.0%



Segment Information	Revenue	Share%	Profit	Net Margin
FY2015-3				
Chemical Products	88,061	84.2%	13,158	14.9%
Trading and Others	13,031	12.5%	245	1.9%
Others	3,538	3.4%	177	5.0%
Adjustment	-	-	4	0.0%
Total	104,630	100.0%	13,584	13.0%

FY2015/3	1Q	2Q	3Q	4Q	Total
Revenue	26,068	26,461	25,662	27,011	105,202
Operating income	3,504	2,961	2,155	2,566	11,186
Operating margin	13.4%	11.2%	8.4%	9.5%	10.6%
FY2016/3	1Q	2Q	3Q	4Q	Total
Revenue	25,729	26,936	26,279	25,686	104,630
Operating income	3,013	3,957	3,197	3,417	30,584
Operating margin	11.7%	14.7%	12.2%	13.3%	28.7%
Revenue growth y/y	98.7%	101.8%	102.4%	95.1%	99.5%

Key Indicator	Mar-13	Mar-14	Mar-15	Mar-16
Revenue growth y/y	(%) 5.4%	20.8%	-5.4%	-0.5%
Operating income	(%) 12.9%	14.6%	10.6%	13.0%
Ordinary profit	(%) 13.5%	15.0%	10.7%	13.1%
Net income	(%) 8.9%	7.2%	6.3%	8.6%
EBITDA/Revenue	(%) 20.4%	21.0%	17.3%	20.8%
COGS/Total revenue	(%) 71.0%	70.4%	73.7%	71.3%
SG&A/Total revenue	(%) 16.1%	15.0%	15.7%	15.7%
R&D expense/Revenue	(%) 3.7%	3.1%	3.4%	3.8%
ROA	(%) 7.7%	6.6%	4.9%	6.3%
ROE	(%) 13.4%	11.3%	8.3%	10.4%
Current ratio	(%) 172.1%	146.6%	144.6%	141.8%
Capital ratio	(%) 58.3%	59.0%	58.9%	61.0%
D/E ratio	(times) 0.15	0.20	0.30	0.20
Interest Bearing Debt / EBITDA	(times) 0.53	0.66	1.38	0.82
Valuation	Mar-13	Mar-14	Mar-15	Mar-16
Market cap	(B JPY) 82,532	72,892	78,400	70,137
EV	(B JPY) 84,139	82,457	96,325	80,207
EV/Revenue	(times) 0.91	0.74	0.92	0.77
EV/EBITDA	(times) 4.48	3.53	5.28	3.69

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## 1. Business Overview

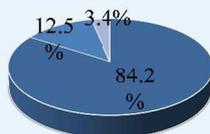
## 1-(1) Segment Composition

Revenue composition (FY2015-3)



- Synthetic Resins
- Organic synthesis
- Others

Revenue composition (FY2016-3)



- Chemical Products
- Trading and Others
- Others

### ◆ Expanding business with focus on acetic acid-based products since foundation in 1927

Established in 1927 as a chemical producer, The Nippon Synthetic Chemical Industry (hereinafter, "Nippon Gohsei" or the "Company") has developed business focused on acetic acid-based products since the successful industrialization of the first organic composition acetic acid in Japan in 1928. Currently, three main businesses are: (1) PVOH (or PVA: polyvinyl alcohol), (2) EVOH (ethylene-vinyl alcohol copolymer) and (3) Specialty polymers (pressure sensitive adhesives).

### ◆ Segments have been reclassified into "Chemical Products" and "Trading and Others" from FY2016-3

Triggered by withdrawal from some industrial chemicals and fine chemicals in FY2015-3, the Company reviewed the business segmentation in FY2016-3. As a result, segmentation was changed from "Synthetic Resins", "Organic Synthesis" and "Others" to "Chemical Products", "Trading and Others" and "Others". At the same time, industrial chemicals and fine chemicals were integrated with the synthetic resins segment into "Chemical Products," and resale products handled by Taisei Kayaku, a wholly-owned subsidiary, and the business of Kansaikagakukogyo, another wholly-owned subsidiary, were reclassified into "Trading and Others" (see chart below). Annual sales of industrial chemicals and fine chemicals which were integrated away from the organic synthesis segment into the synthetic resins segment are around 10 billion yen with mostly flat operating income.

Sales amounted to 104.6 billion yen in FY2016-3, consisting of 88.1 billion yen (c.84%) in "Chemical Products", 13.0 billion yen (c.13%) in "Trading and Others" and 3.5 billion yen (c.3%) in "Others". The "Chemical Products" segment generated almost 100% of total operating income (13.6 billion yen), serving as a major source of income.

### ◆ Business Segment

Old	New	Business outline	
Synthetic Resins	Chemical Products	PVOH	Industrial material for adhesive, emulsifiers and suspension agents, processing agents, etc.
		PVOH Film	Optical-use film for LCD panels etc.
		EVOH	Food packaging film, material for fuel tank
		Specialty Polymer	Adhesives for polarizing plates, hard-coated optical materials
		Acetyl Chemicals	Vinyl acetate monomers, acetic acid, other basic chemicals
Organic Synthesis	Trading/ Others	Fine Chemicals	Chemical products used as a raw material for pharmaceuticals and food preservatives, etc.
		Trading/ Others	Resale products
Others	Others	Logistics, equipment maintenance, environmental analysis, insurance agent	

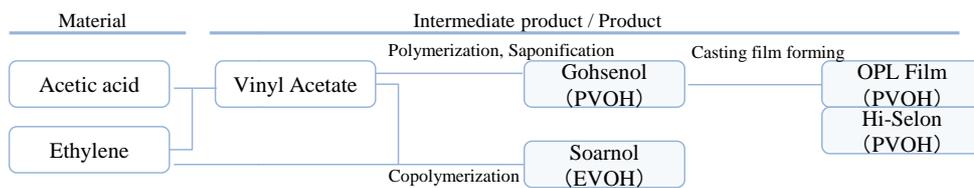
Source: financial results materials and company HP.



1-(2) PVOH Business Overview

Main businesses - (1) PVOH (polyvinyl alcohol), (2) EVOH (ethylene vinyl alcohol copolymer) and (3) Specialty Polymers (pressure sensitive adhesive resins) - are summarized below.

◆Summary of Production Process



Source: financial results materials and company HP.

a. GOHSENOL

Also used as a raw material of "OPL Film".

◆"GOHSENOL": water soluble and biodegradable synthetic resin

"GOHSENOL"(polyvinyl alcohol), a base product in the PVOH business, is produced by polymerizing and saponifying vinyl acetate monomers. "GOHSENOL", one of few water-soluble synthetic resins, has superior features in film formation, adhesiveness, surface activity and safety, and is used for a variety of fields and applications including fiber processing, pharmaceuticals and cosmetics, plastics, construction materials, paper processing, raw material for intermediate membrane of automobile front glasses. "GOHSENOL" is also used as a raw material for other products such as "OPL Film" and "Hi-Selon".

The Company produces several types of "GOHSENOL" for specific applications and expands into "GOHSENX" series with additional special features. Particularly, sales of "GOHSENOL EG", a PVOH resin for pharmaceuticals, is expected to increase into the future. "GOHSENOL EG" complies with specifications of pharmaceutical excipients in Japan, the U.S. and Europe, and is used for coating of pills and granulation agent as well as cataplasm and thickener of eye-drop.

◆Main applications for Gohsenol

Category	Main applications	Shape/Packing
Adhesive and Binder	Adhesives (resoluble, paste, glue), building/civil work (cement, mortar, plaster), inorganic binder (ferrite, zirconium, alumina), synthetic leather, drug (tablet, cataplasm), compost, agricultural chemical pellet	 
Paper processing	Surface treatment (paper, paperboard), specialty paper (thermal recording, ink-jet, exfoliate papers)	Powder Granule
Suspension agent	Dispersant agent for suspension polymerization of vinyl chloride	
Emulsifiers agents	Vinyl acetate, emulsifier for emulsion polymerization of acryl emulsion	
Textile processing	Warp sizing agent (span, filament), finishing agent	
Molding	Film, PVF (sponge), PVB (interlayer, resin), water-soluble molded material, inner/outer pieces	

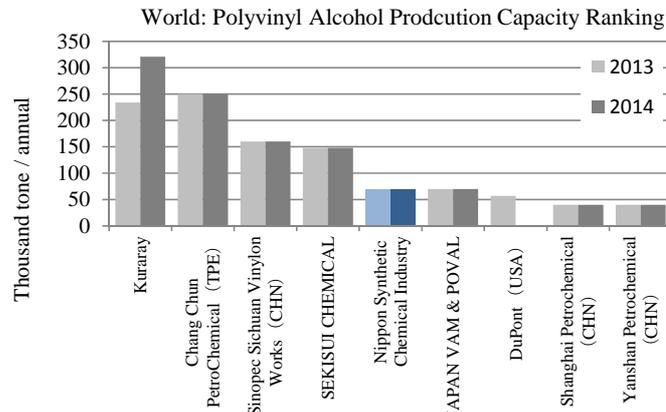
Source: company HP.

◆China is the largest consumer of PVOH

Global production capacity of PVOH is 1.53 million ton/year (2014), and Nippon Gohsei has production facilities with capacity of 70,000 ton/year, ranking 5th (c.4.6% share) in the world. Kuraray ranks 1st with capacity of 320,000 ton/year (c.21.0% share), which has increased by 90,000 ton/year from 230,000 ton/year in 2013 through the acquisition of the vinyl acetate business from DuPont (June 2014) and expansion of existing facilities. On the other hand, demand for PVOH is c.1.03 million ton, of which more than 50% or c.530,000 ton is consumed in China (2015 estimate). In 2016, around 5% growth is expected in South East/South Asia, but the outlook for the global growth

China accounts for c.50% of PVOH demand.

is around 1% due to slower demand growth in China<sup>(\*)</sup>. Chinese companies are in the process of expanding production facilities, while demand increases only slightly, causing concerns about deterioration of the demand/supply balance. However, as Chinese products have quality issues and type of handled products are limited, the utilization rate of Chinese manufacturers are considered to stay at the low level. Also, facing fiercer competition within commodity products, Japanese manufacturers have developed demand for pharmaceutical applications, etc. in an effort to differentiate themselves.



- Chang Chun Petrochemical includes Chang Chun Chemical (Jiangsu).
- SEKISUI CHEMICAL includes DS POVAL (Joint venture with Denka).

Source: The Heavy & Chemical News Agency, "Chemical Products Handbook 2015"

<sup>(\*)</sup> Source: The Chemical Daily, "Chemical Economy March 2016 Extra Edition"

## b. OPL Film

Nippon Gohsei and Kuraray are only two manufacturers of optical-use PVOH films in the world.

70% of demand is for TVs, 30% is for smartphones/tablets and PCs.

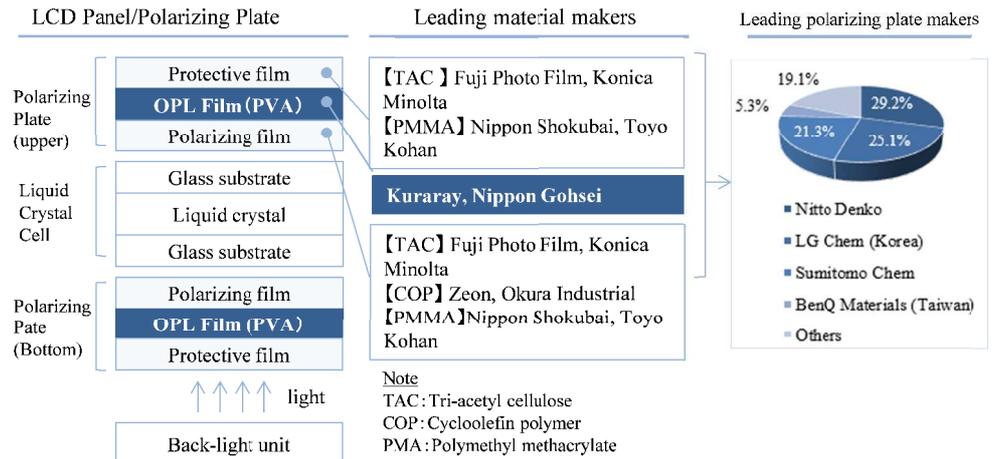
### ◆ "OPL Film": duopoly by Kuraray (70% market share) and Nippon Gohsei (30%)

"OPL Film" is a PVOH film (PVA film) used as a material for "polarizing plate (polarizing film)", an indispensable element of liquid crystal displays (LCD). A PVOH film had been initially used as a packaging material, but after development of its application to a polarizing plate, it has grown as one of the Company's core products along with dissemination of LCD TVs.

A PVOH film which functions as a polarizer has long been used as a material for polarizing plates because of difficulty in finding substitute products. A high technical barrier to entry also creates duopoly by Kuraray (c.70% share) and Nippon Gohsei (c.30%) (estimate from production capacity; see P39). All leading polarizing plate manufacturers, which are main users, procure PVOH films from both Kuraray and Nippon Gohsei, although the respective shares vary.

The polarizing plate market has continued expanding buoyed by dissemination of smartphones and tablet devices in recent years, and the square footage sold is expected to reach 364M m<sup>2</sup> (estimate) in 2015 and 412M m<sup>2</sup> in 2018 (see P21). As c.70% of polarizing plates (square footage basis) are used in TVs and around 30% are used in smartphones/tablets and PCs, the polarizing plate market is primarily driven by development of demand for use in TVs albeit significant growth in demand for use in smartphones.

◆ **Polarizing plate (polarizing film) industry/leading makers**



Source: Fuji Chimera Research Institute, Inc., "2015 Current Status and Outlook of Functional Polymeric Films"

**1-(3) EVOH Business Overview**

A resin with a high barrier feature.

◆ **"Soarnol (EVOH)": a synthetic resin with high gas barrier and processability properties**

"Soarnol" (EVOH resin) balances gas barrier properties and melt extrudability, by modifying PVOH with ethylene to improve processability.

"Soarnol" is used, by adding film-lamination after co-extrusion molding with other resins and film processing, for packaging films, bottles, tubes and sheet formation material. About 50% of "Soarnol" are used for food packaging films. With its high barrier properties to gas other than oxygen and oil resistance, Soarnol is used not only for food packaging applications but for fuel tanks.

As "Soarnol" has a feature that the lower ethylene content offers higher gas barrier performance but less processability, the Company manufactures various grades of "Soarnol" with different ethylene contents according to application. The company also develops derivative products such as "Soarlite" for use in engineering plastics.

◆ **EVOH resin market is also dominated by Kuraray and Nippon Gohsei**

There are three EVOH resin manufacturers: (1) Kuraray, (2) Nippon Gohsei and (3) Chang Chun Petrochemical (Taiwan) with respective market share in terms of production capacity of (1) Kuraray 52% (81,000 ton/year), (2) Nippon Gohsei 42% (66,000 ton/year) and (3) Chang Chun Petrochemical 6% (10,000 ton/year) (as of March 2016, see P40).

Production of EVOH resins requires sophisticated technology as it is difficult to control quality. Also, EVOH resin is a non-commodity product that requires customization and technical services according to application, and therefore an ability to supply products that meet with needs of customers is critical. In addition to a high technical barrier to entry, heavy burden of initial costs also serves as a barrier to new entry, as, for example, around one million yen per ton of capital investment is required to construct a new production plant.

Demand for EVOH resins had been centered in the developed market which requires high level of safety and quality standards on foods, but demand in the Asian region has gradually started growing. Also in the developed market, the Company expects the market to grow at an annual rate of about 5%, given an increasing demand for a shelf life extension and small packaging (see P23).

Nippon Gohsei has implemented capital investment in anticipation of the demand

Kuraray and Nippon Gohsei substantially dominate the market.

The EVOH market is expected grow at 5%.

growth, and a new facility in the U.S. with capacity of 15,000 ton/year came into operation in December 2015. Currently, Kuraray and Chang Chun Petrochemical have also started expanding facilities. Thus all three manufacturers are in the process of enhancing production capacity along with the market growth.

◆ **Sample Applications for Soarnol**

Films	Blow molded bottles	Extruded tubes	Cups & trays
 <p>Sample: fresh meat, ham and sausage, cheese</p>	 <p>Sample: mayonnaise, cooking oil, agrochemical bottles</p>	 <p>Sample: cosmetics tubes</p>	 <p>Sample: jelly, processed rice diet, soybean paste</p>
Re:ort pouches	Pipes	Extrusion coatings	Tanks
 <p>Sample: lids for processed rice containers and dessert containers</p>	 <p>Sample: floor heating pipes</p>	 <p>Sample: juice carton</p>	 <p>Sample: gasoline tanks</p>

Source : company HP

**1-(4) Specialty Polymer Business Overview**

Developed into a variety of pressure sensitive adhesive resins in a wide range of applications

◆ **Development of a variety of pressure sensitive adhesive resins centered on optical use**

The Specialty Polymer business provides a variety of pressure sensitive adhesive resins by combining and integrating technologies in cohesive, adhesive and coating fields. Representative products include "COPONYL", "SHIKOH", "Mowinyl" and "Nichigo-Polyester".

◆ **Specialty Polymers: properties/main use of key products**

Product	Properties	Main use
Coponyl (Acrylic copolymer)	Durability, removability	Pressure sensitive adhesive, coating (building, plastic), ink, varnish, adhesives, resoluble agent
Shikoh (UV curable urethane acrylate resin)	High hardness and low shrinkage, optical competence, antistatic function	Coating agent, ink, pressure sensitive adhesive, adhesives, metal coating
Mowinyl (Synthetic resin emulsion)	Miscibility with various agents, adhesion to olefin, adhesion to film substrate	Coating, construction materials, adhesives, pressure sensitive adhesive, paper processing
Nichigo-Polyester (High molecular weight saturated polyester resin)	High adhesion, plasticizer resistance, low outgas	Adhesives, film coating, ink, metal coating, toner binder

Source : company HP.

Strong in optical-use pressure sensitive adhesives e.g. "COPONYL" and "SHIKOH".

#### ◆ Strong in optical-use pressure sensitive adhesives for polarizing plates

Nippon Gohsei is particularly strong in the field of "optical-use pressure sensitive adhesives for polarizing plates" used in FPD (flat panel display) of TVs and PC monitors.

Products used for "optical-use pressure sensitive adhesives for polarizing plates" are "COPONYL" and "SHIKOH". "COPONYL" is a copolymer resin mainly from acrylic acid ester using solvents such as ethyl acetate and toluene, and products with a wide range of grades are offered for optical applications as well as other applications including masking tapes/protective masking films, labels, vinyl chloride base material and double-sided tapes.

"SHIKOH" is a urethane acrylate-type UV/electron beam curable resin. It is highly evaluated as an environment-friendly resin, as thermosetting time is lower compared with thermoset-type resins and designing is possible under solventless or water-based conditions. A broad range of properties, ranging from ultra-hard types to soft and elasticity types, are available, and by changing the structural design according to applications, products are provided to meet with customers' needs.

#### ◆ Increasing demand for UV curable-type resins mainly in optical applications

In recent years, UV curable-type resins are drawing attention in the optical field. Nippon Gohsei offers "SHIKOH", a UV curable-type urethane acrylate resin, in this field. The world sales volume (estimate) of urethane acrylate is expected to increase from 71,500 ton in 2013 to 84,500 ton in 2018, up nearly 20% due to strong demand.<sup>(\*1)</sup> Globally, the sales volume of Allnex (Belgium) and Arkema (France) is standing out with a combined market share of nearly 50%, but in the domestic market, Nippon Gohsei is positioned at the top with about 15% domestic market share (2013).<sup>(\*1)</sup>

While urethane acrylate is used not only for optical applications but for automobile head lamps, cosmetic cases and painting for building materials, the demand growth is supported by optical applications, and the market is on an expanding trend along with dissemination of smartphones and tablets. The sales volume in the domestic market is estimated around 6,600 ton in 2013, and a flat to slight increase is projected<sup>(\*1)</sup>, but demand for optical applications is expected to increase. The Company focuses on high-value-added products for optical applications, enjoying a strong growth in sales particularly for use in bonding touch panels.<sup>(\*2)</sup>

<sup>(\*1)</sup> Estimates by Fuji-Keizai.

<sup>(\*2)</sup> A touch panel has a multi-layer structure, for which optical-use transparent adhesives (SHIKOH or COPONYL) are used to bond materials.

## 2. Company Overview

### 2-(1) Topics in FY2016-3 /Company History

#### a. Topics in FY2016-3

July 2015

Brought "MelFil," a water-soluble filament for use in 3D printers, into the market.

April 2016

Established a sales subsidiary in Singapore.

April 2016

The Kumamoto Plant was damaged by the 2016 Kumamoto Earthquakes with estimated loss of c.3.0 billion yen.

#### ◆Topics in FY2016-3

The following table summarizes press releases published since April 2015.

##### ◆Most recent press release (extracts) from 2015/4

Date	Category	Note
May-15	General	Announcement of change in representative director
Jun-15	PVOH	<u>Introduction of water-soluble filaments for FDM-type 3D printers</u>
Jul-15	Other	Announcement of merger of consolidated subsidiaries
Oct-15	General	Notice of revision to performance guidance
Nov-15	General	Release New Mid-Term Management Plan "NICHIGO 20"
Mar-16	Other	<u>Establish of subsidiary in Singapore</u>
Apr-16	PVOH	<u>Expansion of "OPL film" production facilities for polarizing films</u>
Apr-16	Other	Aggregation of Subsidiaries in Southeast Asia
Apr-16	General	Impact of 2016 Kumamoto Earthquakes on Nippon Gohsei (5th Report)
May-16	General	<u>Impact on business performance by Kumamoto Earthquakes</u>
May-16	General	Impact of 2016 Kumamoto Earthquakes on Nippon Gohsei (6th Report)

Source : company HP

#### ◆Brought "MelFil," a water-soluble filament for use in 3D printers, into the market

In July 2015, the Company brought into the market "MelFil," a water-soluble filament for use in 3D printers FDM, made of "Nichigo G-Polymer". "MelFil" has high water-solubility and biodegradability, and has also superior properties in adhesiveness, plasticity and printability. While 3D printing has not yet been popular, with a trend of lower prices of 3D printers for domestic use, the Company plans to cultivate demand by attracting the customer base which has not been satisfied with the traditional supporting materials. The Company sells "MelFil" not only in Japan but also in the U.S. and other regions where 3D printers are becoming popular.

#### ◆Established a local company in Singapore as a new base in Southeast Asia and Oceania

In April 2016, the Company established NIPPON GOHSEI ASIA PACIFIC in Singapore (capital: USD 300,000). As demand for "Soarnol", a resin with high gas barrier properties used for food packaging and fuel tank, is expected to increase in the Asian market along with the economic growth, the Company will cultivate the market in full swing with NIPPON GOHSEI ASIA PACIFIC as a base of marketing and technical service in the Asian region. Accordingly, the Company decided to transition and consolidate the sales function of NIPPON GOHSEI THAILAND (capital: 23 million baht) into NIPPON GOHSEI ASIA PACIFIC. NIPPON GOHSEI THAILAND is scheduled to terminate operation as of the end of May 2016 and enter into a liquidation process.

#### ◆The Kumamoto Plant was damaged by Kumamoto Earthquakes in April 2016

The Kumamoto Plant was damaged by Kumamoto Earthquakes occurred in April 2016. The Kumamoto Plant has production lines of "OPL film", "GOHSENOL" and "GOHSENX"<sup>(\*)</sup>. Although damages were limited as the "OPL film" production line was under regular maintenance, a part of buildings and facilities were damaged and products inventory was also damaged.

Top priority is put on repairs of the "OPL film" production lines which are scheduled

## b. History

to resume production in sequence from mid-June. The Ogaki Plant is assisting the Kumamoto Plant in manufacturing some product types.

As for "GOHSENL" and "GOHSENX", production of "GOHSENX Z" and "GOHSENX EG" is scheduled to be resumed from early June, and production of "GOHSENX L-3266" is scheduled to be resumed from mid-July, while production of other types of products is scheduled to be resumed from September. The Mizushima Plant is assisting the Kumamoto Plant in manufacturing some types of "GOHSENL".

Estimated impact on business performance in FY2017-3 is loss of c.3.0 billion yen in total, consisting of c.2.4 billion yen of disaster-related loss from restoration cost and disposal of inventory assets, and c.0.6 billion yen of a decline in operating income due to suspended operation.

(\*) Out of six "OPL film" production lines (88M m<sup>2</sup>/year), the 3rd line (15M m<sup>2</sup>/year), the 4th line (15M m<sup>2</sup>/year), the 5th line (15M m<sup>2</sup>/year) and the 6th line (18M m<sup>2</sup>/year) with total capacity of 63M m<sup>2</sup>/year (c.72%) exist in the Kumamoto Plant. Also, production lines of "GOHSENL" and "GOHSENX" with capacity of 30,000 ton/year (c.43%), out of total capacity of 70,000 ton/year, exist in the Kumamoto Plant.

### ◆ Focus on optical applications since around 1990

Established in 1927, the Company has a long history. FY2016-3 represents the 133rd fiscal term. Shares were listed in Tokyo and Osaka Stock Exchanges in 1949, the 23rd fiscal term. "Keiretsu" (capital-tied) relationship with parent Mitsubishi Chemical Corp. started in 1963 when Mizushima Gohsei Kagaku Kogyo Co., Ltd. (current Mizushima Plant) was established under joint management. The Company has developed the business around "acetic acid" as a base product and organic synthetic chemical as a base technology since its origin, and started production of "GOHSENL" (PVOH) in 1949 and "Soarnol" (EVOH) in 1984.

The Company accelerated development of the overseas business centered on the EVOH business in mid-1990s, and acquired EVOH production facilities from DuPont in 1994 and established NOLTEX (U.S.) as a production base of "Soarnol". In 1996, the Company started operation in Europe, and subsequently in 2001, established NIPPON GOHSEI UK for production of Soarnol.

In the technology front, the Company has focused on product development for optical applications since 1990, started production of "OPL films (optical-use PVOH films)" in 2003, and subsequently released a series of products including pressure sensitive adhesives for use in touch panels and optical-use hard coat resins.

#### ◆ Company History

Year	Category	Note
1927	General	Four wood-vinegar-manufacturing companies jointly established Nippon Gohsei Kagaku Kenkyusho.
1928	General	Changed the company's name to The Nippon Synthetic Chemical Industry Co., Ltd. Succeeded in industrialization of the first organic composition acetic acid in Japan.
1949	General	Listed shares at the Tokyo & Osaka Stock Exchanges.
	PVOH	<u>Completed construction of "GOHSENL" production plant at the Ogaki Plant.</u>
1963	General	Cooperated with Mitsubishi Kasei Kogyo (currently Mitsubishi Chemical Corporation) for conversion of petrochemicals and jointly established Mizushima Gohsei Kagaku Kogyo.
1971	General	Merged with Mizushima Gohsei Kagaku Kogyo, and made it the Mizushima Plant.
1972	PVOH	Established Tokai Resin Co., Ltd. (currently Ogaki Plant Kamiya), and in the following year, <u>started production of Hi-Selon.</u>
1984	EVOH	<u>Started full-scale production of "SOARNOL" at the Mizushima Plant.</u>
1987	EVOH	Established NIPPON GOSEI (USA) Co., Ltd.
1989	S Polymer	<u>Started production of SHIKOH, ultraviolet optics (ultraviolet ray and electronic line hardening type resin).</u>

## c. Long-term trend

1994	EVOH	<u>Planned the U.S. business development for SOARNOL</u> and purchased a plant in Houston, Texas from E.I. DuPont Nemours & Company. Established NOLTEX LLC.
1996	EVOH	Established the North American sales company SOARUS LLC. for SOARNOL under joint management.
	EVOH	Established NIPPON GOHSEI Europe GmbH as a European sales office.
2001	EVOH	<u>Established NIPPON GOHSEI UK Ltd. for manufacturing SOARNOL.</u>
2003	PVOH	Started production of OPL film (optical polarized PVOH film, a key component of polarizing film for liquid crystal displays) at Ogaki.
2004	S Polymer	Acquired all shares in Clariant Polymer Co., Ltd. (Nichigo-Mowinyl Co., Ltd.) and made it a subsidiary.
2006	General	Established NIPPON GOHSEI Shanghai Office in China.
2010	General	Incorporated the Shanghai Rep. Office in China to establish NICHIGO SHANGHAI Co., Ltd.
	General	Established NIPPON GOHSEI (THAILAND) CO., LTD. in Bangkok, Thailand.
2014	S Polymer	Acquired a 34% stake in Japan Coating Resin Corp. (former Chuo Rika Kogyo Co., Ltd.)
2016	General	<u>Established NIPPON GOHSEI ASIA PACIFIC PTE. LTD. in Singapore.</u>

※PVOH: Polyvinyl alcohol, EVOH: Ethylene-vinyl alcohol copolymer, S. polymer: Specialty polymer (pressure sensitive adhesive)

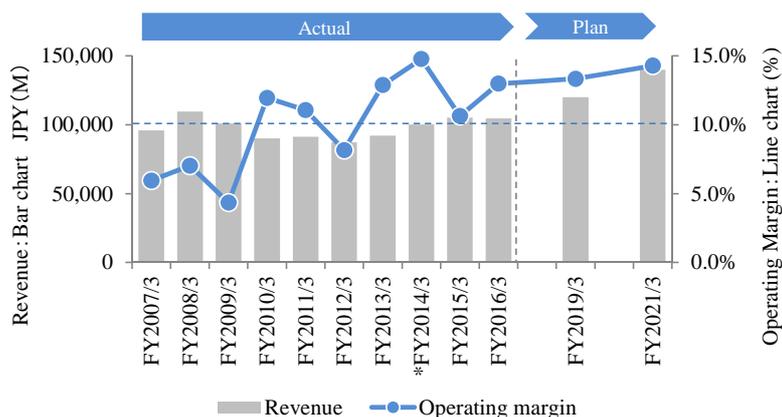
Source : Annual report, Company HP

### ◆Promoted selection and concentration of business since FY2010-3 to achieve significant improvement in operating margin

After exceeding 100 billion yen for the first time in FY2008-3, sales continued to decline until FY2012-3 partly due to an impact of the financial crisis. However, during the same period, as the Company has proceeded with withdrawal from unprofitable products centered on fine chemical products, operating margin having stayed around 5% significantly improved to 12% in FY2010-3 and has subsequently remained over 10% (except in FY2012-3).

Sales have remained around 100 billion yen in recent several years, but it was a result of the Company's efforts to suspend handling lower profitable products and shift toward growth areas, and the Company aims to achieve sales of 140 billion yen and operating income of 20 billion yen (operating margin of 14%) in FY2021-3, the final year of the new mid-term management plan "NICHIGO 20".

Long Term Trend for Revenue & Operating Margin



\* Value excludes the impacts by accounting period change of some subsidiaries.

Source: summary of financial results and new medium-term management plan

## 2-(2) Affiliates

### ◆Implemented enhancement in business structure including establishment of a subsidiary with a view to expand business in the Southeast Asian region

Nippon Gohsei belongs to the Mitsubishi Chemical Holdings group, within which the Company constitutes the "Designed Materials Segment" as a listed subsidiary of Mitsubishi Chemical Corp. The Company procures ethylene and other raw materials from parent Mitsubishi Chemical. Also, one of directors of the Company came from

Mitsubishi Chemical for the purpose of exchanging the management information with the Mitsubishi Chemical group.

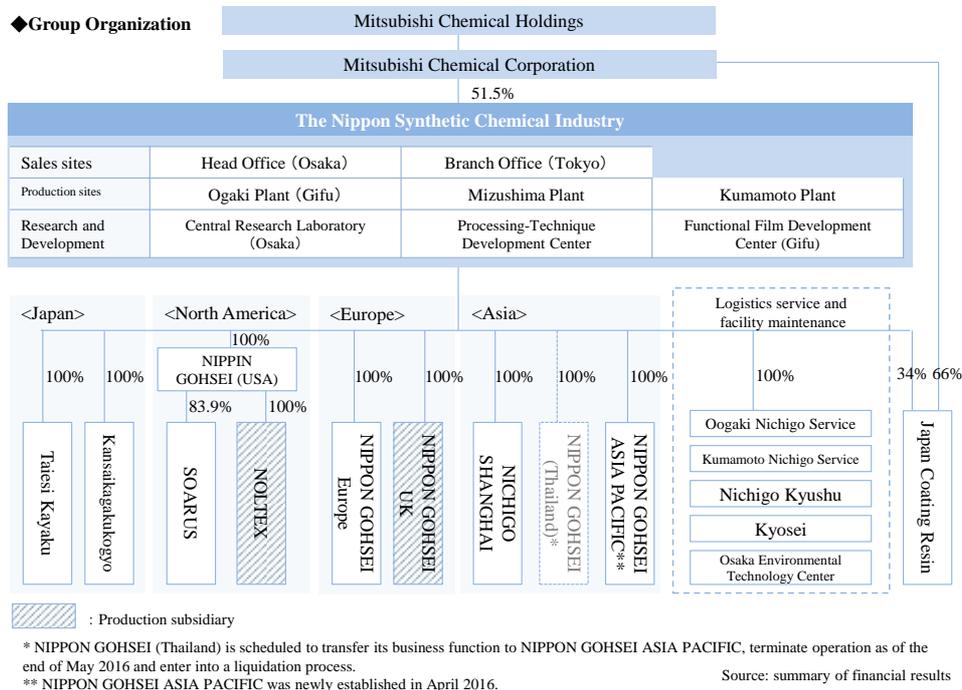
Nippon Gohsei itself has 15 consolidated subsidiaries and one affiliated company accounted for by the equity method (see below chart). Out of 15 subsidiaries, 5 subsidiaries provide "Other" services such as logistics services and maintenance of facilities, and one subsidiary serves as a holding company in the North American region.

In Japan, Nippon Gohsei is a primary entity of manufacturing and sales, while Taisei Kayaku is mainly engaged in sales as a trading company specialized in chemical products and Kansaikagakukogyo manufactures and distributes film products.

The overseas business is centered on EVOH, with two subsidiaries in North America: NOLTEX (U.S.), an EVOH manufacturing subsidiary, and SOARUS (U.S.), a sales subsidiary, and also two subsidiaries in Europe: NIPPON GOHSEI UK (U.K.), an EVOH manufacturing subsidiary, and NIPPON GOHSEI Europe (Germany), a sales subsidiary.

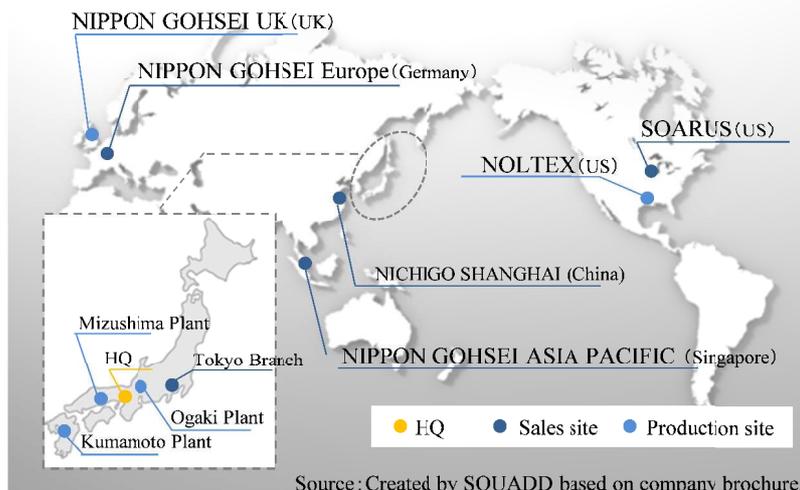
In April 2016, the Company established NIPPON GOHSEI ASIA PACIFIC in Singapore (capital: USD 300,000) in anticipation of the demand growth in the Asian region. NIPPON GOHSEI THAILAND (capital: 23 million baht) is scheduled to transfer its business function to NIPPON GOHSEI ASIA PACIFIC, terminate operation as of the end of May 2016 and enter into a liquidation process.

Also within the other business segment, Ogaki Nichigo Service (logistics) absorbed Nichigo Engineering (design of chemical facilities) in January 2016. As both companies are wholly-owned subsidiaries, the merger will have little impact on the consolidated performance.



2-(3) Major Sites/  
Capital Investment

◆ Domestic/Overseas Network



◆ In the process of upgrading the Ogaki Plant to a state-of-the-art plant

The Company has 5 production sites, consisting of 3 sites in Japan - "Kumamoto Plant", "Mizushima Plant" and "Ogaki Plant", and one each in the U.S. and the U.K. Two overseas plants specialize in production of EVOH. Following the withdrawal from unprofitable operations implemented by the previous year, the Company plans to restructure the Ogaki Plant (Gifu) and is in the process of upgrading it to a state-of-the-art plant by introducing new production facilities and enhancing the existing facilities.

◆ Production capacity for major products

Production base	PVOH (ton / year)	OPL Film (1,000 m <sup>2</sup> / year)	EVOH (ton / year)
Kumamoto Plant (Kumamoto)	30,000	63,000	-
Mizushima Plant (Okayama)	40,000	-	10,000
Ogaki Plant (Gifu)	-	25,000	-
NOLTEX (US)	-	-	38,000
NIPPON GOHSEI UK (UK)	-	-	18,000
Total (before expansion)	70,000	88,000	66,000
OPL film expansion (Ogaki Plant)	0	18,000	0
Total (after expansion)	70,000	106,000	66,000

Source: financial results materials

Kumamoto Plant	Mizushima Plant	Ogaki Plant
Production of PVOH, PVOH film, Fine chemicals, etc.	Production of PVOH, EVOH, Vinyl acetate monomer, etc.	Production of PVOH film, Adhesive resin, Fine chemicals, etc.
Kumamoto Plant was founded in 1939 as the second plant following Ogaki Plant, with the largest site area. It now produces "Gohsenol (PVOH)", "OPL Film (PVOH film)" and intermediates for pharmaceuticals and agriculture.	Mizushima Plant was founded in 1963 as the third plant in the Mizushima Industrial Complex for conversion to petrochemicals. It now produces vinyl acetate monomer, "Gohsenol (PVOH)", "Soarnol (EVOH)", etc.	Ogaki Plant was founded in 1927, where the Company succeeded in the first production of acetic acid in Japan. It now produces "OPL Film", Specialty Polymer products, intermediates for pharmaceuticals and agriculture.

Source: Company brochure, company HP

Decided to expand "OPL film" production facility (7th line).

New EVOH line in the U.S. came into operation from December 2015. 30% increase in production capacity.

New "COPONYL" line and "Hi-Selon" line are scheduled to come into operation at the end of June 2016 and October 2016, respectively.

#### ◆Decided to add a new "OPL film" line with capacity of 18M m<sup>2</sup>/year in April 2016

"OPL film" 6th line (18M m<sup>2</sup>/year capacity, investment amount c.6.5 billion yen) came into operation in 2014, bringing the total production capacity to 88M m<sup>2</sup>/year. In April 2016, the Company decided to make capital investment to add 18M m<sup>2</sup>/year (7th line), which is scheduled to complete in 2Q FY2018-3. With addition of the 7th line, total production capacity of "OPL film" will increase by c.20% to 106M m<sup>2</sup>/year. Similar to the 6th line, the 7th line is capable to manufacture wide-width products up to 4.8m and is designed with further technological refinement, and the planned investment amount is c.8.0 billion yen. As the investment amount for the 7th line includes a construction of a building and infrastructure facilities, it is larger by c.1.5 billion yen compared with the investment amount of c.6.5 billion yen for the 6th line.

Depreciation period of "OPL film" production lines is as short as 5 years, and depreciation has already completed for the 1st line through the 4th line, providing a strength in cost competitiveness (production capacity of depreciated lines is 55M m<sup>2</sup>/year).

#### ◆A new EVOH line in the U.S. with capacity of 15,000 ton/year came into operation in December 2015

Construction of a new EVOH line in the U.S. NOLTEX which started in July 2013 completed during 2Q FY2016-3 (investment amount c.180 million dollar, 15,000 ton/year capacity). Upon completion of the new line in the U.S., production capacity increased by c.30% to 66,000 ton/year. Although the new line was initially scheduled to come into operation from 2Q, the start of operations delayed until December 2015 due to prolonged regular maintenance at energy supply companies and raw material supply plants.

#### ◆New facilities for "Hi-Selon" and "COPONYL" under construction

Currently, expansion of production line of "COPONYL", a solvent-based pressure sensitive adhesive for electronic materials, in the Ogaki Plant (c.2.6 billion yen) and construction of a new production line of "Hi-Selon", a water soluble PVOH film, in the Kumamoto Plant (c.3.3 billion yen) are in progress, and the "COPONYL" line and "Hi-Selon" line are scheduled to come into operation at the end of June 2016 and October 2016, respectively.

As the line which currently produces "Hi-Selon" in the Ogaki Plant is running at the full capacity, the incremental supply for use in packaging of liquid detergent which is growing particularly in the U.S. and Europe will be met by this expansion of production capacity.

#### ◆Production Facility Expansion Status

Product	Production capacity	Production site	Amount of CAPEX	Start construction	Running schedule
Acrylic pressure sensitive adhesives solvent type [COPONYL]	+12,000ton/ y	Ogaki	2.6B JPY	Oct-14	FY2017/3 1Q (2016/4-6)
PVOH film [HI-SELON]	+1,600 ton/ y	Kumamoto	3.3B JPY	Feb-15	FY2017/3 3Q (2016/10-12)
Optical-use PVOH films [OPL film]	+18Mm <sup>2</sup> / y	Ogaki	8.0B JPY	2016/4 Expansion	FY2018/3 2Q Completion schedule

Source: press release and financial results materials

## 2-(4) Ownership

Mitsubishi Chemical holds the majority shares.

Foreign ownership is on an increasing trend.

## ◆No significant change in major shareholders

There has been no significant change in the ownership structure, with parent Mitsubishi Chemical maintaining about 50% ownership and top 10 shareholders maintaining around 70% ownership.

The number of shareholders as of March 2015 was 4,104, of which "individual and others" were 3,634 (c.89%). Corporate shareholders accounted for larger ownership at around 40% excluding Mitsubishi Chemical and around 90% including Mitsubishi Chemical.

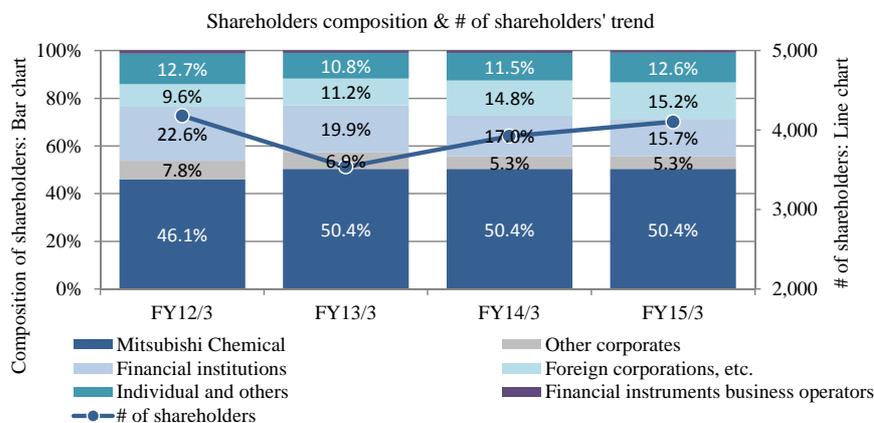
By type of shareholders, ownership by both foreign corporations and financial institutions remains around 15%, but in recent few years, ownership by foreign corporations has been increasing, while ownership by financial institutions has slightly decreased.

## ◆Major Shareholders

As of 2016/3		Mar-12	Mar-13	Mar-14	Mar-15	Mar-16
Rank	Major shareholders					
1	Mitsubishi Chemical Corporation	46.1%	50.4%	50.4%	50.4%	51.5%
2	Northan Trust Company (AVFC) RE-HCR00	-	1.4%	1.3%	2.1%	2.3%
3	Japan Trustee Services Bank. (TA)	-	-	-	-	1.8%
	Japan Trustee Services Bank.	11.2%	8.7%	5.6%	6.2%	-
4	RBC ISB S/A DUB NON RESIDENT/TREATY RATE UCITS-CLIENTS ACCOUNTS	-	-	-	-	1.5%
5	State Street Bank and Trust Company	1.6%	1.7%	3.6%	3.3%	1.2%
6	Mizuho Bank	1.2%	1.2%	1.2%	1.2%	1.2%
7	State Street Bank and Trust Company 505223	-	-	-	-	1.2%
8	The Master trust Bank of Japan. (TA)	-	-	-	-	1.1%
9	Japan Trustee Services Bank. (TA 9)	-	-	-	-	1.1%
	Trust & Custody Services Bank	1.8%	1.4%	1.5%	1.1%	-
10	Marubeni Corporation	1.0%	1.0%	1.0%	1.0%	1.0%
	The Bank of NY Mellon SA/NV 10	-	-	-	0.9%	-
	Treasury stock	1.0%	1.0%	1.0%	1.0%	-
	The Master Trust Bank of Japan	3.0%	2.6%	2.6%	1.6%	-
	Resona Bank	-	-	0.9%	-	-
	Mitsubishi Corporation	2.0%	2.0%	-	-	-
	Mizuho Securities	1.0%	-	-	-	-
	Top 10 stockholders total	69.8%	71.4%	69.0%	68.8%	63.9%
	Others	30.2%	28.6%	31.0%	31.2%	36.1%
	Total	100.0%	100.0%	100.0%	100.0%	100.0%

\*Data from 2011-3 to 2014-3 is Annual report base while data for 2015-3 is financial results material (which calculation method is different) base.

Source: annual report and financial results materials



## 2-(5) Officers

◆No change in major officers, and the management structure remains the same with that in FY2016-3

A personnel change will be announced on June 21, 2016, where Mr. Hitoshi Kumagai will be appointed as an outside director. Mr. Masayuki Waga (director & executive officer of Mitsubishi Chemical Corp.) will change his status as an outside director to director.

There will be no change in other board members and titles, and the same management structure in FY2016-3 remains in FY2017-3.

◆ Officers (official announcement is planned at 2016-6)

Title	Name	Age	Age	Job title etc.	Previous jobs
	President (Representative director)	Katsumi Kimura	60	Assumed the current office in June 2013	Executive Director, Specialty Materials Segment Manager
	Senior Managing Executive Officer (Representative Director)	Tomoyuki Mori	60	Research and Development Division Manager, in charge of Environment, Safety and Quality Assurance Dept.	Director, Managing Executive Officer, Research and Development Div, Central Research Laboratory Head
	Director Managing Executive Officer	Keiichi Takahashi	60	General Affairs and Human Resources Dept. Manager, in charge of Management Efficiency Promotion Office	General Affairs & Human Resources Dept. Manager
	Director Managing Executive Officer	Kazunori Takada	59	Corporate Planning Office Manager, in charge of Audit Office and Accounting Dept.	Corporate Planning Office Manager
	Director Executive director	Masahiro Wada	59	Production Technology Division Manager	Executive Officer, Production Technology Division Manager (current)
Position change	Director	Masayuki Waga	58	External director → Director	Executive Officer and Performance Chemicals Div. Manager of Mitsubishi Chemical Corp
	Director	Hiroshi Urabe	66	External director	Meiwa Corporation/Managing Director
New	Director	Hitoshi Kumagai	47	External director	TRUSTEES FAS, Representative director, Partner (current)
	Auditor	Junichi Akagi	61	Full-time	Director, Audit Officer, Business Efficiency Promotion Dept., Accounting Dept.
	Auditor	Hiroki Sato	63	Full-time	Mitsubishi Chemical/Auditor, Nippon Kasei Chemical/External auditor
	Auditor	Takayoshi Yoshino	69	External auditor	Chief of the Osaka Court
	Auditor	Hiroyuki Nakatsukasa	58	External auditor	Nakatsukasa Accounting Office/Representative (current), Japan Exchange Group/External director (current)

Source: company HP.

## 2-(6) Employees Status

◆ Consolidated number of employees was 1,737 as of the end of March 2016, up 58 from the previous fiscal year end

Consolidated number of employees was 1,737 as of the end of March 2016, up 58 from the previous fiscal year end. About 60% of 1,737 or 1,075 employees belong to Nippon Gohsei alone. The breakdown of employees by segment as of the end of March 2016 is not available at this moment, but it appears no significant change from the end of March 2015.

Long tenure of employees with average year of service exceeding 20 years is another feature of the Company, and such a stable structure enables the Company to develop human resources and business, which is one of advantages of the Company.

◆ Number of employees

		Mar-12	Mar-13	Mar-14	Mar-15	Mar-16
Consolidated	Synthetic Resins	1,051	1,085	1,156	1,172	n.a.
	Organic Synthesis	295	291	265	266	n.a.
	Others	213	220	220	215	n.a.
	Entire company (Shared)	25	29	24	26	n.a.
Consolidated	# of Regular employee	1,584	1,625	1,665	1,679	1,737
(JPY M)						
Consolidated	Revenue / Regular employee	55.1	56.6	66.8	62.7	60.2
	Operating profit / Regular employee	4.5	7.3	9.7	6.7	7.8
	Net income / Regular employee	2.0	5.0	4.8	4.0	5.2
Non-consolidated	Average age	42.4	42.5	42.4	42.4	n.a.
	Ave. duration of service (year)	20.9	21.1	20.9	20.6	n.a.
	Ave. annual salary (1,000Yen)	7,375	7,111	7,336	7,542	n.a.

Source: Annual report etc and company HP.

### 3. Performance Highlight

#### 3-(1) FY2016-3 Performance Highlight

"Soarnol" maintained strong performance over the year. Start of operation of a new EVOH line in the U.S. contributed to higher sales and income.

Operating margin increased from 10.6% to 13.0% due to a decline in raw materials prices and effects of an increase in sales of "Soarnol".

#### ◆ Strong performance of "Soarnol" covered a decline in sales due to withdrawal from some business, securing the similar level of sales to the previous year.

Sales amounted to 104.6 billion yen in FY2016-3, a slight decrease by c.0.6 billion yen (-0.5%) year-on-year. However, the Company had withdrawn from some fine chemical products in FY2015-3 and suspended sales of imported ethyl acetate. The reduction in sales associated with the withdrawal from business was covered by stronger sales of other products, successfully securing the similar level of sales to the previous year. A decline in selling prices centered on commodity products in association with more-than-expected decline in the price of domestic naphtha which is used as a raw material of ethylene also partially caused a decline in sales<sup>(\*)</sup>.

In FY2016-3, EVOH resin "Soarnol" performed well with the strong sales volume centered on food packaging applications and a new line in the U.S. NOLTEX (15,000 ton/year) came into operation from December 2015, contributing to an increase in the sales volume. Although a full-year operation of a new wide-width line (6th line, operation started in November 2014) contributed to the volume growth, sales of "OPL film" ended up with a slight increase year-on-year due to inventory shortage in association with regular maintenance and constraint on production due to trial for new product development. The sales volume depressed due to inventory adjustment by some customers in 3Q, but rebounded in 4Q.

In FY2017-3, as a new line of "COPONYL", an acrylic solvent-based pressure sensitive adhesive, and a new line of "Hi-Selon", a water-soluble PVOH film, are scheduled to come into operation at the end of June 2016 and October 2016, respectively, an increase in production capacity is expected to bring a growth in sales and income. However, sales are expected to largely remain at the same level with FY2016-3 due to constraint imposed on production by damages incurred by the Kumamoto Plant.

<sup>(\*)</sup>The ethylene price is determined in tandem with the domestic naphtha price. Nippon Gohsei changes selling prices of some commodity products in accordance with a change in the ethylene price. The domestic naphtha price which had been assumed at 45,000 yen/L at the beginning of the period declined to 42,800 yen/L (as of March 2015).

#### ◆ Operating margin significantly improved from 10.6% to 13.0%

Operating income stood at 13.6 billion yen in FY2016-3, an increase by 2.4 billion yen from 11.2 billion yen in the previous year, with operating margin up from c.10.6% to c.13.0%. Despite an increase in fixed costs such as depreciation expense of new facilities, stabilization of surged price of vinyl acetate monomers in Europe occurred in the previous year in association with suspended operation by producers in FY2016-3 led to improvement in operating margin. A progress in selection and concentration of business, including suspension of sales of low-profitable products such as imported ethyl acetate and imidazole, contributed to an improvement in operating margin.

◆ Financial Statements Summary (Annual)

	Mar-12	Mar-13	2014年3月*	Mar-15	Mar-16
Revenue	87,243	91,976	111,151	105,202	104,630
Gross profit	21,278	26,662	32,893	27,713	30,058
Operating income	7,117	11,859	16,229	11,186	13,584
EBITDA*	13,714	18,792	23,358	18,238	21,746
Ordinary profit	6,763	12,375	16,712	11,296	13,655
Income before Income Taxes	5,276	12,660	16,155	9,863	13,088
Net income	3,154	8,158	8,018	6,648	8,971
Depreciation	6,597	6,933	7,129	7,052	8,162
R & D Expense	2,824	3,388	3,458	3,575	4,000
Interest Expenses	273	224	200	64	86
CAPEX**	8,028	10,772	20,263	14,512	10,028
EBITDA-CAPEX	5,686	8,020	3,095	3,726	11,718

\*EBITDA=Operating Income+Depreciation. \*\*CAPEX=Capital Expenditure on CF Statement.

\* FY2014-3's value excludes the impacts by accounting period change of some subsidiaries.

	Mar-12	Mar-13	2014年3月*	Mar-15	Mar-16
Total assets	99,761	112,180	130,107	142,110	144,766
Total liabilities	43,764	46,735	53,337	58,390	56,505
Total net assets	55,996	65,444	76,770	83,720	88,261
Interest Bearing Debt	11,977	10,040	15,350	25,237	17,798
Cash and deposits	4,879	8,433	5,785	7,312	7,728
Net Interest Bearing Debt	7,098	1,607	9,565	17,925	10,070

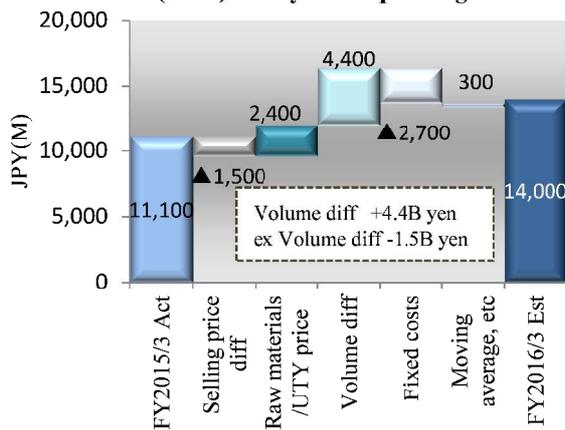
	Mar-12	Mar-13	2014年3月*	Mar-15	Mar-16
Total Revenue Growth	-4.4%	5.4%	20.8%	-5.4%	-0.5%
Gross Margin	24.4%	29.0%	29.6%	26.3%	28.7%
Operating Margin	8.2%	12.9%	14.6%	10.6%	13.0%
EBITDA Margin	15.7%	20.4%	21.0%	17.3%	20.8%
Ordinary Profit Margin	7.8%	13.5%	15.0%	10.7%	13.1%
Net Margin	3.6%	8.9%	7.2%	6.3%	8.6%
ROA	3.2%	7.7%	6.6%	4.9%	6.3%
ROE	5.7%	13.4%	11.3%	8.3%	10.4%
Capital Ratio	56.1%	58.3%	59.0%	58.9%	61.0%

(JPY)

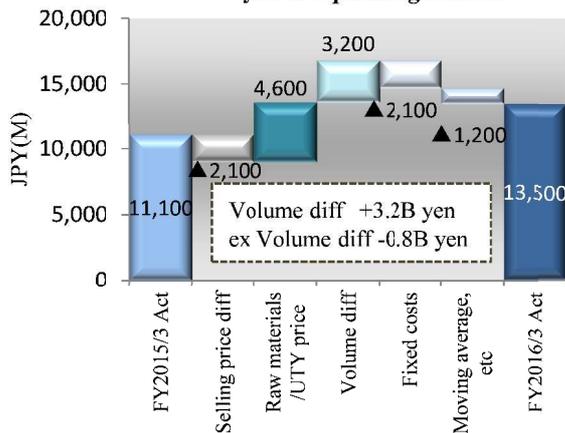
	Mar-12	Mar-13	2014年3月*	Mar-15	Mar-16
Net Income per Share	32.38	83.75	82.32	68.25	92.11
Net Assets per Share	574.83	671.84	788.11	859.49	906.09

	Mar-15	Selling price difference	Volume difference	Volume difference	Fixed costs	Moving average, etc	Mar-16
Operating Income	Operating Income						Operating Income
Est (BOY)	11,100	(1,500)	2,400	4,400	(2,700)	300	14,000
Act	11,100	(2,100)	4,600	3,200	(2,100)	(1,200)	13,500
Difference	-	(600)	2,200	(1,200)	600	(1,500)	(500)

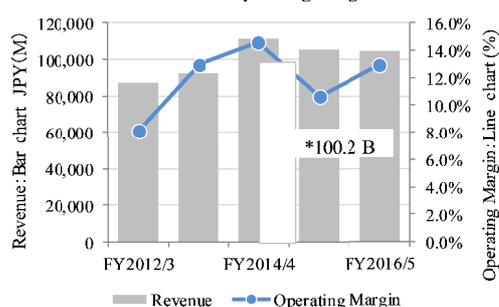
Est (BOY): Analysis of Operating Income



Act: Analysis of Operating Income

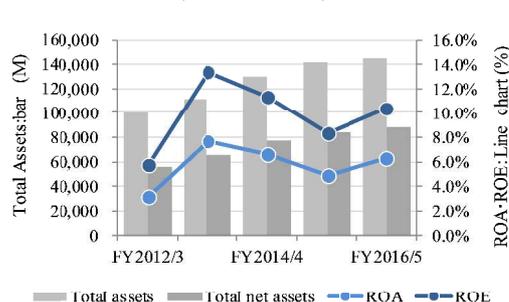


Revenue & Operating Margin

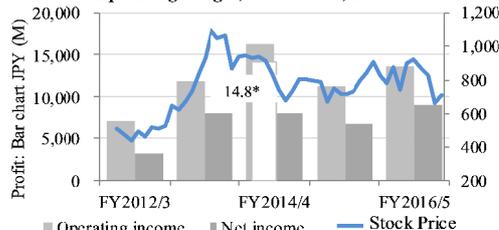


\* FY2014-3's value excludes the impacts by accounting period change of some subsidiaries.

Total Assets, Total Net Assets, ROA & ROE



Operating Margin, Net income, Stock Price



\* FY2014-3's value excludes the impacts by accounting period change of some subsidiaries.

Source: summary of financial results and financial results materials

## 4. Market Environment

### 4-(1) Trend in Polarizing Plate Market

Shipment of LCD TVs entered in a period of stabilization in the developed market, and demand from the emerging market is growing.

A shift from a liquid crystal (LC) to an organic EL (OEL) for use in smartphone panels is expected. However, its impact on square footage sold of "OPL film" is limited.

Two polarizing plates are necessary for a LC panel, but one polarizing panel is necessary for an OEL panel.

#### ◆ Expansion of the emerging market and larger size of screens boost demand for polarizing plates

The polarizing plate market is on an expanding trend, with the square footage sold in the world increasing from 203M m<sup>2</sup> in 2009 to 339M m<sup>2</sup> in 2014, about 1.7-fold increase (CAGR: c.10%). In the future, the market is expected to continue expanding despite some slowdown seen in the growth rate, with the square footage sold expected to reach 412M m<sup>2</sup> in 2018, about 1.2 times larger than that in 2014 (CAGR: about 5%)<sup>(\*1)</sup>. As c.70% of usage in polarizing plates (square footage basis) is for TVs, demand for polarizing plates is driven by shipment of TVs. The number of LCD TV shipment was c.224M units in 2015, largely flat over the recent few years (number of shipment in 2014: c.225M units)<sup>(\*2)</sup>. However, although the number of LCD TV shipment has entered into a period of stabilization in the developed market, in the mid-term, with prospective demand growth in the emerging market, the number of shipment in 2019 is expected to exceed c.240M units<sup>(\*2)</sup>. In addition to the unit growth, as TV screens are getting larger, the polarizing plate market is expected to grow faster on a square footage basis than the number of TV shipment.

<sup>(\*1)</sup>Source: "2015 Current Status and Outlook of Display-related Market", Fuji Chimera Research Institute, Inc.

<sup>(\*2)</sup>Source: Electronic Devise Industry News, IHS

#### ◆ A shift to OEL in smartphones is negative, but has limited impact

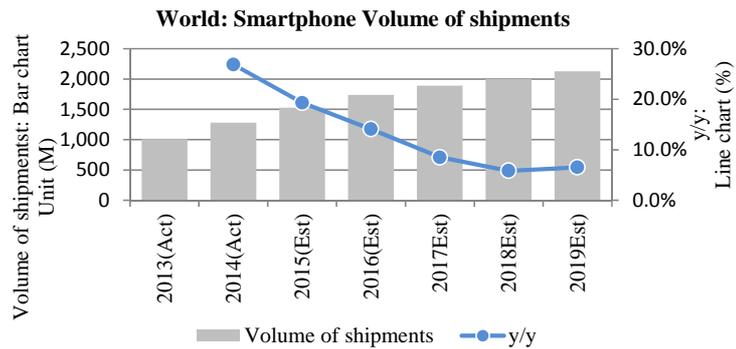
As smart devices become popular (see below chart), demand for polarizing plates for use in smartphones and tablets is also growing. However, as smart devices have smaller screen size than TVs, despite a significant unit growth, their contribution to square footage sold of "OPL film" is limited.

Apple plans to start adopting an OEL panel to smartphones from 2017 at earliest, and a shift from LC panel to OEL panel is considered to progress over coming few years. As an organic material itself emits light and no backlight is necessary, an OEL panel requires less components than a LC panel and so is suitable to thinner devices (see below chart). However, cost is relatively high at this moment due to a low yield rate. Two polarizing plates are necessary for a LC panel, but one polarizing panel is necessary for an OEL panel. A shift to OEL is negative for the polarizing plate market, but it is widely viewed that both OEL panels and LC panels will be produced in parallel in the near term.

With respect to TVs, on the other hand, the possibility of emergence of OEL TVs cannot be denied in the long-term, but currently, as unique advantages and other features of OEL are not sufficient to induce repurchase of TVs, while its selling prices are 3-4 times more expensive than LCD TVs, the share of OEL TVs remains around 1% of the total TV market (sales amount basis).

Also, the market environment is changing as seen in a start of in-house production by Nitto Denko, the largest manufacturer of polarizing plates, of "coating polyvinyl alcohol (coating PVA)" as an alternative product to PVOH film. The greatest advantage of a coating PVA is contribution to thinner devices, and a coating PVA is adopted for some mobile devices such as smartphones which have strong needs to get thinner. Nippon Gohsei is aiming to achieve the practical use of a 20μm-thick PVOH film as early as possible to compete with a coating PVA. A 20 μm-thick PVOH film has almost no difference in thickness from a coating PVA, considering the stretching process.

However, as adoption of a coating PVA is limited to some smart devices and a 45 um-thin product is still the mainstream for LCD TVs, currently, the practical use of a coating PVA has a minor impact on business performance.



Source: 2015 WHITE PAPER Information and Communications in Japan

◆ Basic Structure of Organic EL Panel	◆ Basic Structure of Liquid Crystal Panel
<p><b>Polarizing plate</b></p> <p>Cathode (metal electrode) Electron transport layer Organic luminescent material (R, G, B) Hole transport layer Anode (electron electrode) Glass substrate</p>	<p><b>Polarizing plate</b></p> <p>Glass substrate Color filter (R, G, B) Oriented film Liquid crystal Oriented film Glass substrate Polarizing plate Backlite unit</p>
<ul style="list-style-type: none"> <li>-As an organic material emits own light, no backlight nor color filter in RGB type is necessary.</li> <li>-Required glass substrate and polarizing plate reduces to one plate.</li> </ul>	<ul style="list-style-type: none"> <li>-As a liquid crystal does not emit own light, backlight and color filter are necessary.</li> </ul>

Source: Diamond Weekly, May 21, 2016

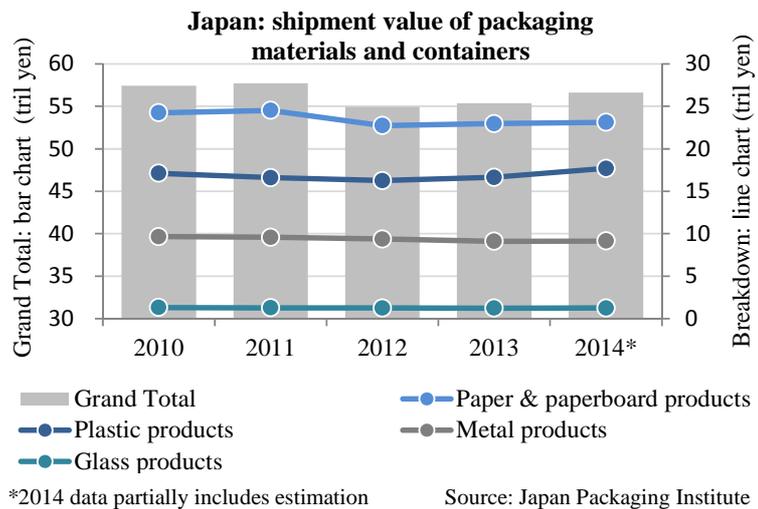
**4-(2) Trend in EVOH Market**

The amount of domestic shipment of packaging and containers remains flat but a shift from metal products to plastic products is under way.

**◆ Gradual progress in substitution from metal products to plastic products**

A trend in the EVOH market is summarized below.

First, domestic shipment of packaging and containers has remained around 55 trillion yen since 2010. Composition by type is: paper/paperboard products c.41%, plastic products c.31%, metal products c.16%, glass c.2% and others c.10% (2014). The share of paper/paperboard products is high because of large demand as a packaging material for export, and more plastic products are used for individual packaging. As a mid- to long-term trend, substitution from metal products to plastic products has progressed, and while the shipment amount of both products were at the same level around 13 trillion yen in 2000, the difference has gradually widened, and in 2014, the shipment amount of metal products was c.9 trillion yen versus plastic products of c.18 trillion yen. This trend is driven by dissemination of pet bottles, and going forward, a shift from metal products to plastic products centered on food packaging and fuel tanks should continue. Also, plastic products are superior to metal products or glass products from the aspect of transportation cost, and another advantage is that they allow the use of a metal detector, leading to safety improvements.



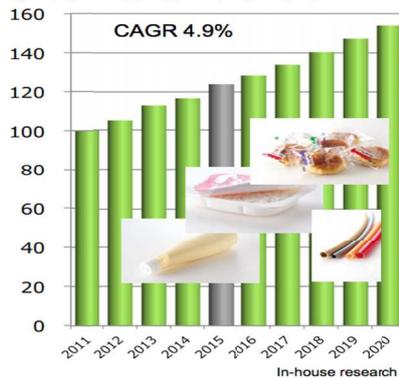
A sign of growing demand for EVOH is also seen in the emerging market. Demand for barrier is also growing from cost and environment perspectives.

◆EVOH resin is a growing market with expected CAGR of c.5%

An EVOH resin is superior in its gas barrier properties and widely used as a main gas barrier material for food packaging. Gas barrier properties and other high functionality are required to food packaging materials from the aspect of safety and quality. Particularly in recent years, increasing needs to a shelf life extension which enables reduction in food waste cost and distribution cost have accelerated a trend of higher functionality in packaging plastic.

Nippon Gohsei views that demand for EVOH resins will continue to grow at an annual rate of c.5%, and expects the sales volume of "Soarnol" to grow to c.1.2-1.3 times of 2015 volume, or c.1.8 times particularly in the case of high-function "Soarnol", by 2020. The background of the market growth includes that: (i) demand for EVOH in food packaging and industrial applications has started growing in China and the Southeast Asian region along with economic growth; (ii) substitution from metal/glass containers is in progress from the aspect of transportation cost and safety; and (iii) demand for barrier is growing in response to needs to a shelf life extension for food waste reduction.

◆EVOH Market Environment

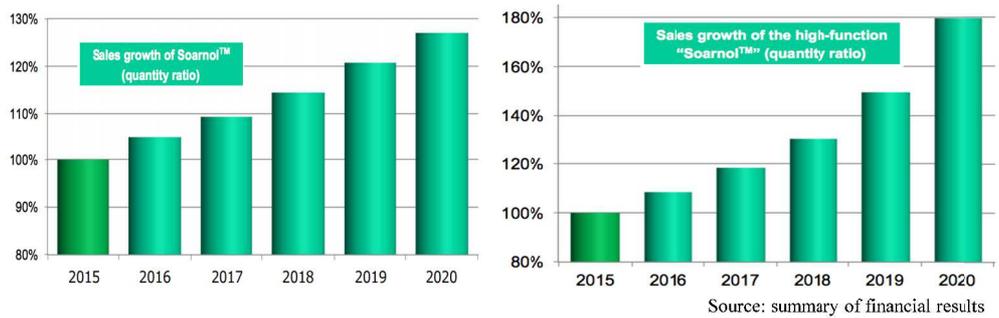


- ✓ Expanding markets in China and Asia
- ✓ Increasing demand for processed foods and small packaging for ease of use
- ✓ Substitution from metal and glass containers in progress for safety and transportation cost reduction
- ✓ Increasing demand for barrier due to needs of a shelf life extension for food waste cost reduction
- ✓ Replacement with PVDC films in progress as an environment-friendly material
- ✓ Food applications are less likely to be affected by economic trends

Source: summary of financial results

Following a trend of "less polyvinyl chloride", a shift from PVDC to EVOH and other barrier resins is under way.

◆ Sales growth of Soarnol



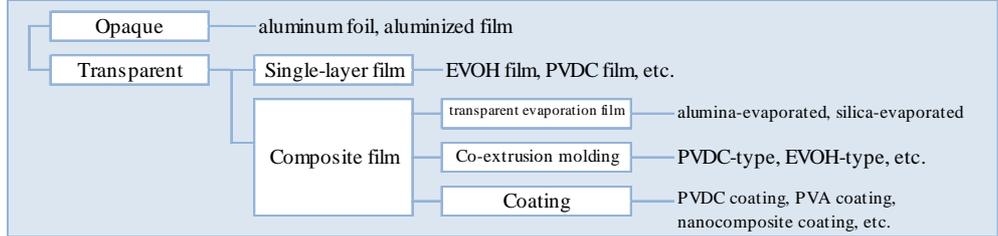
◆ Demand for replacement with PVDC is also expected to increase

"Soarnol" is processed to make other forms than a film, but is mostly used for films which account for c.50% of the total demand. An EVOH resin has the highest level of gas barrier properties among plastics, but co-extrusion molding films with other resins such as PE (polyethylene), PP (Polypropylene) and PA (nylon) to supplement with heat-sealing properties and mechanical strength are the mainstream, and many producers including Gunze, Unitika and Mitsubishi Plastics manufacture EVOH co-extrusion molding films.

There exist a variety of films with barrier properties such as a transparent evaporation film and PVDC film as well as an EVOH co-extrusion molding film (see below chart). These compete each other in some fields, but even films with the similar barrier properties have segregated markets to some extent as required properties are different by type of food ingredients and conditions.

One of resins with barrier properties is PVDC (polyvinylidene chloride). PVDC is one of few resins which have both moisture barrier and gas barrier properties and has been widely used as a packaging material for food preservation. However, with a stronger move of "less polyvinyl chloride" driven by a trend of environmental protection, a shift to other resins have been in progress. In this regard, "Soarnol" also draws attention on low environmental burdens, as EVOH composed of carbon, oxygen and hydrogen emits no toxic gas when burned, and replacement demand with PVDC is expected to increase.

◆ Type of Barrier Films



PVDC: poly vinylidene chloride

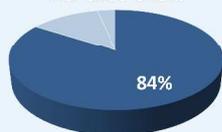
Source: Fuji Chimera Research Institute, Inc., "Chemical Report March 2015"

## 5. Segment Overview and Business Model

## 5-(1) Chemical Products

## a. Outline

Chemical Products Revenue Share

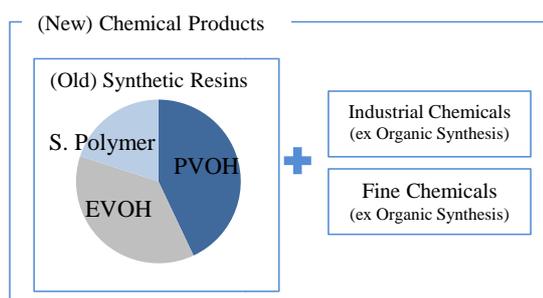


◆ From FY2016-3, industrial chemicals and fine chemicals have been integrated into the synthetic resins segment and reported as the chemical products segment

The chemical products segment is the Company's main business segment accounting for 84% of total sales and more than 95% of operating income. (1) PVOH (polyvinyl alcohol), (2) EVOH (ethylene-vinyl alcohol copolymer) and (3) Specialty Polymers (pressure sensitive adhesive resins) are main businesses, accounting for (1) PVOH: 40%+, (2) EVOH: 40%- and (3) Specialty Polymers: 20% of the segment sales.

The Company has changed the business segmentation in FY2016-3 (see P4) and integrated manufacturing and sales of industrial chemicals and fine chemicals belonging to the old organic synthesis segment into the old synthetic resins segment, and started reporting as the chemical products segment. Sales of industrial chemicals and fine chemicals in FY2015-3 amounted to 9.7 billion yen with net operating loss of 0.6 billion yen, and after the change in segmentation, sales of the new chemical products segment increased by c.12% relative to the old synthetic resins segment. While the impact of the change in segmentation on operating income is small because of a thin operating margin of both industrial chemicals and fine chemicals, operating margin of the new chemical products segment would have been 12.3% in FY2015-3, compared with 14.6% of the old organic synthesis segment due to an increase in sales.

◆Composition for Chemical Products



<FY2015-3 business results>

(JPY M)	(A)	(B)	(A)+(B)
	Synthetic Resin	Industrial Chemicals / Fine	Chemical Products
Revenue	77,944	9,735	87,679
Operating income	11,381	(604)	10,777
Operating margin	14.6%	-6.2%	12.3%
Share	88.9%	11.1%	100.0%

Source: summary of financial results

## b. Business flow

PVOH:

Produced in three domestic plants.

Mitsubishi Chemical supplies ethylene at the price linked to the market price.

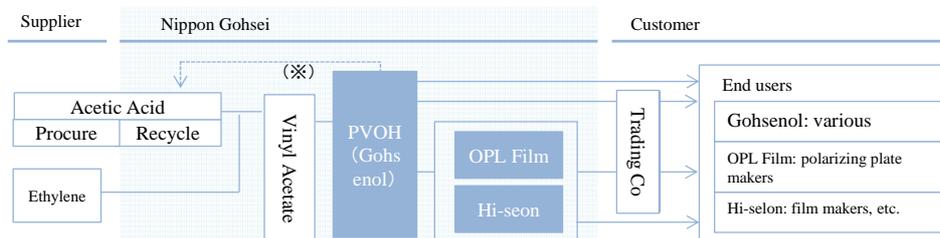
◆PVOH

"GOHSENOL" (polyvinyl alcohol) is a base product in the PVOH business. "GOHSENOL" is produced by creating vinyl acetate monomers from raw materials such as acetic acid and ethylene, and polymerizing and saponifying vinyl acetate monomers. "GOHSENOL" is sold as a stand-alone product, but also used as a raw material for other products such as "OPL Film" and "Hi-Selon". PVOH-related products are produced in three domestic plants (Ogaki, Kumamoto and Mizushima), and are sold domestically as well as exported to Asia, particularly China.

In the production process of PVOH, acetic acid is generated as a bi-product. Acetic acid collected as a bi-product is recycled as a raw material, and any shortfall of acetic acid is sourced externally. While the price of acetic acid is linked to the price of a main raw material methanol, as collected acetic acid is recycled as a raw material, the fluctuation of raw material costs associated with fluctuation of the methanol price is small, and the price of another main raw material ethylene is a significant driver of material costs. Nippon Gohsei purchases ethylene from parent Mitsubishi Chemical at the price linked to the market price, and the ethylene price is determined in tandem with the domestic naphtha price. While Nippon Gohsei makes an effort to pass fluctuation of the ethylene price on the selling price, as there is a time lag between fluctuation of the

ethylene (and naphtha) price and revision of the selling price, if the naphtha price sharply rises all of a sudden, the Company temporarily bear the increase in the raw material price on some occasions.

#### ◆PVOH: Business Flow Summary



(※)"Acetic acid" generated as a bi-product in the production process is reused as a raw material.

Source : company materials.

"OPL Film" production lines require granular maintenance.

EVOH :  
Vinyl acetate monomers used as an intermediate material are produced internally in Japan and locally procured in overseas plants.

### c. Performance in FY2016-3

Segment income increased from 10.8 billion yen in the previous year to 13.2 billion yen mainly driven by an increase in sales of "Soarnol" and a decline in raw materials costs.

#### ◆"OPL Film" production line requires maintenance

As the precision is required to "OPL Film" which is a product for polarizing plates, the maintenance of its production lines is more important than other products. While the maintenance once every two years is sufficient for the EVOH resin "Soarnol" lines, the regular maintenance for 3-4 weeks are implemented twice a year to the "OPL Film" lines.

#### ◆EVOH

EVOH resin is obtained through hydrolytic degradation of ethylene and vinyl acetate copolymer.

Nippon Gohsei produces EVOH resins at three plants: Mizushima Plant, NOLTEX (U.S.) and NIPPON GOHSEI UK (UK). Vinyl acetate monomers used as intermediate materials of EVOH resins are also internally produced in the domestic plant, but not in the overseas sites, where each plant externally procures the materials.

Products produced in each site are sold by Nippon Gohsei and subsidiaries in Japan, by SOARUS (U.S.) in the US, and by NIPPON GOHSEI Europe (Germany) in Europe. SOARUS (U.S.) and NIPPON GOHSEI Europe (Germany) also serve as technical support and customer service center.

#### ◆Strong performance of "Soarnol" and stabilization of surged raw material prices in Europe led to significant improvement in profit margin

The segment sales of chemical products amounted to 88.1 billion yen in FY2016-3, a slight increase year-on-year (up c.0.4% from 87.7 billion yen in the previous year). Among products, "Soarnol" maintained strong sales centered on food packaging applications, while sales of ethyl acetate (industrial chemical) and imidazole (fine chemical) decreased along with withdrawal from business. Other downside factor to sales included reduction in selling prices of commodity products in particular, driven by declining domestic naphtha price.

Operating income increased by c.2.4 billion yen from 10.8 billion yen in the previous year to 13.2 billion yen (up c.22%) with operating margin significantly improving from c.12.3% to c.14.9%. Despite an increase in fixed costs such as depreciation expenses of the new EVOH line, benefits from lower raw material costs due to stabilization of surged price of vinyl acetate monomers in Europe and decline in the domestic naphtha price, an increase in income from the larger sales volume of "Soarnol" and effects of the

<p>The 6th line started full-year operation from FY2016-3</p> <p>"OPL film" production line was damaged by Kumamoto Earthquakes. Scheduled to resume production in sequence from mid-June.</p> <p>Strong performance continues centered on food packaging applications Stabilization of the surged price of vinyl acetate monomers in Europe led to improvement in profit margin.</p>	<p><u>weaker yen</u> all contributed to an increase in operating income.</p> <p>✓ <b>"OPL Film"</b></p> <p>While <u>full-year operation of a new wide-width line (6th line)</u> contributed to sales <u>growth</u>, inventory shortage occurred due to an impact of regular maintenance during 1Q and <u>restriction on production due to trial for new product development</u> led to <u>only a slight year-on-year increase in sales of "OPL film"</u>. Sales depressed due to inventory adjustment by some customers in 3Q, but has rebounded in 4Q. The Company has <u>decided in April 2016 to add a new wide-width line (7th line) of the same capacity with the 6th line (18M m<sup>2</sup>/year)</u>, and will continue to expand sales through enhancement of production capacity.</p> <p>Kumamoto Earthquakes occurred in April 2016 <u>damaged the Kumamoto Plant including the "OPL film" production lines</u>. Out of six "OPL film" production lines (88M m<sup>2</sup>/year in total) in total, four lines (63M m<sup>2</sup>/year) exist in the Kumamoto Plant. <u>Top priority is put on repairs of the "OPL film" production lines which are scheduled to resume production in sequence from mid-June</u>, but they were forced to suspend operation for around 2.5 months and <u>reduction in the sales volume in May and June 2016 is a concern</u>.</p> <p>✓ <b>"Soarnol"</b></p> <p>"Soarnol" secured the more-than-expected sales volume <u>with strong demand in Europe</u>, and the price of raw material vinyl acetate monomers regained stability, resulting in better performance in Europe with both sales and income increasing year-on-year. <u>Although the demand is also strong in the U.S., the bargain sale by Chang Chun Petrochemical continues</u>. While "Soarnol" is now sold predominantly in the developed market, with the establishment of a sales subsidiary in Singapore in April 2016, the Company plans to promote sales in full scale in the Asian market. Also with growing demand for resins with barrier properties in the developed market (see P23), the Company will focus on strengthening development of high-function products and cultivating substitute from other materials and new applications.</p> <p>On the production front, <u>a new line at NOLTEX in the U.S. (15,000 ton/year) came into operation in December 2015</u>. Although the start of operation somewhat delayed from scheduled 2Q due to an impact of prolonged regular maintenance at energy supply companies and raw materials supply plants, the Company was able to benefit from enhanced production capacity in the 2nd half of the year. The Company will continue to enhance cost competitiveness through operational adjustment such as a prior increase in the operating rate at the U.S. plant with lower utility cost. <u>In FY2017-3, the Company plans to undergo large-scale maintenance at the U.K. plant</u> which will reduce the operating rate. The U.S. plant will increase production as substitute for lower production in the U.K. to avoid any unmet demand.</p>
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## ◆ Chemical Products Business Trend (Annual)

(JPYM)

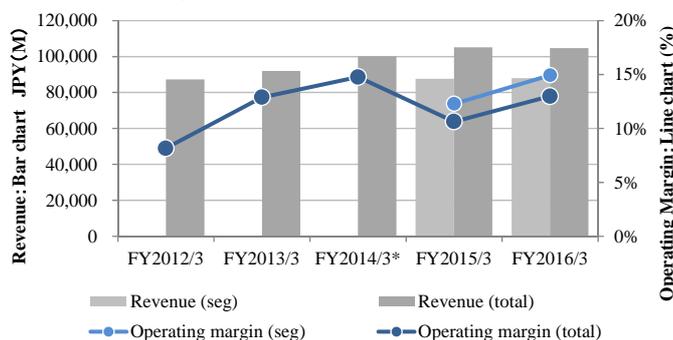
	Mar-14	Mar-15	Mar-16	change	y/y
Revenue (seg)	-	87,679	88,061	382	100.4%
Operating income (seg)	-	10,777	13,158	2,381	122.1%
Operating margin (seg)	-	12.3%	14.9%	2.7%	-
Revenue share	-	83.3%	84.2%	0.8%	-
Operating income share	-	96.3%	96.9%	0.5%	-

## ◆ FY2016-3: performance of core products

Category	Product	Description	Volume	Revenue	Income
PVOH	Gohsenol	Commodity chemicals struggled due to slowdown in China. Specialty field fared well but was slightly slower, resulting in a slight decrease yoy in sales of "GOHSENL" as a whole.	slightly down	slightly down	slightly down
	OPL Film	While full-year operation of the 6th line contributed to the volume growth, constraint on production due to trial, inventory shortage due to regular maintenance early in the period and slower demand due to inventory adjustment in 3Q resulted in a slight increase yoy in sales of "OPL film" as a whole.	slightly up	slightly up	slightly up
EVOH	Soamol	Demand remained strong over the year centered on food packaging applications. Start of operation of a new line in the US (December 2015) also contributed to the volume growth. Stabilization of the surged price of vinyl acetate monomers in Europe led to significant improvement in operating margin.	up	up	up
Pressure sensitive adhesives		"SHIKOH" performed well, but "COPONYL" somewhat reduced the sales volume due to inventory adjustment by some customers. Combined with stagnant emulsion products, total sales modestly decreased yoy.	slightly down	slightly down	slightly down

Source: Summary of financial results and summary financial results.

## Chemical Products Business Trend



\* Figures exclude the impacts of the change in the accounting period of consolidated subsidiaries.

Source: summary of financial results

## 5-(2) Trading and Others



## ◆ Improved trading spread led to higher segment income

The trading and others segment includes resale products handled by Taisei Kayaku, a consolidated subsidiary, and the business of Kansaikagakukogyo. The segment sales amounted to 13.0 billion yen with operating income of 0.2 billion yen in FY2016-3. Despite decline in sales by c.0.6 billion yen year-on-year, the segment operating income increased by 71 million yen along with improvement in the trading spread with the segment operating margin also improving from c.1.3% in the previous year to c.1.9%.

## ◆ Trading and Others Business Trend (Annual)

(JPYM)

	Mar-14	Mar-15	Mar-16	change	y/y
Revenue (seg)	-	13,636	13,031	(605)	95.6%
Operating income (seg)	-	174	245	71	140.8%
Operating margin (seg)	-	1.3%	1.9%	0.6%	-

## 6. Financial Analysis

### 6-(1) Cost Overview

The cost to sales ratio improved from 73.7% to 71.3% along with stabilization of surged raw materials prices.

#### ◆ Cost of Sales

The cost to sales ratio has stayed in a range of 70-75% in recent few years. In FY2015-3, the cost to sales ratio was at the high level of 73.7%, due to an impact of the domestic naphtha price remaining high at nearly 70,000 yen/KL until Q3 and the surged price of vinyl acetate monomers in Europe. In FY2016-3, the cost to sales ratio improved to 71.3% driven by lower raw materials prices as the surged raw materials price in Europe calmed down and the domestic naphtha price declined to below 50,000 yen/KL.

Nippon Gohsei purchases ethylene from parent Mitsubishi Chemical at the price linked to the market price. The trade amount with Mitsubishi Chemical was 8.5 billion yen, accounting for c.11% of total costs of goods sold in FY2016-3. In addition, while the Company often receives a request for price cut from customers, the Company aims to further improve the cost to sales ratio through the cost reduction and provision of high-value-added products, etc.

◆ (Ref) Trade with Mitsubishi Chemical (JPY M)					
	Mar-12	Mar-13	Mar-14	Mar-15	Mar-16
Selling price	2,718	7,905	9,885	9,990	8,494
Cost	65,965	65,313	78,258	77,489	74,572
Cost /Selling price ratio	4.1%	12.1%	12.6%	12.9%	11.4%

Source: annual report and press release

#### ◆ Selling, General and Administrative Expenses

Major expense items within SG&A expenses are (1) transportation and storage costs, (2) salaries and (3) R&D expenses. While SG&A expenses are on a slightly rising trend due to an impact of additional R&D expenses, SG&A to sales ratio has been stable at the level of 15-16%.

#### ◆ Extraordinary Gain/Loss

In FY2016-3, the Company sold investment securities and reported gain on sales of investment securities for c.1.0 billion yen. The Company also reported loss on disposal of fixed assets for c.1.5 billion yen related to removal of production facilities of the business withdrawn until the previous year.

#### ◆ Start voluntary adoption of IFRS from FY2017-3

The Company decided to adopt IFRS voluntarily from FY2017-3. Due to the difference in accounting principles, operating income under IFRS is expected to be lower by c.1.3 billion yen, consisting of c.0.4 billion yen of amortization expenses related to previous year's regular maintenance and c.0.9 billion yen of loss on fixed asset disposal, compared with operating income under J-GAAP.

Also in FY2017-3, as a result of damages incurred by the Kumamoto Plant, estimated disaster-related loss of c.2.4 billion yen is generated as restoration costs of facilities and loss on disposal of inventory assets, etc. As these temporary losses are categorized in extraordinary loss under J-GAAP but treated as operating expense under IFRS, operating income will be squeezed in FY2017-3 (see P35).

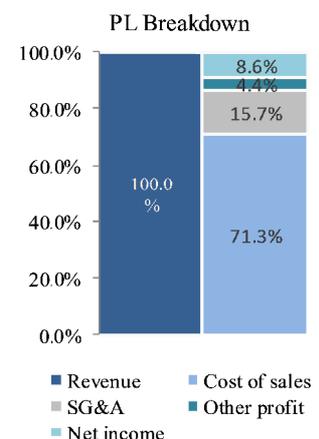
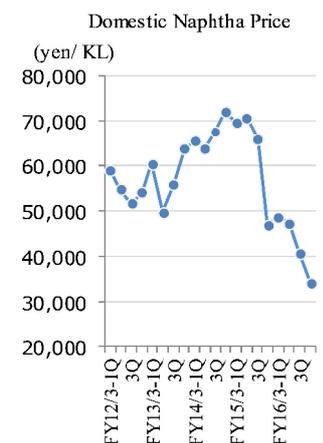
(JPY M)

◆ PL Summary	Mar-12	Mar-13	Mar-14	Mar-15	Mar-16	composition	vs. prev. year	vs. prev. %
Revenue	87,243	91,976	111,151	105,202	104,630	100.0%	(572)	99.5%
Cost of sales	65,965	65,313	78,258	77,489	74,572	71.3%	(2,917)	96.2%
Gross profit	21,278	26,662	32,893	27,713	30,058	28.7%	2,345	108.5%
Selling, general and administrative expenses								
Transportation and storage	2,592	2,568	3,012	2,973	n.a.	n.a.	n.a.	n.a.
Salaries	3,257	3,331	3,970	3,877	n.a.	n.a.	n.a.	n.a.
Provision for allowance for possible loan losses	(7)	3	(12)	(47)	n.a.	n.a.	n.a.	n.a.
Provision for accrued bonuses	309	367	381	438	n.a.	n.a.	n.a.	n.a.
Provision for officers' bonuses	51	84	107	63	n.a.	n.a.	n.a.	n.a.
Retirement benefit expenses	230	253	198	180	n.a.	n.a.	n.a.	n.a.
Provision of reserve for retirement benefits for officers	22	25	23	21	n.a.	n.a.	n.a.	n.a.
Tax and dues	133	165	170	161	n.a.	n.a.	n.a.	n.a.
Depreciation	113	133	190	174	n.a.	n.a.	n.a.	n.a.
R&D expenses	2,824	3,388	3,458	3,575	n.a.	n.a.	n.a.	n.a.
Others	4,637	4,486	5,167	5,112	n.a.	n.a.	n.a.	n.a.
Total	14,161	14,803	16,664	16,527	16,474	15.7%	(53)	99.7%
Operating income	7,117	11,859	16,229	11,186	13,584	13.0%	2,398	121.4%
Non-operating income	342	892	883	387	431	0.4%	44	111.4%
Non-operating expenses	697	375	400	277	360	0.3%	83	130.0%
Ordinary profit	6,763	12,375	16,712	11,296	13,655	13.1%	2,359	120.9%
Extraordinary gain	34	538	9	169	1,072	1.0%	903	634.3%
Extraordinary loss	1,521	253	566	1,602	1,639	1.6%	37	102.3%
Income before income taxes	5,276	12,660	16,155	9,863	13,088	12.5%	3,225	132.7%
Income taxes etc.	2,003	4,397	7,975	3,087	3,970	3.8%	883	128.6%
Net income	3,273	8,262	8,180	6,776	9,118	8.7%	2,342	134.6%
Net income attributable to non-controlling interests	118	104	162	128	147	0.1%	19	114.8%
Net income attributable to owners of parent	3,154	8,158	8,018	6,648	8,971	8.6%	2,323	134.9%

◆ Key Indicators	Mar-12	Mar-13	Mar-14	Mar-15	Mar-16
COGS/ Revenue	75.6%	71.0%	70.4%	73.7%	71.3%
SG&A/ Revenue	16.2%	16.1%	15.0%	15.7%	15.7%
R&D Expense/ Revenue	3.2%	3.7%	3.1%	3.4%	3.8%

Operating margin	8.2%	12.9%	14.6%	10.6%	13.0%
Ordinary profit margin	7.8%	13.5%	15.0%	10.7%	13.1%
Net margin	3.6%	8.9%	7.2%	6.3%	8.6%

◆ Details of other PL	Mar-12	Mar-13	Mar-14	Mar-15	Mar-16
<b>Non-operating income</b>					
Interest and dividends income	107	100	105	98	86
Gain on valuation using equity method of accounting	-	-	-	20	74
Rent income	125	111	109	101	140
Insurance income	14	88	69	26	11
Gain on sales of securities	36	38	39	55	61
Gain on foreign exchange translation	-	487	507	-	-
Others	59	65	54	87	59
Total	342	892	883	387	431
<b>Non-operating expenses</b>					
Interest expenses	273	224	200	64	86
Depreciation expenses of fixed assets lent	39	33	31	36	34
Loss on foreign exchange translation	281	-	-	134	186
Loss on valuation using equity method of accounting	45	61	-	-	-
Compensation for damage	-	-	133	-	-
Others	56	55	36	43	54
Total	697	375	400	277	360
<b>Extraordinary gain</b>					
Gain on sale of fixed asset	30	3	5	47	43
Gain on sale of investments in securities	0	417	3	0	1,027
State subsidy	-	117	1	123	2
Others	3	0	0	0	0
Total	34	538	9	169	1,072
<b>Extraordinary loss</b>					
Expenses for product deficiency	-	-	-	367	-
Loss on disposal of fixed asset	936	243	556	556	1,463
Loss on valuation of investment securities	513	4	0	0	0
Impairment loss	-	-	-	616	110
Others	70	5	10	63	66
Total	1,521	253	566	1,602	1,639



Source: annual report and summary of financial results

## 6-(2) Balance Sheet Overview

Tangible fixed assets is on an increasing trend through capital investment.

Repaid borrowing of 6.7 billion yen (net) in FY2016-3

### ◆ Assets

Cash and Deposits amounted to 7.7 billion yen at the end of March 2016, similar to the balance of 7.3 billion yen at the end of March 2015, as generated cash of 17.4 billion yen was offset by repayment of borrowing of 6.7 billion yen (net) and capital investment of 10.0 billion yen.

Notes Receivable and Accounts Receivable amounted to 26.2 billion yen at the end of March 2016 with a turnover remaining around three months. Distribution channels include both via trading companies and direct sales to end users. As measures such as money on deposit are taken in accordance with the creditworthiness of customers, no default has occurred over more than the last five years.

Inventory of 23.8 billion yen was consisted of finished products and goods (16.7 billion yen), work-in-process (0.5 billion yen) and raw materials and supplies (6.6 billion yen). As a production cycle is short at around five days, the weight of work-in-process is low. The obsolescence risk is low as both raw materials and goods/finished products have basically no shelf life.

Tangible Fixed Assets include EVOH production facilities at NOLTEX in the U.S. (total investment amount 180M dollar, started construction in July 2013) which came into operation from December 2015. Accordingly, the facilities were rebooked from construction in progress to machineries and equipments, etc.

Investment and Other Assets of 6.9 billion yen was consisted of investment securities (4.2 billion yen), deferred taxes (1.9 billion yen) and other (0.8 billion yen). The balance decreased by c.1.0 billion yen from 7.9 billion yen at the end of March 2015 mainly due to the sale of investment securities during the period.

### ◆ Liabilities

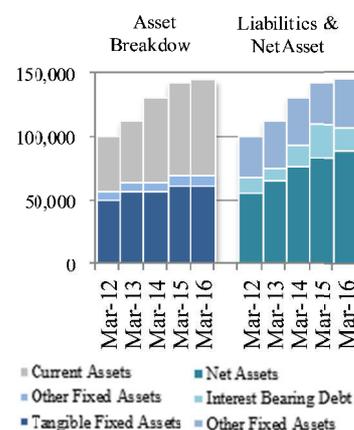
Notes Payable and Accounts Payable amounted to 15.3 billion yen, with Cash Disbursement Outstanding remaining around 2.5 months, a slightly shorter than Days Sales Outstanding of receivables. Trade amount payables to Mitsubishi Chemical, parent and the largest supplier, amounted to 1.7 billion yen. Two overseas manufacturing subsidiaries obtain raw materials locally.

Interest Bearing Debt increased from 10.0 billion yen as of the end of March 2013 to 25.2 billion yen as of the end of March 2015, because a part of the capital investment was funded by borrowing. However, the balance of interest bearing debt decreased to 18.0 billion yen after repayment of 6.7 billion yen (net) during FY2016-3. Over the past five years, EBITDA remained at the level exceeding 15.0 billion yen (except in FY2012-3), and the Company has a strong debt service ability and no funding concern. The Company also shows high capital adequacy with capital ratio of 61.0% and D/E ratio of 0.2x.

◆ BS Summary	Mar-12	Mar-13	Mar-14	Mar-15	Mar-16	composition	vs. prev. year	vs. prev. %
Cash & deposits	4,879	8,433	5,785	7,312	7,728	5.3%	416	105.7%
Notes and accounts receivable	24,213	25,120	24,478	27,375	26,236	18.1%	(1,139)	95.8%
Inventory	17,528	19,788	24,134	23,074	23,794	16.4%	720	103.1%
Deferred tax assets	977	1,326	1,211	1,135	878	0.6%	(257)	77.4%
Allowance for doubtful accounts	(36)	(44)	(42)	(9)	(4)	0.0%	5	44.4%
Others	1,901	2,429	1,341	1,829	3,040	2.1%	1,211	166.2%
<b>Total current assets</b>	<b>49,464</b>	<b>57,054</b>	<b>56,907</b>	<b>60,716</b>	<b>61,672</b>	<b>42.6%</b>	<b>956</b>	<b>101.6%</b>
Buildings & structures	9,554	11,619	11,528	12,969	16,080	11.1%	3,111	124.0%
Machinery & equipment and v	20,671	28,326	28,313	29,812	44,716	30.9%	14,904	150.0%
Land	4,478	4,512	4,540	4,567	4,558	3.1%	(9)	99.8%
Lease assets	27	6	632	655	602	0.4%	(53)	91.9%
Construction in progress	7,273	2,625	19,722	23,327	7,936	5.5%	(15,391)	34.0%
Others	1,429	1,671	1,776	1,748	1,950	1.3%	202	111.6%
<b>Total tangible fixed assets</b>	<b>43,436</b>	<b>48,762</b>	<b>66,511</b>	<b>73,078</b>	<b>75,842</b>	<b>52.4%</b>	<b>2,764</b>	<b>103.8%</b>
Intangible assets	665	489	496	407	353	0.2%	(54)	86.7%
Investment & other assets	6,195	5,873	6,193	7,909	6,899	4.8%	(1,010)	87.2%
<b>Total fixed assets</b>	<b>50,296</b>	<b>55,125</b>	<b>73,200</b>	<b>81,394</b>	<b>83,094</b>	<b>57.4%</b>	<b>1,700</b>	<b>102.1%</b>
<b>Total asset</b>	<b>99,761</b>	<b>112,180</b>	<b>130,107</b>	<b>142,110</b>	<b>144,766</b>	<b>100.0%</b>	<b>2,656</b>	<b>101.9%</b>
Notes and accounts payable	14,648	16,018	15,254	14,827	15,294	10.6%	467	103.1%
Short-term debt	4,365	6,072	10,868	18,899	16,406	11.3%	(2,493)	86.8%
Lease obligations	9	1	44	52	57	0.0%	5	109.6%
Accrued expenses	2,773	2,510	2,275	2,684	2,512	1.7%	(172)	93.6%
Income tax payable	618	2,646	4,472	318	1,537	1.1%	1,219	483.3%
Accrued bonuses	1,125	1,229	1,364	1,273	1,338	0.9%	65	105.1%
Others	4,749	4,669	4,545	3,939	6,341	4.4%	2,402	161.0%
<b>Total current liabilities</b>	<b>28,289</b>	<b>33,148</b>	<b>38,822</b>	<b>41,992</b>	<b>43,485</b>	<b>30.0%</b>	<b>1,493</b>	<b>103.6%</b>
Long term debt	7,584	3,962	3,850	5,689	800	0.6%	(4,889)	14.1%
Accrued expenses	19	5	588	597	535	0.4%	(62)	89.6%
Deferred tax liabilities	1,256	1,944	2,562	2,554	3,263	2.3%	709	127.8%
Provision for retirement benefit	5,687	5,935	5,481	5,314	6,483	4.5%	1,169	122.0%
Others	924	1,736	2,034	2,244	1,939	1.3%	(305)	86.4%
<b>Total non-current liabilities</b>	<b>15,475</b>	<b>13,587</b>	<b>14,515</b>	<b>16,398</b>	<b>13,020</b>	<b>9.0%</b>	<b>(3,378)</b>	<b>79.4%</b>
<b>Total liabilities</b>	<b>43,764</b>	<b>46,735</b>	<b>53,337</b>	<b>58,390</b>	<b>56,505</b>	<b>39.0%</b>	<b>(1,885)</b>	<b>96.8%</b>
Capital stock	17,989	17,989	17,989	17,989	17,989	12.4%	0	100.0%
Capital surplus	13,879	13,879	13,879	13,879	13,879	9.6%	0	100.0%
Retained earnings	27,581	34,550	40,815	45,446	52,566	36.3%	7,120	115.7%
Treasury stock	(195)	(197)	(202)	(203)	(205)	-0.1%	(2)	101.0%
<b>Total stockholders' equity</b>	<b>59,254</b>	<b>66,222</b>	<b>72,481</b>	<b>77,111</b>	<b>84,229</b>	<b>58.2%</b>	<b>7,118</b>	<b>109.2%</b>
Other comprehensive income	(3,260)	(780)	4,283	6,604	4,022	2.8%	(2,582)	60.9%
Non-controlling interests	2	2	6	5	10	0.0%	5	200.0%
<b>Total net assets</b>	<b>55,996</b>	<b>65,444</b>	<b>76,770</b>	<b>83,720</b>	<b>88,261</b>	<b>61.0%</b>	<b>4,541</b>	<b>105.4%</b>
<b>Total Liabilities and Total Net</b>	<b>99,761</b>	<b>112,180</b>	<b>130,107</b>	<b>142,110</b>	<b>144,766</b>	<b>100.0%</b>	<b>2,656</b>	<b>101.9%</b>

Interest Bearing Debts	11,977	10,040	15,350	25,237	17,798
Cash & deposits	4,879	8,433	5,785	7,312	7,728
Interest Bearing Debts (Net)	7,098	1,607	9,565	17,925	10,070
EBITDA	13,714	18,792	23,358	18,238	21,746
Net income attributable to owner:	3,154	8,158	8,018	6,648	8,971

◆ Key Indicators	Mar-12	Mar-13	Mar-14	Mar-15	Mar-16
Current Ratio	174.9%	172.1%	146.6%	144.6%	141.8%
Capital Ratio	56.1%	58.3%	59.0%	58.9%	61.0%
D/E ratio (times) *	0.21	0.15	0.20	0.30	0.20
Interest Bearing Debts /EBITDA	0.87	0.53	0.66	1.38	0.82
*Interest bearing debts/ Net assets					
ROA	3.2%	7.7%	6.6%	4.9%	6.3%
ROE	5.7%	13.4%	11.3%	8.3%	10.4%
Days Sales Outstanding (M)	3.2	3.2	2.7	3.0	3.1
Days Sales in Inventories (M)	3.0	3.4	3.4	3.7	3.8
Cash Disbursement Outstandi	2.6	2.8	2.4	2.3	2.4



Source: summary of financial results

Days Sales Outstanding = (Average Trade Receivables at beginning &amp; end of FY / Revenue) × 12 (or 6)

Days Sales in Inventories = (Average Inventories at beginning &amp; end of FY / COGS) × 12 (or 6)

Cash Disbursement Outstanding = (Average Accounts Payable at beginning &amp; end of FY / COGS) × 12 (or 6)

### 6-(3) Cash Flow Overview

CF from operating activities recorded the historical high.

Repaid borrowing of 6.7 billion yen (net).

#### ◆ CF from operating activities significantly improved along with improvement in operating income

CF from Operating Activities improved by c.7.9 billion yen from 9.6 billion yen in the previous year to 17.4 billion yen along with improvement in operating income, recording the high over the last five years.

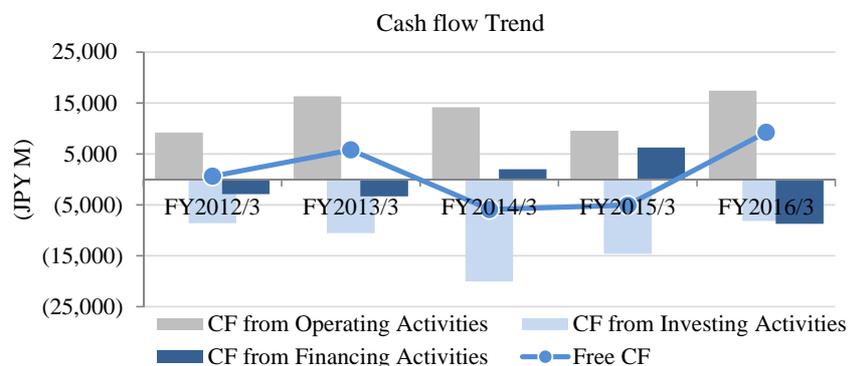
CF from Investing Activities remained at the high level in FY2014-3 and FY2015-3 as large-scale capital investments were implemented, such as "OPL Film" line (total investment 6.5 billion yen) and EVOH line (total investment 180 million dollar). In FY2016-3, construction of a new "Hi-Selon" line (total investment 3.3 billion yen) and a new "COPONYL" line (total investment 2.6 billion yen) are in progress, but compared with the past two years, capital investments were contained and free cash flow turned to positive.

CF from Financing Activities remained positive in FY2014-3 and FY2015-3, as a part of capital investments was funded by borrowing. In FY2016-3, excess cash and CF from operating activities were used to repay borrowing of 6.7 billion yen (net), and CF from financing activities turned to negative 8.7 billion yen.

	JPY(M)				
◆CF Summary	2012年3月	2013年3月	2014年3月	2015年3月	2016年3月
Income before Income Taxes	5,276	12,660	16,155	9,863	13,088
Depreciation etc*	6,768	7,046	7,196	7,722	8,328
Change in Assets(Liabilities) for Op	(1,867)	(1,209)	(3,225)	(1,177)	(814)
Others	1,484	152	(34)	159	(283)
Income Taxes Payment	(2,438)	(2,284)	(5,942)	(7,015)	(2,874)
CF from Operating Activities	9,223	16,365	14,150	9,552	17,445
Gain on sales of investment securities	-	683	8	-	1,878
Payments for property, plants, equipment	(8,028)	(10,772)	(20,263)	(14,512)	(10,028)
Others	(548)	(467)	222	(106)	(18)
CF from Investing Activities	(8,575)	(10,557)	(20,033)	(14,618)	(8,168)
Free CF	648	5,808	(5,883)	(5,066)	9,277
Increase in loans	(1,490)	(2,041)	3,876	8,231	(6,685)
Others	(1,380)	(1,275)	(1,880)	(1,968)	(2,052)
CF from Financing Activities	(2,872)	(3,319)	1,996	6,263	(8,737)
Adjustments	(142)	425	954	330	(174)
Net Cash Flow	(2,367)	2,914	(2,933)	1,527	366
Cash & Cash equivalents at the beginning of period	8,005	5,637	8,677	5,744	7,271
Change Of Consolidated Entity	-	125	-	-	-
Cash and Cash Equivalents at end of period	5,637	8,677	5,744	7,271	7,637

\* Impairment Loss & Amortization are included.

Source: summary of financial statements



Source: summary of financial statements

## 7. Management Plan and Growth Strategy

### 7-(1) Management Plan

The Company aims to achieve sales of 140 billion yen and operating income of 20.0 billion yen by FY2021-3 through establishment of new business and enhancement of production capacity.

#### ◆ New mid-term management plan "NICHIGO 20" starts from FY2017-3

The previous mid-term management plan "Double 15" (from FY2012-3 to FY2016-3) ended in FY2016-3, and the new mid-term management plan "NICHIGO 20" (from FY2017-3 to FY2021-3) will start from FY2017-3. Under "NICHIGO 20" the Company sets three basic policies: (1) to enhance business portfolio through continued growth of existing business, selection and concentration of business, and acceleration of new product development, (2) to strengthen competitive advantage from mid- and long-term perspectives, and (3) to further enhance credibility with society (see P36).

The Company sets the numerical target after 5 years in FY2021-3 to achieve sales of 140.0 billion yen (up 33.8% from FY2016-3), operating income of 20.0 billion yen (up 47.2%) and operating margin of 14.3%. The Company seeks to achieve an increase in sales and income, centered on the effect of new and additional production facilities of "OPL Film", "Soarnol" and "Hi-Selon" implemented under "Double 15" during the first half, and with establishment of new business and capital investments to be newly implemented during the latter half. While the Company has injected capital investment of 68.0 billion yen in aggregate and R&D expenses of 19.0 billion yen under "Double 15", the Company plans to spend capital investment of 74.0 billion yen and R&D expenses of 23.0 billion yen under "NICHIGO 20" in excess of those under "Double 15".

#### ◆ Medium-term management plan

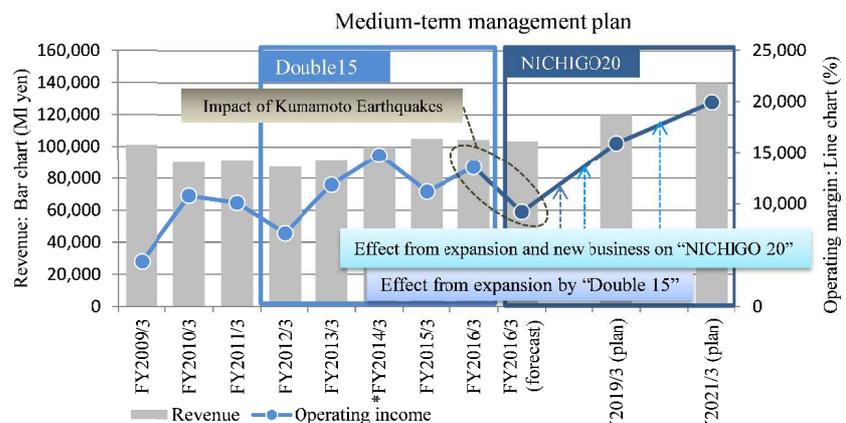
(JPYM)	Double15					NICHIGO20		
	JGAAP act	IFRS est	IFRS plan	IFRS plan				
	FY2012/3	FY2013/3	*FY2014/3	FY2015/3	FY2016/3	FY2019/3	FY2019/3	FY2021/3
Revenue	87,243	91,976	100,200	105,202	104,630	103,500	120,000	140,000
Operating income	7,117	11,859	14,800	11,186	13,584	9,200	16,000	20,000
Operating margin	8.2%	12.9%	14.8%	10.6%	13.0%	8.9%	13.3%	14.3%
Depreciation	6,597	6,933	7,129	7,052	8,162	9,800	n.a.	n.a.
EBITDA	13,714	18,792	21,929	18,238	21,746	19,000	n.a.	n.a.
EBITDA margin	15.7%	20.4%	21.9%	17.3%	20.8%	18.4%	n.a.	n.a.

	FY2012/3	FY2013/3	*FY2014/3	FY2015/3	FY2016/3	FY2019/3	FY2019/3	FY2021/3
Revenue growth (Lower: vs FY3016/3)	(4,017)	4,733	8,224	5,002	(572)	(1,130)	15,370	20,000
Revenue growth y/y (Lower: vs FY3016/3)	-4.4%	5.4%	8.9%	5.0%	-0.5%	-1.1%	0.0%	16.7%
Operating income growth (Lower: vs FY3016/3)	(2,970)	4,742	2,941	(3,614)	2,398	(4,384)	6,800	4,000
						(4,384)	2,416	6,416

\* Value excludes the impacts by accounting period change of some subsidiaries.

Source: summary of financial results and new medium-term management plan



\* Value excludes the impacts by accounting period change of some subsidiaries.

Source: annual report and new medium-term management plan

## 7-(2) FY2017-3 Business Forecast

Operating income is expected to squeeze with operating margin falling below 10% in FY2017-3 due to an impact of Kumamoto Earthquakes and voluntary adoption of IFRS.

### ◆ Operating income will deteriorate in FY2017-3 due to an impact of Kumamoto Earthquakes

In FY2017-3, the Company forecasts sales of 103.5 billion and operating income of 9.2 billion yen, representing a flat sales growth and deterioration of operating income by c.4.4 billion yen compared with FY2016-3. Operating income is expected to squeeze significantly, but it is caused by two special factors: (1) voluntary adoption of the International Financial Reporting Standards (IFRS) and (2) loss generated in relation to "2016 Kumamoto Earthquakes".

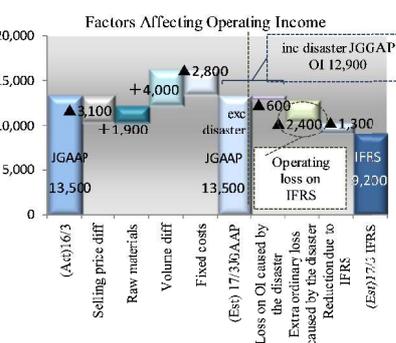
Impact of (1) change from J-GAAP to IFRS on operating income is relatively small at c.1.3 billion yen in total, consisting of c.0.4 billion yen of amortization expenses related to previous year's regular maintenance and c.0.9 billion yen of loss on fixed asset disposal.

In relation to (2) "2016 Kumamoto Earthquakes", as a result of damages incurred by the Kumamoto Plant, estimated disaster-related loss of c.2.4 billion yen is generated as restoration costs of facilities and loss on disposal of inventory assets, etc. In addition, reduction in operating income of c.0.6 billion yen is projected as an opportunity cost from a decrease in sales volume due to the disaster. Thus, total loss of c.3.0 billion yen is estimated in relation to Kumamoto Earthquakes. The former disaster-related loss of c.2.4 billion yen is reported as extraordinary loss under J-GAAP but treated as operating expense under IFRS. Therefore, although difference in net income is only c.0.4 billion yen between J-GAAP (c.6.6 billion yen) and IFRS (c.6.2 billion yen), there is a large difference of c.3.7 billion yen in operating income between c.12.9 billion yen under J-GAAP and c.9.2 billion yen under IFRS.

#### ◆ FY2017/3 forecast (JGAAP, IFRS)

	(a) Act		(b) Est		(c) Est		(d) Est		Diff	(JPY M) GAAP diff
	FY2016/3 JGAAP Act	FY2017/3 JGAAP exc disaster	FY2017/3 JGAAP inc disaster	FY2017/3 IFRS inc disaster	(d) - (a) Diff	(d) - (c) Diff				
Revenue	104,630	n.a.	104,000	103,500	(1,130)	(500)				
Operating income	13,584	13,500	12,900	9,200	(4,384)	(3,700)				
Income before income taxes	13,088	12,800	9,800	9,200	(3,888)	(600)				
Net income(*)	8,971	n.a.	6,600	6,200	(2,771)	(400)				
Operating margin	13.0%	n.a.	12.4%	8.9%	-4.1%	-3.5%				
Net margin	8.6%	n.a.	6.3%	6.0%	-2.6%	-0.4%				
CAPEX	12,700	n.a.	13,900	13,900	1,200	0.0%				
Depreciation	8,162	n.a.	9,800	9,800	1,638	0.0%				
R & D Costs	4,000	n.a.	4,200	4,200	200	0.0%				

(\*) JGAAP: Net income attributable to owners of parent, IFRS: Profit for the period attributable to owners of the parent



Source: summary of financial statements and financial results materials

Planned operating income for FY2017-3 under J-GAAP excluding the impact of Kumamoto Earthquakes and change to IFRS was 13.5 billion yen, which assumed largely the same amount with operating income of 13.5 billion yen in FY2016-3.

Positive factors that are expected to improve operating income include (1) 0.4 billion yen from volume difference and (2) 1.9 billion yen from reduction of raw materials costs. (1) Volume difference assumes further sales expansion of "Soarnol" and an increase in sales volume driven by a start of operation of new "Hi-Selon" and "COPONYL" lines. (2) Reduction in raw materials costs include a decline in the naphtha price and reduction in fuel costs driven by expansion of production at the U.S. plant with lower utility costs. On the other hand, estimated negative factors include reduction in operating income by 3.1 billion as selling price difference due to the weaker yen, and increase in fixed costs by 2.8 billion yen due to more depreciation burden of a new EVOH line in the US.

7-(3) Growth  
Strategy

## ◆Promote new product development and sales expansion in the Asian market in parallel with strengthening of core products

The new mid-term management plan "NICHIGO 20" basically follows policies under the previous mid-term management plan "Double 15" and sets (1) enhancement of business portfolio, (2) strengthening competitive advantage and (3) further enhancement of credibility with society as basic policies. With respect to "establishment of new core business", where "Double 15" made some progress in construction of foundation but did not achieve sufficient outcome, the Company will seek to establish business groups with operating income of 1.0 billion level by clarifying the target products and taking more specific measures. The Company will also focus on "expansion of business in the Asian market" by expanding sales of "Soarnol" in China and Southeast Asia. With respect to "strengthening competitive advantage", the Company has completed withdrawal from unprofitable businesses under "Double 15" and will seek to improve profitability in parallel with expansion of the business scale by concentrating management resources to highly profitable products and products with growth potential.

## ◆Basic Policies of Mid-Term Management Plan "NICHIGO 20"

Basic Policy	Initiatives	
◇ Enhancement of business portfolio	<ul style="list-style-type: none"> <li>■ Continuing investment in core businesses</li> </ul>	<ul style="list-style-type: none"> <li>✓ "OPL Film" Promotion of high functionality (thin, low shrinkage, high transmittance); Enhancement of production facilities</li> <li>✓ "Soarnol" Development of new grades with higher functionality, development of new applications; Further enhancement of customer services; Strengthening competitive advantage through cost control</li> </ul>
	<ul style="list-style-type: none"> <li>■ Establishment of new core business               <ul style="list-style-type: none"> <li>• Establishment of new business groups with operating income of around 1.0 billion yen</li> <li>• Active investment in high potential products</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>✓ "COPONYL", "SHIKOH" Sales expansion in IT and electronic optical field</li> <li>✓ "Hi-Selon" Expansion of production capacity, sales expansion for liquid detergent applications in the overseas market</li> <li>✓ Life chemical Sales expansion of sodium acetate and "GOHSENOLE" particularly for pharmaceutical applications</li> <li>✓ "Nichigo G-Polymer" Early creation of real demand in energy-related field, etc.</li> </ul>
	<ul style="list-style-type: none"> <li>■ Acceleration of new product development</li> <li>■ Expansion of the business scope and scale with a view to business alliance and M&amp;A</li> </ul>	
◇ Strengthening competitive advantage	<ul style="list-style-type: none"> <li>■ Reorganization of domestic plants</li> <li>■ Business expansion in Asia</li> <li>■ Global, stable procurement of basic raw materials</li> <li>■ Development of human resources</li> </ul>	<ul style="list-style-type: none"> <li>✓ Ogaki Plant Establish a grand design for a state-of-the-art plant</li> <li>✓ Asian market Accelerate development of market from the base in Singapore</li> </ul>
◇ Further enhancement of credibility with society	<ul style="list-style-type: none"> <li>■ Efforts for the environment and safety</li> <li>■ Further enhancement of quality assurance system</li> <li>■ Continuation of compliance</li> <li>■ Efforts for CSR activities</li> </ul>	

Source: mid-term management plan and summary of financial results

## ◆Enhancement of business portfolio: continuing investment in core businesses

To enhance business portfolio, the Company will seek to achieve the plan based on (1) continuing investment in core businesses and (2) establishment of new core business. With regards to "OPL Film" and "Soarnol," two core businesses, the Company continues to take the existing measures to seek expansion of the business scale by adding higher functionality to products and enhancing the production capacity to meet the growing demand.

✓ **Optical-use PVOH film: "OPL film"**

As for "OPL Film," the Company will focus on development of products with higher functionality to meet demand from customers for thin, low shrinkage and high

a Enhancement of  
business portfolio

transmittance-contrast films. With an expanding trend of the market as polarizing plate manufacturers increase production capacity, Nippon Gohsei decided to add a new line with 18M m<sup>2</sup>/year capacity in April 2016 (see P16). However, as the price of polarizing plates is declining particularly for large-scale panels, the Company will strive to secure profit margin by cutting costs through further improvement in productivity.

✓ **EVOH resin: "Soarnol"**

As for "Soarnol," the Company will seek to cultivate demand for new applications by adding higher functionality and also seek further growth with a view to develop business in the emerging market from which demand is expected to increase going forward. As properties (gas barrier and molding flexibility) of EVOH resins vary depending on the ethylene content, in order to offer products that meet customer needs, insights of resins to be combined and technical support will be indispensable. Therefore, Nippon Gohsei will seek differentiation from low-end products by enhancing customer services, and aim for expansion of sales through addition of higher value and improvement of quality.

◆ **Enhancement of business portfolio: establishment of new core business**

In an effort to establish new core business, the Company seeks to proactively invest in prospective products and establish business groups with operating income of 1.0 billion yen level within 5 years. The Company also considers to expand the scope and scale of business by acquiring external management resources through business alliance and M&A, not just through internal development. Prospective products include "COPONYL", "SHIKOH" (pressure sensitive adhesives), "Hi-Selon" (water-soluble PVOH film), "Nichigo G-Polymers" (BVOH) and sodium acetate.

✓ **Pressure sensitive adhesives: "COPONYL" and "SHIKOH"**

Pressure sensitive adhesives for use in electronic materials and optical materials such as "COPONYL" and "SHIKOH" are the areas where further growth is expected, as the polarizing plate market remains strong and the touch panel market is rapidly expanding along with dissemination of tablets and smartphones. Particularly, "SHIKOH," a UV curable resin, is increasingly applied to smartphones and other devices, as filling an air gap between a cover glass and a polarizing plate of a touch panel with SHIKOH allows to make a panel both thinner and stronger, and offers advantages such as enhanced visibility and achievement of higher contrast. As Nippon Gohsei is the only company which offers two types of adhesive resins, i.e. an acrylic resin ("COPONYL") and a UV curable resin ("SHIKOH"), the Company will seek to expand the customer base by flexibly offering products that meet customer needs. A new "COPONYL" line currently under construction has come to the stage where users' product certification work is in progress, and is scheduled to come into operation around at the end of June 2016.

✓ **Water-soluble PVOH film: "Hi-Selon"**

Production of "Hi-Selon" started in 1973, and it has been so far used in packaging of pharmaceuticals and a film for curved transfer printing. In recent years, demand expanded along with the requirement for packaging of agricultural chemicals, and demand for transfer printing films for use in automobile interiors remains solid. A new application expected to grow is an application to packaging materials for liquid detergent. It is a growing field in which demand is expanding particularly in the U.S. and Europe. In addition, the industry leader has high shares in films for use in individual packaging of liquid detergent, and the Company receives a request from users for diversification of supply sources. Therefore, right after starting operation of a new

facility (1,600 ton/year) which is currently under construction, the product is expected to meet demand and contribute to sales.

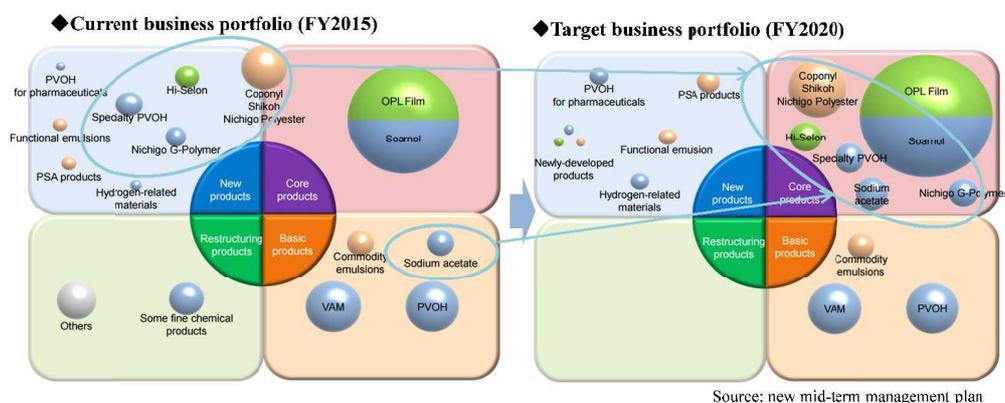
#### ✓ **BVOH: "Nichigo G-Polymer"**

"Nichigo G-polymer" is the first amorphous vinyl alcohol resin in the world with excellent gas barrier properties, as well as both heat-resisting and water-soluble properties, which other products cannot achieve. Although it took several years to come into commercial use, the Company brought "MelFil," a water-soluble filament for use in 3D printers, into the market in July 2015. In addition, as the use of hydrogen gains momentum with the introduction of fuel-cell vehicles into the market, "Nichigo G-Polymer" attracts attention as a material with superior hydrogen barrier properties, and a joint project between industry and academia toward the practical use is under way. It is also used in food packaging applications, and the Company plans to focus on expanding sales of "Nichigo G-Polymer" in parallel with "Soarnol".

#### ✓ **Life Chemical**

The Company will also focus on cultivating the life chemical field centered on pharmaceutical applications. Life chemical-related products include sodium acetate and "GOHSENOL EG".

Sodium acetate has been historically handled as one of fine chemical products. The Company seeks to expand demand for applications in kidney dialysis and food additives by developing high quality products through the new process. The number of dialysis patient is on an increasing trend globally, and the number of renal replacement therapy patients is estimated to increase from c.2.6M people in 2010 to c.5.4M people in 2030, a more than double increase (source: National Center for Biotechnology Information). Also, as there are few competitors, the Company seeks to promote sodium acetate as a new core business with a view to expand new production lines.



#### ◆ **Strengthening competitive advantage**

As measures to strengthen competitive advantage, the Company promotes (1) reorganization of domestic plants, (2) global, stable procurement of basic raw materials and (3) development of human resources.

With regard to (1), the Company is reorganizing the Ogaki Plant where production facilities of the withdrawn business remain, and plans to establish a grand design for a state-of-the-art plant and install and enhance new production facilities. As part of such efforts, the Company has decided in April 2016 to construct a new "OPL film" line (7th line), which is scheduled to complete construction during 2Q FY2018-3 (July-September 2017). In addition, construction of sodium acetate production facilities and a new "OPL film" line (8th line) is under consideration.

b Strengthening competitive advantage

## 8. Competitive Analysis

## 8-(1) Competitive Environment

## a. Optical-use PVOH film

## ◆ Optical-use PVOH film: Kuraray (70%) and Nippon Gohsei (30%) dominate the market

The competitive environment for optical-use PVOH films (product name: "OPL Film"), one of the Company's core products, is summarized below.

Other than Nippon Gohsei, Kuraray and Aicello (unlisted) also produce PVOH films. However, Nippon Gohsei and Kuraray are the only two manufactures of optical-use PVOH films in the world. Kuraray in its disclosure materials estimates its market share to be c.80%, but Nippon Gohsei sees the market share of Kuraray and Nippon Gohsei to be c.70% and c.30%, respectively.

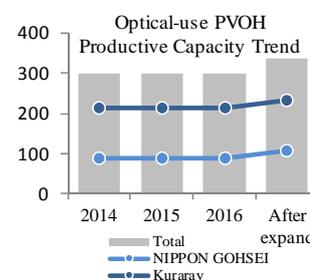
Kuraray had maintained the monopoly status on optical-use PVOH films in the past, but in 2003 the Company having the world-top level of PVOH processing technology entered into the optical-use PVOH film field. Although the Company was forced to go through a difficult period initially after entering in this field, the Company has been evaluated for its efforts such as an extension of the film length from the previous 2,700 m per roll to 5,000 m, and came to establish the current position.

## ◆ Optical-use PVOH Productive Capacity

	2014	2015	2016	Expansion	After Exp
Kuraray	212	212	212	20	232
NIPPON GOHSEI	88	88	88	18	106
Total	300	300	300	38	338
<b>Productive Capacity Share</b>					
Kuraray	70.7%	70.7%	70.7%	-	68.6%
NIPPON GOHSEI	29.3%	29.3%	29.3%	-	31.4%

Unit: (M)m<sup>2</sup>/year

Source: Kuraray release and financial results materials.



## ◆ Both Nippon Gohsei and Kuraray are in process of expanding production facilities

As production of optical-use PVOH films requires a high level of the precision processing technology in addition to an advanced expertise in refining PVOH, technical hurdle to a new entry to this field is very high. The polarizing plate industry, a demand source of PVOH films, is also dominated by top three companies (Nitto Denko, LG Chemical (Korea) and Sumitomo Chemical) that hold over 70% market share. Considering the long-standing structure of two manufacturers and several buyers, in addition to a technical barrier to entry, an emergence of companies that newly enter into the optical-use PVOH film business should be highly unlikely. All polarizing plate manufacturers use both the Company and Kuraray, although the respective shares are different.

Given an increasing trend of demand as well as request from polarizing plate manufacturers, Kuraray and Nippon Gohsei decided to expand production facilities in October 2015 and April 2016, respectively.

New facilities of Kuraray under construction have production capacity of 20M m<sup>2</sup>/year, and is scheduled to come into operation in early 2017. After completion, Kuraray's production capacity will increase from 212M m<sup>2</sup>/year to 232M m<sup>2</sup>/year. In contrast, Nippon Gohsei expects to complete construction of new facilities with capacity of 18M m<sup>2</sup>/year during July-September 2017, and production capacity will increase from 88M m<sup>2</sup>/year to 106M m<sup>2</sup>/year. There will be no significant change in respective shares after the expansion.

## b. EVOH resins

## ◆EVOH resins: high hurdle to entry from the aspect of both technology and cost

The competitive environment for EVOH resins (product name: Soarnol) is summarized below.

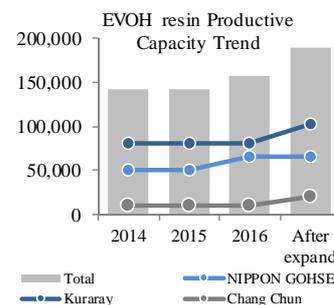
As discussed in Business Overview (P8), (1) Kuraray, (2) Nippon Gohsei and (3) Chang Chun Petrochemical (Taiwan) are only three manufactures of EVOH resins in the world. In the past, DuPont (U.S.) tried unsuccessfully to start the EVOH resin business, and Nippon Gohsei acquired DuPont's plant in Houston, Texas in 1994. In addition to a high technical barrier to entry, provision of products according to applications and forming methods is required. Initial entry costs including capital investment, etc. is high, such as required capital investment for around one million yen per ton.

Estimated share of each company on a production capacity basis is: (1) Kuraray c.52%, (2) Nippon Gohsei c.42% and (3) Chang Chun Petrochemical (Taiwan) c.6%. In recent years, with continuing growth of the EVOH market, Nippon Gohsei was among the first to start expanding facilities. Its new large-scale facility in the U.S. came into operation in December 2015, and production capacity increased from 51,000 ton/year to 66,000 ton/year. Kuraray is also actively making capital investment, including a production facility in Belgium with capacity of 11,000 ton/year currently under construction (scheduled to come into operation at the end of 2016). In addition, Kuraray decided to expand facilities with capacity of 11,000 ton/year in May 2016 (in the U.S., scheduled to come into operation in mid-2018), and production capacity will increase from the existing 81,000 ton/year to 103,000 ton/year. An emerging force Chang Chun Petrochemical is also promoting a plan to expand facilities.

## ◆EVOH resin Productive Capacity Trend (ton / year)

	2014	2015	2016	Expansion	After expand
Kuraray	81,000	81,000	81,000	22,000	103,000
NIPPON GOHSEI	51,000	51,000	66,000	-	66,000
Chang Chun(*)	10,000	10,000	10,000	10,000	20,000
Total	142,000	142,000	157,000	32,000	189,000
<b>Productive Capacity Share</b>					
Kuraray	57.0%	57.0%	51.6%	-	54.5%
NIPPON GOHSEI	35.9%	35.9%	42.0%	-	34.9%
Chang Chun	7.0%	7.0%	6.4%	-	10.6%

(\*) Supposed Chang Chun's EVOH resin Productive Capacity to become double.



Source: company release and hearing from NIPPON GOHSEI.

## ◆Chang Chun Petrochemical continues bargain sales particularly in the U.S.

Chang Chun Petrochemical tries to gain shares from top two companies by carrying out bargain sales particularly in the U.S. Properties (gas barrier and molding flexibility) of EVOH resins vary depending on the ethylene content. Therefore, to offer the most suitable products to meet the customer needs, the insights on resins to be combined and the processing technology is required. Given its poor ability to provide technical supports, Chang Chun Petrochemical has not been able to enter into the high-value-added product area.

There is no difference in quality between Nippon Gohsei and Kuraray, but customers including film manufacturers seem to use both companies' products depending on applications. It appears that Nippon Gohsei's products are mainly used in food packaging applications and Kuraray has higher shares in industrial applications. Nippon Gohsei aims to expand industrial applications, and globally promotes high-function "Soarnol" with higher barrier properties centered on use in fuel tanks.

## 8-(2) Performance Comparison

## ◆ Operating margin of both Nippon Gohsei and Kuraray exceeds the chemical industry average

This section compares performance with Kuraray which competes in optical-use PVOH films and EVOH resins.

Kuraray, with sales of 521.7 billion yen in FY2015-12, is nearly five times larger than Nippon Gohsei (104.6 billion yen) in terms of the sales size. On the other hand, Nippon Gohsei's operating margin surpassed Kuraray's operating margin in FY2014-3, and thereafter, Nippon Gohsei has maintained higher operating margin than Kuraray. When looking at the latest fiscal year, Nippon Gohsei's operating margin was 13.0% versus Kuraray's 12.7%. Considering the average operating margin of chemical industry (10,926 companies) at 6.7%<sup>(\*)</sup> and the average operating margin of chemical companies with capital of more than 1.0 billion yen (353 companies) at 7.4%<sup>(\*)</sup>, it can be said that both companies generate higher operating margin among the chemical industry.

Focusing on the competing segment (Nippon Gohsei: chemical products, Kuraray: vinyl acetate), Kuraray is superior both in terms of size and profitability. Given about 2-fold gap in the sales size, assuming no difference in prices of both companies' products, it seems that difference in profitability reflects a scale merit. Also, Kuraray acquired the vinyl acetate-related business from DuPont (U.S.) for c.543 million dollar in June 2014, and both sales and assets increased by nearly 150%, but the segment operating margin which had been more than 30% before the acquisition has deteriorated to around 20%.

In this regard, as Kuraray uses the product belonging to the DuPont's business which it acquired as a raw material of water-soluble PVOH films, Kuraray seeks to enjoy synergy effects by developing products vertically including raw materials. With respect to EVOH, as Kuraray has brought a new product with superior retorting resistance into the market and is also developing new products as substitute for metal cans and glass cans, it appears that Kuraray is focusing on sales expansion through expanding applications centered on food packaging.

As Nippon Gohsei does not source raw materials from DuPont, Kuraray's M&A has no impact on Nippon Gohsei's business. There has also been no significant change in the business environment before and after the acquisition.

<sup>(\*)</sup> Source: the Ministry of Finance, Policy Research Institute Research Statistics Department "Financial Statements Statistics of Corporations by Industry Annual Report (FY2014) "

## ◆ Rival Comparison

Company		JPY(M)				
		Mar-12	Mar-13	Mar-14	Dec-14	Dec-15
Kuraray(*1) (Entire company)	Revenue	368,975	369,431	413,485	411,408	521,721
	Operating income	54,733	49,197	49,545	40,298	66,077
	Operating Margin	14.8%	13.3%	12.0%	9.8%	12.7%
	Depreciation	30,737	30,952	34,972	35,696	44,102
	goodwill amortization	2,100	2,741	3,217	3,657	3,862
	EBITDA	87,570	82,890	87,734	79,651	114,041
	EBITDA Margin	23.7%	22.4%	21.2%	19.4%	21.9%
		Mar-12	Mar-13	Mar-14	Mar-15	Mar-16
NIPPON GOHSEI (Entire company)	Revenue	87,243	91,976	111,151	105,202	104,630
	Operating income	7,117	11,859	16,229	11,186	13,584
	Operating Margin	8.2%	12.9%	14.6%	10.6%	13.0%
	Depreciation	6,597	6,933	7,129	7,052	8,162
	EBITDA	13,714	18,792	23,358	18,238	21,746
	EBITDA Margin	15.7%	20.4%	21.0%	17.3%	20.8%

## ◆ Rival Comparison by segment

Segment		JPY(M)				
Segment		Mar-12	Mar-13	Mar-14	Dec-14	Dec-15
Kuraray(*1) (vinyl acetate)	Revenue	119,125	126,133	155,503	196,949	243,154
	Segment OI	49,904	48,877	46,658	35,724	55,740
	Segment OM	41.9%	38.8%	30.0%	18.1%	22.9%
	Depreciation	13,675	14,399	16,721	20,904	25,004
	goodwill amortization	2,001	2,642	3,118	3,581	3,761
	EBITDA	65,580	65,918	66,497	60,209	84,505
	EBITDA Margin	55.1%	52.3%	42.8%	30.6%	34.8%
	Segment Asset	159,031	226,677	278,042	398,631	398,050
(*3) Return on assets ratio	31.4%	21.6%	16.8%	9.0%	14.0%	
Segment		Mar-12	Mar-13	Mar-14	Mar-15	Mar-16
NIPPON GOHSEI(*2)		synthetic resin	synthetic resin	synthetic resin	synthetic resin	Chemical products
(synthetic resin) (Chemical products)	Revenue	61,510	67,113	83,560	77,944	88,061
	Segment OI	7,244	11,837	16,407	11,381	13,158
	Segment OM	11.8%	17.6%	19.6%	14.6%	14.9%
	Depreciation	5,853	6,283	6,712	6,541	n.a.
	EBITDA	13,097	18,120	23,119	17,922	n.a.
	EBITDA Margin	21.3%	27.0%	27.7%	23.0%	n.a.
	Segment Asset	74,527	86,503	105,131	116,383	n.a.
	(*3) Return on assets ratio	9.7%	13.7%	15.6%	9.8%	n.a.

(\*1) Kuraray has changed the fiscal year end from the end of March to the end of December from December 2014.

(\*2) Nippon Gohsei has changed business segmentation from FY2016-3. Accordingly, figures of the old synthetic resins segment are used from FY2011-3 to FY2015-3 and figures of the new chemical products segment are used in FY2016-3.

(\*3) Return on assets ratio = Segment Operating Income/Segment Asset

Source: annual reports and summary of financial results of each company

## 9. Stock Price Trend and Investment Return Analysis

### 9-(1) Stock Price Trend

Stock price fell to the 600 yen level after Kumamoto Earthquakes in April 2016.

#### ◆ After Kumamoto Earthquakes in April 2016, stock price remains at the 600 yen level

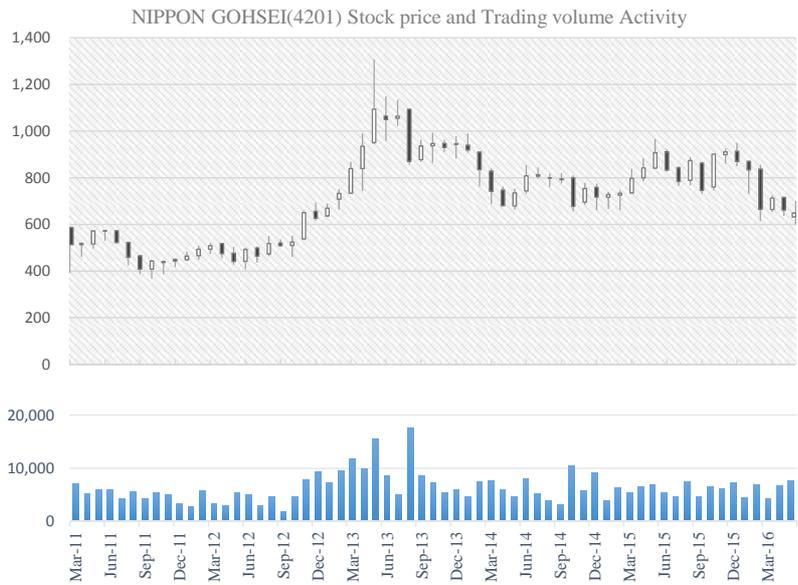
Stock price trends are summarized below. In FY2013-3, the Company's stock outperformed TOPIX and peers including Kuraray (3405.T), led by the bullish market driven by Abenomics later in the year and recovery of the business performance. Also, the liquidity (per day on amount basis; the same shall apply hereinafter) remained around 400 million yen, indicating an expansion of market participants.

In FY2015-3, the stock remained weak, given temporary deterioration in business performance based on special factors. Subsequently, later in the period, the stock price recovered, as there was prospect for resolution of a defect in stability of the product quality in the new "OPL Film" line (the 6th line) and a surge in the price of vinyl acetate monomers in Europe and an improvement in the income level was felt confident.

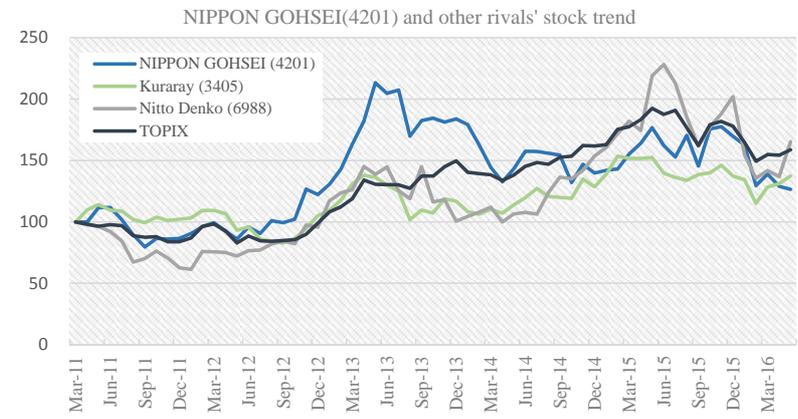
In FY2016-3, as business performance was slow to improve early in the period, the stock price remained weak around the 700-800 yen levels during July-September 2015 after announcement of 1Q results. Given better performance after announcement of 2Q results, the stock price rose to the 900 yen level, but entering in 2016, along with the broadly weakening equity market as the Nikkei Average fell below 15,000 yen, the stock price of Nippon Gohsei also weakened and remained at the 700-800 yen level. In addition, after the Kumamoto Plant was damaged by "2016 Kumamoto Earthquakes" occurred in April 2016, given the prospect for loss of c.3.0 billion yen in total related to earthquakes in FY2017-3, the stock price has remained at the 600 yen level after Kumamoto Earthquakes.

**9-(2) Investment Return Analysis**

PBR also fell to 0.7x along with a decline in the stock price after Kumamoto Earthquakes, very cheap level relative to profitability.



Vertical axis (upper): Stock price (JPY) Vertical axis (lower): Trading volume (1,000 shares) Created by SQUADDD



\*Relative stock value is adapted using the number in 2011-3 as a base of 100 Created by SQUADDD

**◆PBR fell to 0.7x after Kumamoto Earthquakes, cheaper valuation considering profitability of core businesses**

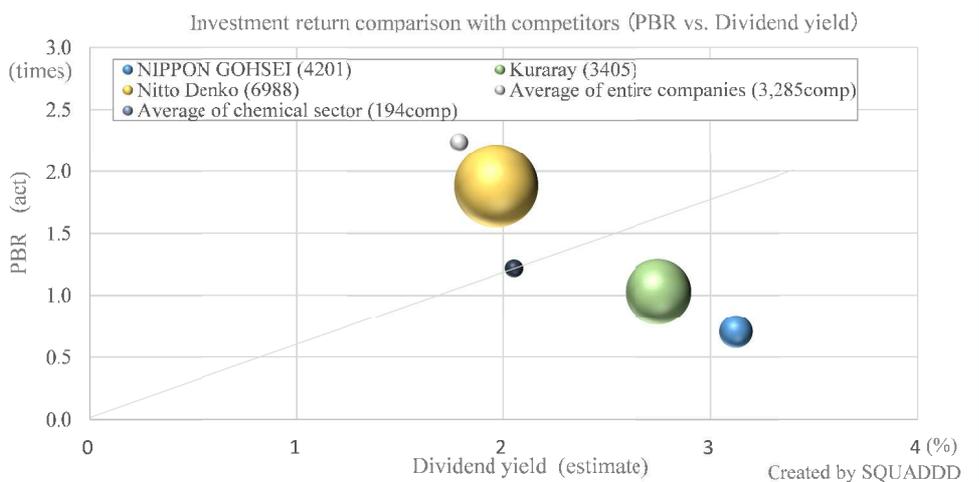
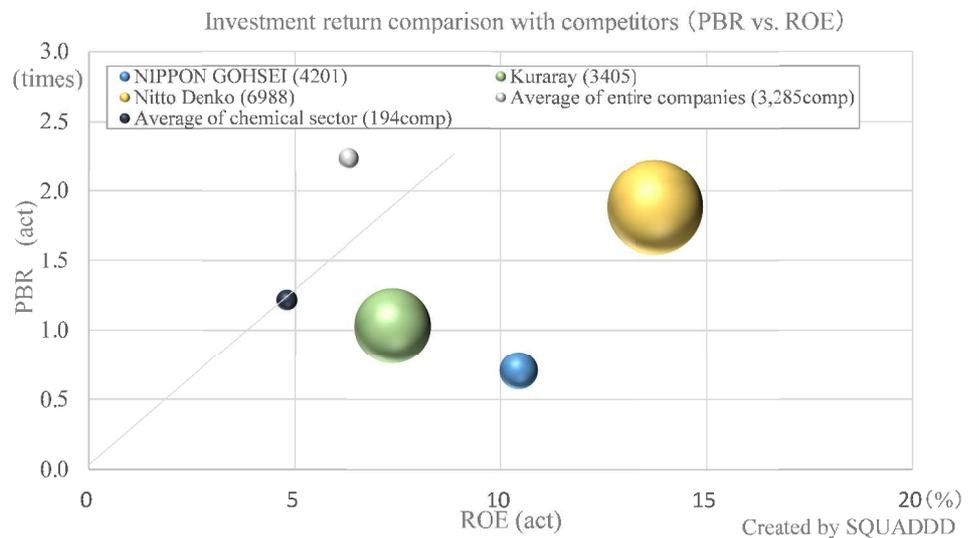
Market capitalization of the Company as of May 30, 2016 was 63.1 billion yen with PBR of 0.71x, ROE of 10.4% (actual) and expected dividend yield of 3.1%. Compared with the chemical industry average (194 names) for PBR (1.22x) and ROE (4.8%), the Company's valuation (PBR) looks very cheap. Particularly, PBR fell from 0.93x in March 2015 to 0.71x due to a decline in the stock price after Kumamoto Earthquakes. Despite the prospect for temporary lower income due to loss of 3.0 billion yen related to earthquakes in FY2017-3, as core businesses are expected to remain steady, assuming mid- to long-term holding, the current stock price is considered at the very cheap level.

When looking at the recent three fiscal years, PBR of less than 1.0x has remained at the cheap level compared with the industry average (see P45). In the chemical industry which is consisted of many large-cap companies, the average market capitalization of c.159.7 billion yen is twice as large as that of the Company and there is more than 3-fold gap in the market liquidity (per day, amount basis) between Nippon Gohsei (200 million yen) and the market average (600 million yen). It varies by industry, but particularly in the chemical industry, the data confirms that stock prices are highly correlated with the size factor such as sales and assets and profitability after considering the capital

efficiency such as ROE and operating income relative to capital. For the stock price to move higher (and remove the premium over the market average) going forward, further expansion of institutional (professional) investor base by increasing the liquidity per day, while seeking to expand the sales size and improve the capital efficiency, and enhancing the courteous disclosure and IR activities, should be critical.

◆The Company's valuation is cheap relative to competitors

The Company's valuation is compared with peers below. PBR of both Kuraray (1.03x) and Nippon Gohsei (0.71x) is lower (cheaper) than the average of the chemical industry (1.22x). On the other hand, in terms of profitability indicators, Nippon Gohsei's ROE (10.4%) and dividend yield (3.1%) are both higher than Kuraray's ROE (7.4%) and dividend yield (2.7%). The stock price of the Company could remain weak in the near term due to lower income in association with Kumamoto Earthquakes, but there is a potential that the stock price turns to a recovery trend if investors who recognize the profitability of the Company's core businesses and core competence pay attention to the Company as a value stock.



### 9-(3) Return to Shareholders & Dividend Policy

#### ◆Rival's Key Indicators

									(JPY M)
Code	Company	Revenue	Operating income	Net margin	Total assets	Total net assets	Interest Bearing Debt	Capital ratio	Act ROE (%)
4201	NIPPON GOHSEI	104,630	13,584	8,971	144,766	88,251	17,798	61.0%	10.43%
3405	Kuraray	521,721	66,077	35,749	701,770	496,063	59,444	70.7%	7.36%
6988	NITTO DENKO	793,054	102,397	81,683	825,905	614,426	6,395	74.4%	13.74%
Chemical sector's average		-	-	-	-	-	-	-	4.79%
All Sector's average		-	-	-	-	-	-	-	6.29%

Code	Company	Stock price 2016/5/30 (yen)	Market cap 2016/5/30 (JPM M)	Act BPS (yen)	Act ESP (yen)	Est ESP (yen)	Act PBR (time)	Est PER (time)	Est Div-yield (%)
4201	NIPPON GOHSEI	641	63,055	906.09	92.11	63.66	0.71	10.07	3.1%
3405	Kuraray	1,457	517,036	1,412.46	101.84	113.88	1.03	12.79	2.7%
6988	NITTO DENKO	7,140	1,240,635	3,785.91	495.23	424.40	1.89	16.82	2.0%
Chemical sector's average		-	159,673	-	-	-	1.22	-	1.8%
All Sector's average		-	-	-	-	-	2.24	-	2.1%

\* NIPPON GOHSEI, NITTO DENKO: FY2016/3, Kuraray: FY2015/12's data

Source: SQUADD

#### ◆Plan to pay dividend of 20 yen in FY2017-3 similar to FY2016-3

The Company puts return to shareholders one of the important initiatives, and pays dividends considering the mid-term change in the business environment and trend of business performance, while seeking to secure internal reserves for the business investment and to maintain the financial conditions.

The Company uses payout ratio of 20% as a guide, and raised dividend per share from 15 yen to 18 yen in FY2014-3, and by 2 yen to 20 yen in FY2016-3. In FY2017-3, net income is expected to decrease from 9.0 billion yen to 6.2 billion yen and EPS from 92.11 yen to 63.66 yen due to an impact of "2016 Kumamoto Earthquakes", but the Company plans to pay dividend of 20 yen similar to FY2016-3, and payout ratio is expected to exceed 30%.

#### ◆Shares Outstanding / Share Information

company estimate

		Mar-12	Mar-13	Mar-14	Mar-15	Mar-16	Mar-17
Shares outstanding at the end of the period	1,000 stock	98,369	98,369	98,369	98,369	98,369	n.a.
# of shareholders	(person)	4,179	3,536	3,922	4,104	n.a.	n.a.
Stock price at the end of the period	(JPY)	509	839	741	797	713	n.a.
Market Cap	(JPY (M))	50,070	82,532	72,892	78,400	70,137	n.a.
Net income*	(JPY (M))	3,154	8,158	8,018	6,648	8,971	6,200
Total net assets	(JPY (M))	55,996	65,444	76,770	83,720	88,261	n.a.
Earnings per share (EPS)	(JPY)	32.38	83.75	82.32	68.25	92.11	63.66
Book value per share (BPS)	(JPY)	574.83	671.84	788.11	859.49	906.09	n.a.
PER		15.72	10.02	9.00	11.68	7.74	n.a.
PBR		0.89	1.25	0.94	0.93	0.79	n.a.
ROE		5.7%	13.4%	11.3%	8.3%	10.4%	n.a.

(\*) These amounts fall under "net income attributable to shareholders of the parent" under J-GAAP and "net income attributable to owners of the parent" under IFRS.

#### ◆Shareholder Return Information

company estimate

		Mar-12	Mar-13	Mar-14	Mar-15	Mar-16	Mar-17
Dividend per share at the half of the period	(JPY)	6.00	6.00	9.00	9.00	10.00	10.00
Dividend per share at the end of the period	(JPY)	6.00	9.00	9.00	9.00	10.00	10.00
Dividend per share (DPS)	(JPY)	12.00	15.00	18.00	18.00	20.00	20.00
Dividend payout ratio	(%)	37.1%	17.9%	21.9%	26.4%	21.7%	31.4%
Dividend yield	(%)	2.4%	1.8%	2.4%	2.3%	2.8%	n.a.

Source: annual reports, summary of financial statements and financial results materials.

9-(4) Capital Cost/  
ROIC

## ◆ ROE resumed the 10% level in FY2016-3

Net income in FY2016-3 amounted to 9.0 billion yen with ROE recovering from 8.3% in the previous year to 10.4%. As net assets increased by c.58% from 56.0 billion yen in FY2012-3 to 88.3 billion yen in FY2016-3 along with accumulation of internal reserves, for ROE to improve, the Company needs to further improve profit margin in parallel with expansion of the business size. However, compared with cost of equity capital, as the Company has achieved higher ROE than required rate of return of shareholders, the Company should implement capital investment funded by internal reserves while maintaining the current return to shareholders policy.

In FY2017-3, net income is anticipated to be lower than that in FY2016-3 due to an impact of damages incurred by the Kumamoto Plant, and ROE is expected to fall to around 7%.

◆ Equity Spread	JPY(M)				
	Mar-12	Mar-13	Mar-14	Mar-15	Mar-16
Net income	3,154	8,158	8,018	6,648	8,971
Total net assets	55,996	65,444	76,770	83,720	88,261
ROE	5.7%	13.4%	11.3%	8.3%	10.4%
Capital cost*	5.0%	5.0%	5.0%	5.0%	4.6%
Equity Spread	0.7%	8.4%	6.3%	3.3%	5.8%

\* Data before 2015/3 is calculated under the condition of  $\beta=0.921$  (Bloomberg data as of 2015/5/22) and the risk premium=5%.

\* Data for 2016/3 is calculated under the condition of  $\beta=0.940$  (Bloomberg data as of 2016/5/27) and the risk premium=5%.

Source: Created by SQUADD

## ◆ Newly invested facilities still under construction with no generation of returns, resulting in lower ROIC

The Return on Invested Capital (ROIC) in FY2016-3 is calculated 9.6%, c.3% improvement compared with the previous year. Invested capital decreased from 103.6 billion yen to 87.9 billion due to repayment of borrowing, while a start of operation of a new EVOH line from mid-year and stabilization of raw materials prices contributed to an increase in operating income, leading to improvement of ROIC. Also, weighted average cost of capital (WACC) is around 4%, and the Company has achieved higher ROIC than WACC over more than five years in the past. In making decisions on capital investment, Nippon Gohsei uses the relatively conservative criteria including IRR of 15% as a guide of a hurdle rate for investment, in addition to the qualitative judgment such as a materialization of customer needs.

◆ ROIC (Return On Invested Capital)	JPY(M)				
	Mar-13	Mar-14	Mar-15	Mar-16	平均
Operating Profit*	11,859	14,800	11,186	13,584	11,709
Effective tax rate	38.0%	38.0%	38.0%	38.0%	38.3%
NOPLAT	7,353	9,176	6,935	8,422	7,223
Interest Bearing Debts	10,040	15,350	25,237	17,798	16,080
Market Cap	82,532	72,892	78,400	70,137	70,806
Invested Capital	92,572	88,242	103,637	87,935	86,887
ROIC	7.9%	10.4%	6.7%	9.6%	8.3%
Liability Cost	2.2%	1.2%	0.9%	0.9%	1.5%
Capital Cost	5.0%	5.0%	5.0%	4.6%	4.9%
WACC**	4.6%	4.3%	3.9%	3.8%	4.2%
ROIC-WACC	3.3%	6.1%	2.8%	5.8%	4.1%

\*FY2014-3's values exclude the impacts by accounting period change of some subsidiaries.

\*\*WACC=Liability Cost×(1-effective tax rate)×Interest Bearing Debts ratio / Total Asset+Capital Cost×Market Cap ratio.

Liability Cost: the company's historical average of the long term loan interest rate, refer to 「Equity Spread」 above for the Capital Cost.

Source: SQUADD

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