

---

November 5, 2018

# Presentation for Investors

## 1H FY2018 (April 1 – September 30, 2018)

### Financial Results

Presented by Junichi Miyazaki,  
Director, Senior Executive Vice President & CFO

Translation of presentation materials for the investor meeting held in Tokyo on November 5, 2018



**Nissan Chemical**  
CORPORATION

**Institutional  
Investor**  
2018 - ALL-JAPAN EXECUTIVE TEAM



# 1H FY2018 PL

(¥billion)

	1H FY2017			1H FY2018			Change			Change (%)	1H FY2018 Outlook as of May 2018		
	1Q	2Q	1H	1Q	2Q	1H	1Q	2Q	1H	1H	1Q	2Q	1H
Sales	47.4	43.6	91.0	50.9	47.1	Record 98.0	+3.5	+3.5	+7.0	+8%	50.9	45.8	96.7
Operating Profit	10.0	7.3	17.3	10.7	8.7	Record 19.4	+0.7	+1.4	+2.1	+12%	10.5	7.9	18.4
Non-Operating Income/Expenses	0.9	-0.4	0.5	1.2	0.0	1.2	+0.3	+0.4	+0.7	-	0.8	-0.4	0.4
Ordinary Income	10.9	6.9	17.8	11.9	8.7	Record 20.6	+1.0	+1.8	+2.8	+16%	11.3	7.5	18.8
Extraordinary Income/Loss	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	0.0	0.0	0.0
Net Income (1)	7.9	5.3	13.2	8.8	6.6	Record 15.4	+0.9	+1.3	+2.2	+17%	8.4	5.7	14.1
EBITDA (2)	12.2	9.8	22.0	13.1	11.3	24.4	+0.9	+1.5	+2.4	+11%	-	-	23.6
EPS (¥/share)	52.22	35.18	87.40	59.25	44.28	103.53	+7.03	+9.10	+16.13	+18%	-	-	94.85
Dividend (¥/share)	-	-	32	-	-	40	-	-	+8		-	-	38
Total amount of Dividend	-	-	4.8	-	-	5.9	-	-	+1.1		-	-	5.6
OP Margin	21.2%	16.6%	19.0%	21.0%	18.5%	19.8%	-0.2%	+1.9%	+0.8%		20.6%	17.2%	19.0%
ROE	-	-	-	-	-	-	-	-	-		-	-	-
FX Rate (¥/\$)	111	111	111	109	111	110					-	-	107
Naphtha (¥/kl) (3)	39,100	36,100	37,700	48,700	53,500	51,200					-	-	48,500
Comprehensive Income	9.5	7.2	16.7	7.5	9.2	16.7							

(1) Net income = Profit Attributable to Owners of Parent

(2) EBITDA = Operating Profit + Depreciation

(3) Based on Trade Statistics of Japan Ministry of Finance

# 1H FY2018 Review

## <vs. 1H FY2017>

(Sales)	◆Up	¥7.0 billion (+8%)
(OP)	◆Up	¥2.1 billion (+12%)
(Ordinary Income)	◆Up	¥2.8 billion (+16%)
(Net Income)	◆Up	¥2.2 billion (+17%)
(EPS)	◆Up	¥16.13 (+18%)

Sales renewed the highest results in 4 consecutive years

OP renewed the highest results in 6 consecutive years

Ordinary Income and Net Income renewed the highest results in 2 consecutive years

## <vs. 1H FY2018 Outlook as of May 2018>

(Sales)	◆Up	¥1.3 billion
(OP)	◆Up	¥1.0 billion
(Ordinary Income)	◆Up	¥1.8 billion
(Net Income)	◆Up	¥1.3 billion
(EPS)	◆Up	¥8.68

# FY2018 Outlook (Including 3Q and 4Q Outlook)

(¥billion)

	FY2017 Actual					FY2018 Outlook as of Nov. 2018					Change			Change (%)	FY2018 Outlook as of May 2018			
	1H	(3Q)	(4Q)	2H	Total	1H Actual	(3Q)	(4Q)	2H	Total	1H Actual	2H	Total	Total	1H	2H	Total	
Sales	91.0	41.7	60.7	102.4	193.4	98.0	42.9	64.6	107.5	Record	205.5	+7.0	+5.1	+12.1	+6%	96.7	107.3	204.0
Operating Profit	17.3	5.1	12.6	17.7	35.0	19.4	3.2	15.5	18.7	Record	38.1	+2.1	+1.0	+3.1	+9%	18.4	18.4	36.8
Non-Operating Income/Expenses	0.5	1.0	-0.3	0.7	1.2	1.2	0.5	0.3	0.8		2.0	+0.7	+0.1	+0.8	-	0.4	0.8	1.2
Ordinary Income	17.8	6.1	12.3	18.4	36.2	20.6	3.7	15.8	19.5	Record	40.1	+2.8	+1.1	+3.9	+11%	18.8	19.2	38.0
Extraordinary Income/Loss	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	-	-	-	-	0.0	0.0	0.0
Net Income (1)	13.2	4.5	9.4	13.9	27.1	15.4	2.6	12.0	14.6	Record	30.0	+2.2	+0.7	+2.9	+11%	14.1	14.4	28.5
EBITDA (2)	22.0	7.8	15.7	23.5	45.5	24.4	-	-	24.8		49.2	+2.4	+1.3	+3.7	+8%	23.6	24.8	48.4
EPS (¥/share) (3)	87.40	30.28	62.62	92.90	180.30	103.53	-	-	98.26		201.79	+16.13	+5.36	+21.49	+12%	94.85	97.08	191.93
Dividend (¥/share)	32	-	-	36	68	40	-	-	42		82	+8	+6	+14		38	40	78
Total amount of Dividend (3)	4.8	-	-	5.4	10.2	5.9	-	-	6.3		12.2	+1.1	+0.9	+2.0		5.6	5.9	11.5
OP Margin	19.0%	12.3%	20.7%	17.3%	18.1%	19.8%	7.5%	24.0%	17.4%		18.5%	+0.8%	+0.1%	+0.4%		19.0%	17.1%	18.0%
ROE (3)	-	-	-	-	16.1%	-	-	-	-		16.5%			+0.4%		-	-	15.8%
FX Rate (¥/\$)	111	-	-	111		110	-	-	110							107	107	
Naphtha (¥/kl)	37,700	-	-	46,200		51,200	-	-	52,400							48,500	48,500	
Comprehensive Income	16.7	6.0	8.1	14.1	30.8	16.7												

(1) Net income = Profit Attributable to Owners of Parent

(2) EBITDA = Operating Profit + Depreciation

(3) FY2018 Outlook including effects of FY2018 share repurchase program ended on June, 2018

# FY2018 Outlook

## 2H FY2018 Outlook

### <vs. 2H FY2017>

(Sales)	◆Up	¥5.1 billion (+5%)
(OP)	◆Up	¥1.0 billion (+6%)
(Ordinary Income)	◆Up	¥1.1 billion (+6%)
(Net Income)	◆Up	¥0.7 billion (+5%)
(EPS)	◆Up	¥5.36 (+6%)
3Q (OP)	◆Down	¥1.9 billion (-38%)
4Q (OP)	◆Up	¥2.9 billion (+23%)

### <vs. 2H FY2018 Outlook as of May 2018>

(Sales)	◆Up	¥0.2 billion
(OP)	◆Up	¥0.3 billion
(Ordinary Income)	◆Up	¥0.3 billion
(Net Income)	◆Up	¥0.2 billion
(EPS)	◆Up	¥1.18

## Full Year FY2018 Outlook

### <vs. FY2017>

(Sales)	◆Up	¥12.1 billion (+6%)
(OP)	◆Up	¥3.1 billion (+9%)
(Ordinary Income)	◆Up	¥3.9 billion (+11%)
(Net Income)	◆Up	¥2.9 billion (+11%)
(EPS)	◆Up	¥21.49 (+12%)
(ROE)	◆16.5%	(+0.4%)

### <vs. FY2018 Outlook as of May 2018>

(Sales)	◆Up	¥1.5 billion
(OP)	◆Up	¥1.3 billion
(Ordinary Income)	◆Up	¥2.1 billion
(Net Income)	◆Up	¥1.5 billion
(EPS)	◆Up	¥9.86

Sales, OP, Ordinary Income, Net Income expected to renew the highest results of a full year recorded in FY2017

### <Shareholders Return>

(Dividend) ◆1H ¥40/share, 2H ¥42/share (Dividend Payout Ratio : 40.6%)  
(1H up ¥8, 2H up ¥6 vs. FY2017)  
(1H up ¥2, 2H up ¥2 vs. FY2018E as of May 2018)

(Share Repurchase) ◆¥5.0 billion, 1.0 million shares completed in June 2018  
(Cancelled 2 million shares in May 2018 and August 2018)

(Total Payout Ratio Target) ◆70% (57.3% based on ¥82/share dividend and ¥5.0 billion share repurchase)

# Non-Operating Income/Expenses, Extraordinary Income/Loss, Comprehensive Income (¥billion)

	1H FY2017 Actual	1H FY2018 Actual	FY2017 Actual	FY2018 Outlook as of Nov. 2018	FY2018 Outlook as of May2018
<b>Non-Operating Income</b>	1.26	1.78	2.94	3.27	2.66
Interest income, dividend income	0.32	0.34	0.84	0.78	0.74
Equity in earnings of affiliates	0.45	0.41	1.32	1.05	1.01
Foreign exchange gains	0.16	0.31	0.00	0.31	0.00
Others	0.33	0.72	0.78	1.13	0.91
<b>Non-Operating Expenses</b>	0.69	0.56	1.69	1.28	1.42
Interest expense	0.07	0.06	0.13	0.10	0.10
Foreign exchange losses	0.00	0.00	0.46	0.00	0.00
Loss on disposal of non-current assets	0.22	0.32	0.59	0.75	0.90
Others	0.40	0.18	0.51	0.43	0.42
<b>Extraordinary Income</b>	-	-	-	-	-
<b>Extraordinary Loss</b>	-	-	-	-	-
<b>Comprehensive Income</b>	16.71	16.67	30.76	-	-
Net income	13.18	15.41	27.14	-	-
Net income attributable to non-controlling interests	0.12	0.08	0.16	-	-
Valuation difference on available-for-sale securities	3.56	0.85	3.57	-	-
Foreign currency translation adjustment	-0.13	0.35	-0.12	-	-
Others	-0.02	-0.02	0.01	-	-

# Cash Flows

(¥billion)

	1H FY2017 Actual	1H FY2018 Actual	FY2017 Actual	FY2018 Outlook as of Nov. 2018	FY2018 Outlook as of May 2018
<b>CF from operating activities</b>	<b>30.0</b>	<b>29.2</b>	<b>37.7</b>	<b>35.2</b>	<b>34.6</b>
Income before income taxes & non-controlling interests	17.8	20.6	36.2	40.1	38.0
Depreciation & amortization	4.7	5.0	10.5	11.1	11.6
Income taxes paid	-3.7	-5.2	-7.3	-9.7	-9.6
Working capital, others	11.2	8.8	-1.7	-6.3	-5.4
<b>CF from investing activities</b>	<b>-6.3</b>	<b>-6.0</b>	<b>-15.2</b>	<b>-12.9</b>	<b>-16.1</b>
Purchase of PPE	-6.4	-5.2	-13.8	-12.3	-15.0
Purchase and sales of investment securities	0.0	-0.5	-0.7	-0.5	0.0
Others	0.1	-0.3	-0.7	-0.1	-1.1
<b>CF from financing activities</b>	<b>-26.8</b>	<b>-31.5</b>	<b>-20.3</b>	<b>-18.3</b>	<b>-18.0</b>
Cash dividends paid	-4.3	-5.4	-9.1	-11.3	-11.0
Borrowings	-17.5	-20.9	-2.1	-2.0	-2.0
Share repurchase	-5.0	-5.0	-9.0	-5.0	-5.0
Others	0.0	-0.2	-0.1	0.0	0.0
Effect of exchange rate change on cash & cash equivalents	0.1	0.1	-0.2	0.0	0.0
<b>Change in cash &amp; cash equivalents</b>	<b>-3.0</b>	<b>-8.2</b>	<b>2.0</b>	<b>4.0</b>	<b>0.5</b>
<b>Cash &amp; cash equivalents at the end of period</b>	<b>32.7</b>	<b>29.5</b>	<b>37.7</b>	<b>41.7</b>	<b>38.2</b>



# Balance Sheets

(¥billion)

	2017/9	2018/3 (A)	2018/9 (B)	Change (B) - (A)
<b>Current assets</b>	<b>125.5</b>	<b>145.6</b>	<b>128.2</b>	<b>-17.4</b>
Cash	32.7	37.7	29.5	-8.2
Accounts receivable	50.4	65.4	53.5	-11.9
Inventories	38.7	37.8	41.6	+3.8
Others	3.7	4.7	3.6	-1.1
<b>Fixed assets</b>	<b>98.0</b>	<b>100.4</b>	<b>102.4</b>	<b>+2.0</b>
Total PPE	53.7	54.5	54.7	+0.2
Intangible assets	1.7	1.8	1.7	-0.1
Investment securities	37.5	38.5	40.6	+2.1
Others	5.1	5.6	5.4	-0.2
<b>Total assets</b>	<b>223.5</b>	<b>246.0</b>	<b>230.6</b>	<b>-15.4</b>

	2017/9	2018/3 (A)	2018/9 (B)	Change (B) - (A)
<b>Liabilities</b>	<b>52.4</b>	<b>69.6</b>	<b>48.1</b>	<b>-21.5</b>
Accounts payable	16.2	18.6	16.6	-2.0
Borrowings	13.3	28.6	7.7	-20.9
Others	22.9	22.4	23.8	+1.4
<b>Net assets</b>	<b>171.1</b>	<b>176.4</b>	<b>182.5</b>	<b>+6.1</b>
<b>Shareholders' equity</b>	<b>155.3</b>	<b>160.4</b>	<b>165.4</b>	<b>+5.0</b>
Valuation difference on available-for-sale securities	13.6	13.7	14.5	+0.8
Foreign currency translation adjustment	0.1	0.1	0.5	+0.4
<b>Non-controlling interests</b>	<b>1.7</b>	<b>1.8</b>	<b>1.7</b>	<b>-0.1</b>
Remeasurements of defined benefit plans	0.4	0.4	0.4	-0.0
<b>Total liabilities &amp; Net assets</b>	<b>223.5</b>	<b>246.0</b>	<b>230.6</b>	<b>-15.4</b>

\*Balance Sheets as of 2017/9 and 2018/3 are restated to reflect changes in presentation from including an impact of "Partial Amendments to Accounting Standard for Tax Effect Accounting"

• Equity Ratio                      75.8%      71.0%      78.4%  
 • D/E Ratio (1)                      -12.5%      -5.7%      -13.1%  
 • Change in shareholders' equity +5.0  
   = Net Income 15.4 - Dividend and others 10.4

(1)D/E Ratio = (Borrowings - Cash) / Shareholders' equity

(Blank)

# FY2018 Sales Outlook by Segment<sup>(1)</sup>

(¥billion)

	FY2017 Actual							FY2018 Outlook as of Nov. 2018							Change			FY2018 Outlook as of May 2018		
	1Q	2Q	1H	3Q	4Q	2H	Total	1Q Actual	2Q Actual	1H Actual	3Q	4Q	2H	Total	1H Actual	2H	Total	1H	2H	Total
Chem	8.8	7.9	16.7	9.2	9.0	18.2	34.9	8.7	8.3	17.0	10.2	10.6	20.8	37.8	+0.3	+2.6	+2.9	18.2	19.8	38.0
Fine	2.8	2.5	5.3	2.8	2.5	5.3	10.6	2.7	2.4	5.1	2.8	3.4	6.2	11.3	-0.2	+0.9	+0.7	5.4	5.9	11.3
Basic	6.0	5.4	11.4	6.4	6.5	12.9	24.3	6.0	5.9	11.9	7.4	7.2	14.6	26.5	+0.5	+1.7	+2.2	12.8	13.9	26.7
P.M	14.1	15.0	29.1	15.1	14.6	29.7	58.8	15.6	16.4	32.0	15.8	16.0	31.8	63.8	+2.9	+2.1	+5.0	30.6	31.9	62.5
Agro	14.6	11.5	26.1	6.4	25.6	32.0	58.1	16.4	12.3	28.7	5.7	28.2	33.9	62.6	+2.6	+1.9	+4.5	28.9	34.1	63.0
Pharma	2.1	1.4	3.5	2.3	1.7	4.0	7.5	1.8	1.9	3.7	1.3	2.0	3.3	7.0	+0.2	-0.7	-0.5	3.8	3.4	7.2
Trading	14.6	14.5	29.1	15.9	14.5	30.4	59.5	17.8	15.6	33.4	17.3	15.6	32.9	66.3	+4.3	+2.5	+6.8	32.6	32.1	64.7
Others	5.4	4.3	9.7	4.6	7.2	11.8	21.5	4.6	5.9	10.5	5.4	6.6	12.0	22.5	+0.8	+0.2	+1.0	11.8	11.8	23.6
Adjust	-12.2	-11.0	-23.2	-11.8	-11.9	-23.7	-46.9	-14.0	-13.3	-27.3	-12.8	-14.4	-27.2	-54.5	-4.1	-3.5	-7.6	-29.2	-25.8	-55.0
<b>Total</b>	<b>47.4</b>	<b>43.6</b>	<b>91.0</b>	<b>41.7</b>	<b>60.7</b>	<b>102.4</b>	<b>193.4</b>	<b>50.9</b>	<b>47.1</b>	<b>98.0</b>	<b>42.9</b>	<b>64.6</b>	<b>107.5</b>	<b>205.5</b>	<b>+7.0</b>	<b>+5.1</b>	<b>+12.1</b>	<b>96.7</b>	<b>107.3</b>	<b>204.0</b>

(1) Including inter-segment sales/transfers

# FY2018 OP Outlook by Segment

(¥billion)

	FY2017 Actual							FY2018 Outlook as of Nov. 2018							Change			FY2018 Outlook as of May 2018		
	1Q	2Q	1H	3Q	4Q	2H	Total	1Q Actual	2Q Actual	1H Actual	3Q	4Q	2H	Total	1H Actual	2H	Total	1H	2H	Total
Chem	1.5	-0.2	1.3	1.2	0.9	2.1	3.4	1.6	-0.4	1.2	1.4	1.3	2.7	3.9	-0.1	+0.6	+0.5	1.5	2.4	3.9
P.M	3.6	4.1	7.7	4.0	2.5	6.5	14.2	3.9	4.2	8.1	3.5	3.7	7.2	15.3	+0.4	+0.7	+1.1	6.8	7.3	14.1
Agro	4.5	3.6	8.1	-0.6	8.9	8.3	16.4	5.1	4.7	9.8	-1.4	10.0	8.6	18.4	+1.7	+0.3	+2.0	10.0	7.7	17.7
Pharma	0.5	0.0	0.5	0.6	0.1	0.7	1.2	0.3	0.3	0.6	0.1	0.5	0.6	1.2	+0.1	-0.1	-0.0	0.6	0.9	1.5
Trading	0.4	0.5	0.9	0.5	0.4	0.9	1.8	0.6	0.5	1.1	0.5	0.5	1.0	2.1	+0.2	+0.1	+0.3	1.0	1.0	2.0
Others	0.1	0.1	0.2	0.1	0.3	0.4	0.6	0.1	0.1	0.2	0.0	0.4	0.4	0.6	+0.0	-0.0	-0.0	0.1	0.1	0.2
Adjust	-0.6	-0.8	-1.4	-0.7	-0.5	-1.2	-2.6	-0.9	-0.7	-1.6	-0.9	-0.9	-1.8	-3.4	-0.2	-0.6	-0.8	-1.6	-1.0	-2.6
<b>Total</b>	<b>10.0</b>	<b>7.3</b>	<b>17.3</b>	<b>5.1</b>	<b>12.6</b>	<b>17.7</b>	<b>35.0</b>	<b>10.7</b>	<b>8.7</b>	<b>19.4</b>	<b>3.2</b>	<b>15.5</b>	<b>18.7</b>	<b>38.1</b>	<b>+2.1</b>	<b>+1.0</b>	<b>+3.1</b>	<b>18.4</b>	<b>18.4</b>	<b>36.8</b>

# FY2018 Sales Outlook of Future Growth Engines

## 1. Announced in May 2018

(1) Including R&D costs deduction due to the sample shipments

FY2018 Sales Outlook Level (1)	Below ¥0.3 billion	¥0.3 to ¥0.6 billion	¥0.6 to ¥0.9 billion	Total
<b>Chem</b>	New TEPIC (Liquid type) (Fine Chemicals)			<b>¥0.1 billion</b>
<b>Performance Materials</b>	HYPERTECH (High refractive) (Display, Others)	3D packaging process materials (Semis, Others)	Oilfield materials (Inorganic)	<b>¥2.6 billion</b>
	Hole injection layer materials for OLED (Display, Others)	EUV under layer (Semis, Others)		
	Alignment materials for LC retarder (Display, Others)	CMOS image sensor materials (Semis, Others)		
	Repellant bank layer materials (Display, Others)	Light control film materials (Display, Others)		
	Organosol (Insulation CTE) (Inorganic, Organo/Monomer sol)			
	New high refractive materials (IM layer film) (Inorganic, Others)			
<b>Agro</b>	NEXTER (Agro, Licensed-in)	GRACIA (Agro, In-house)  TRANSFORM™/EXCEED™ (Agro, Licensed-in)		<b>¥0.9 billion</b>
<b>Pharma, Others</b>	New GE API product (Custom Chemicals)	New GE API product (Custom Chemicals)	Maxacalcitol (Custom Chemicals)	<b>¥0.6 billion</b>
	3D Cell culture medium			

**Total ¥4.2 billion**

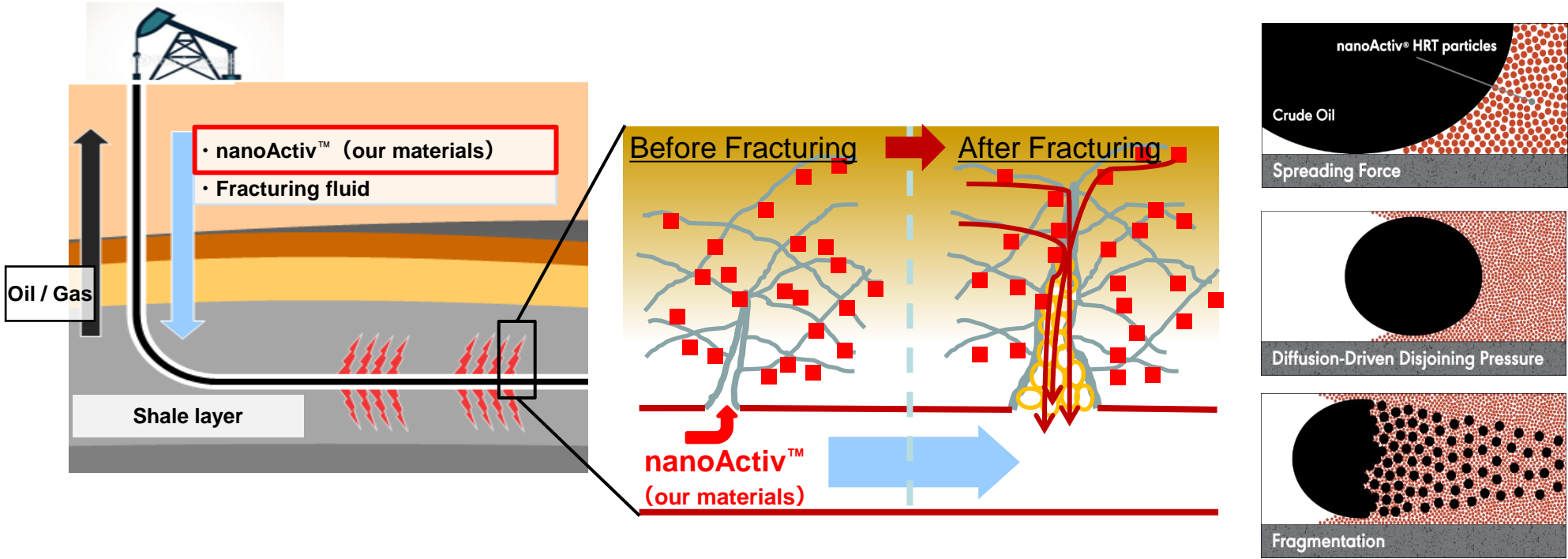
# FY2018 Sales Outlook of Future Growth Engines

## 2. Announced in November 2018 (1)Including R&D costs deduction due to the sample shipments

FY2018 Sales Outlook Level (1)	Below ¥0.3 billion	¥0.3 to ¥0.6 billion	¥0.6 to ¥0.9 billion	Total
<b>Chem</b>	New TEPIC (Liquid type) (Fine Chemicals)			<b>¥0.0 billion</b>
<b>Performance Materials</b>	HYPERTECH (High refractive) (Display, Others)    Light control film materials (Display, Others) Hole injection layer materials for OLED (Display, Others) Alignment materials for LC retarder (Display, Others) Repellant bank layer materials (Display, Others)    EUV under layer (Semis, Others) CMOS image sensor materials (Semis, Others) Organosol (Insulation CTE) (Inorganic, Organo/Monomer sol) New high refractive materials (IM layer film) (Inorganic, Others)	3D packaging process materials (Semis, Others)	Oilfield materials (Inorganic)	<b>¥2.2 billion</b>
<b>Agro</b>	NEXTER (Agro, Licensed-in)    TRANSFORM™/EXCEED™ (Agro, Licensed-in)		GRACIA (Agro, In-house)	<b>¥1.0 billion</b>
<b>Pharma, Others</b>	New GE API product (Custom Chemicals)    New GE API product (Custom Chemicals) 3D Cell culture medium		Maxacalcitol (Custom Chemicals)	<b>¥0.7 billion</b>

**Total ¥3.9 billion**

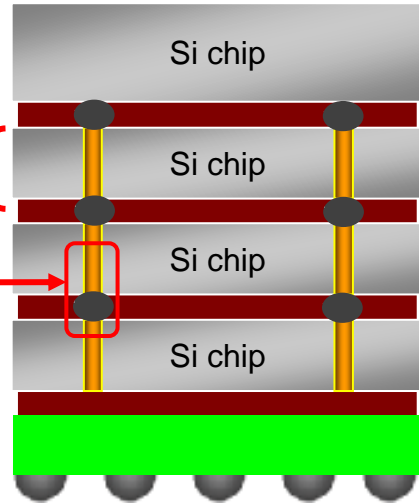
# Oilfield Materials



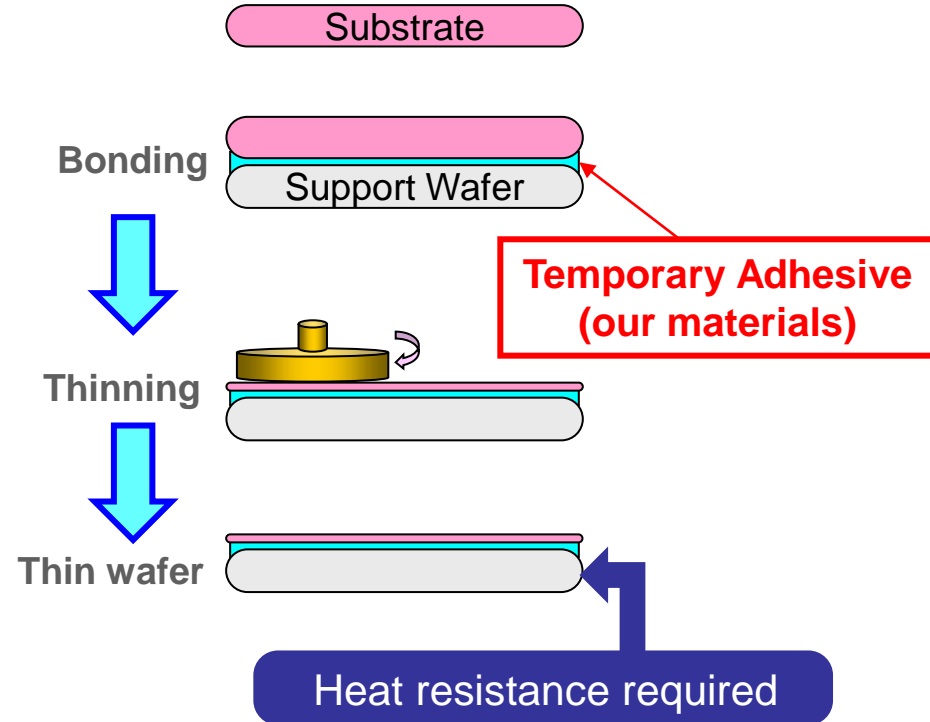
# 3D Packaging Process Materials

## TSV (Through silicon via) technology

- Need for thinner substrate
- High temperature process required for TSV

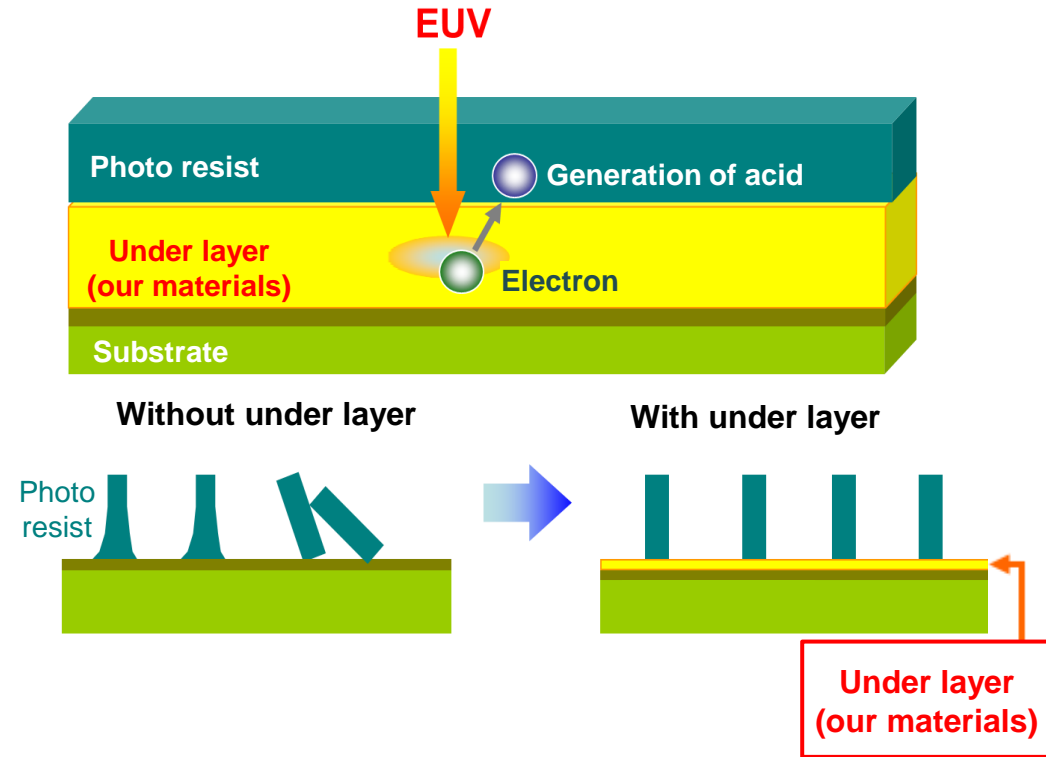
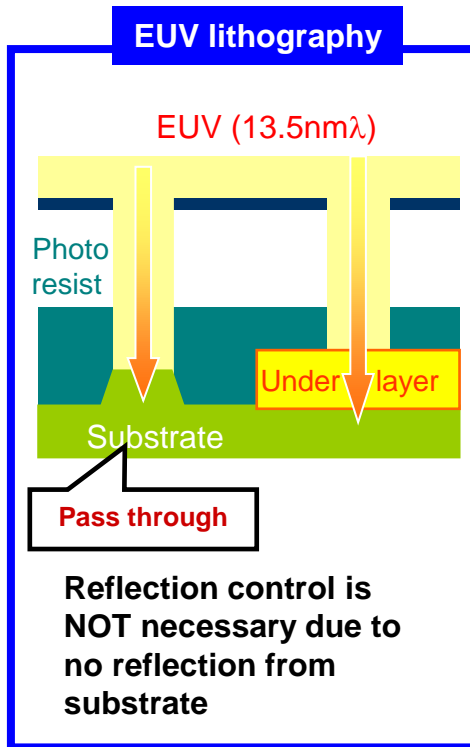
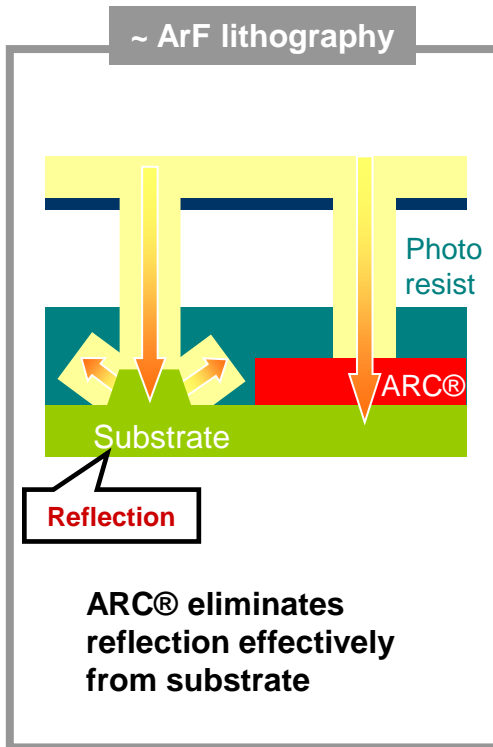


## Using Temporary Adhesive system

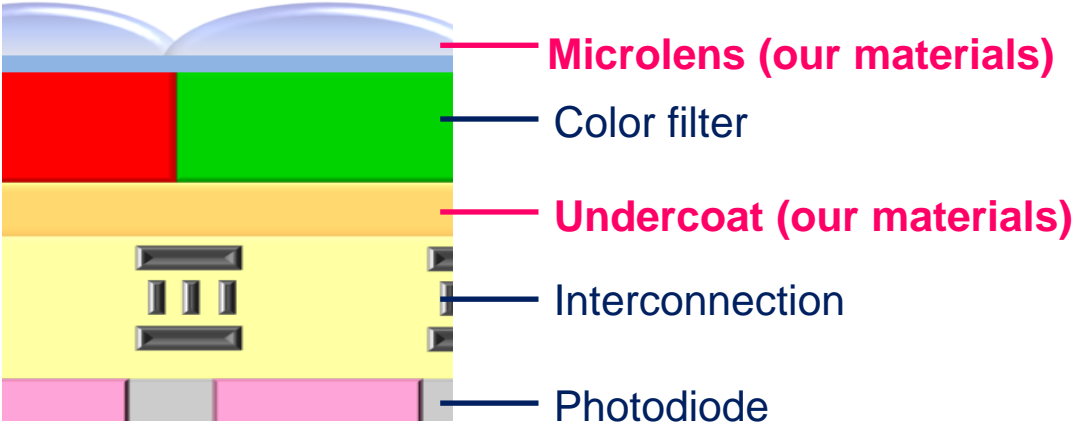
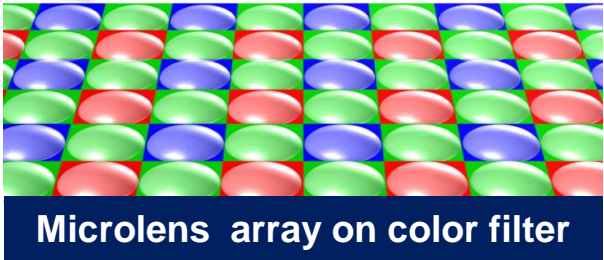
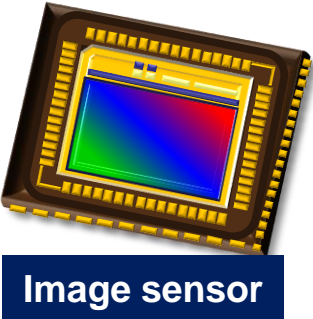




# EUV Under Layer

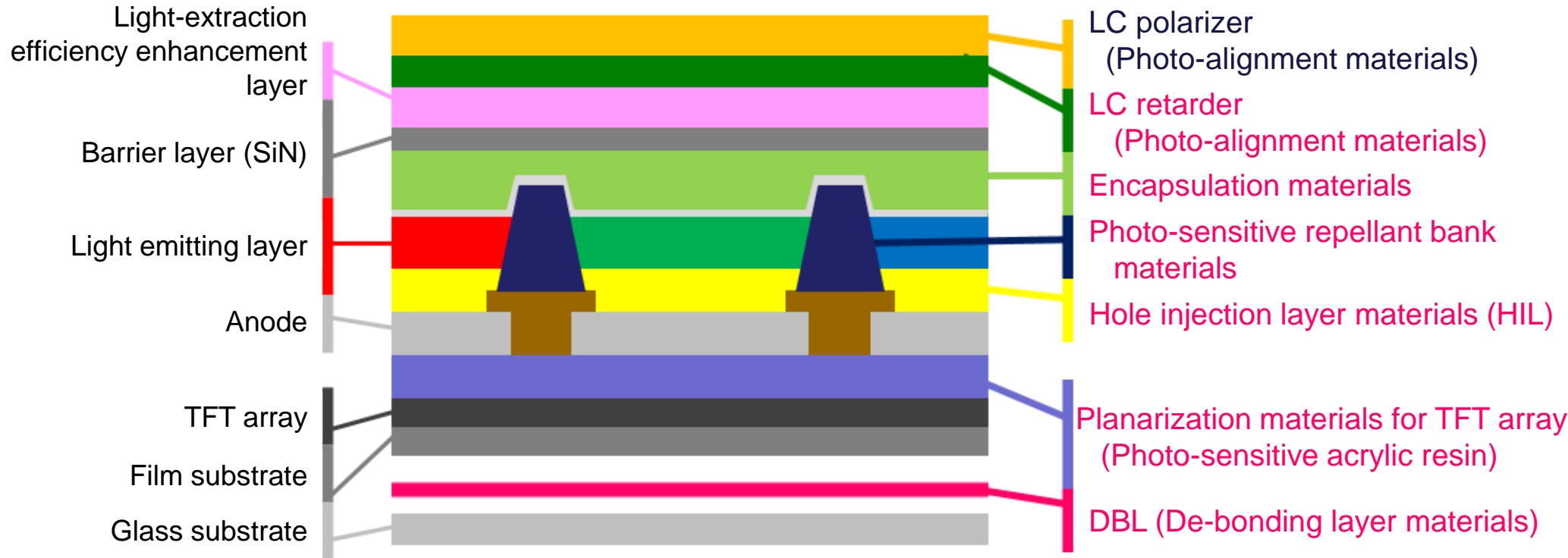


# CMOS Image Sensor Materials



# OLED-related Materials

## Our Materials

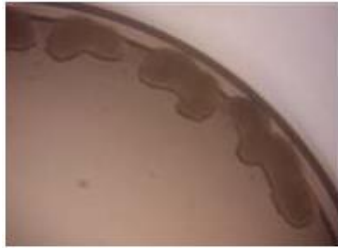


# 3D Cell Culture Medium

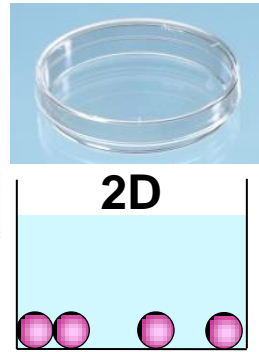
**3D cell culture maintains and promotes cell proliferation and functions in non-adhesion condition.**

**Existing method**

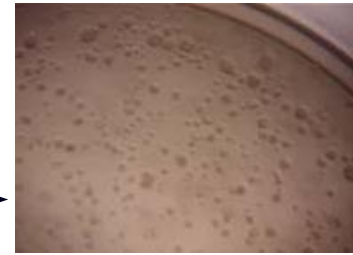
Petri dishes



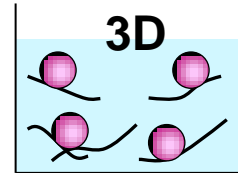
Cells are too aggregated,  
too big for mass production



**New method**



Our materials equalize the size of cells.



**Effects**

**Able to form cell sphere**

**Experiments with cells near to the living body are possible.**

**Culture container becomes 3D.**

**More efficient and cost saving cell culture.**

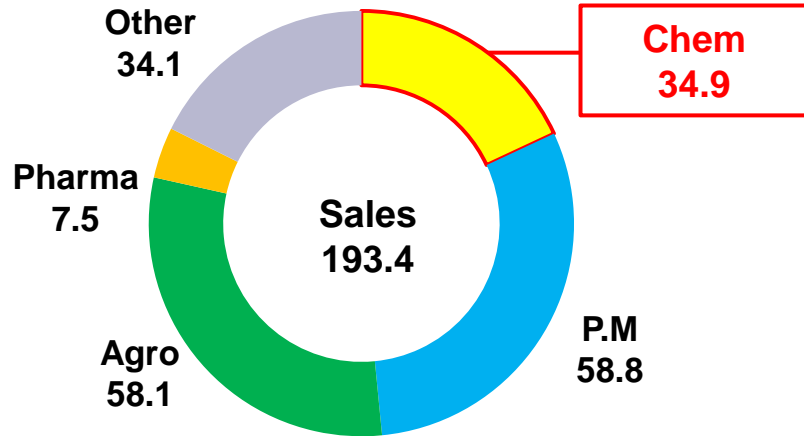
**Future plans**

Apply to biomedicine and regenerative medicine fields

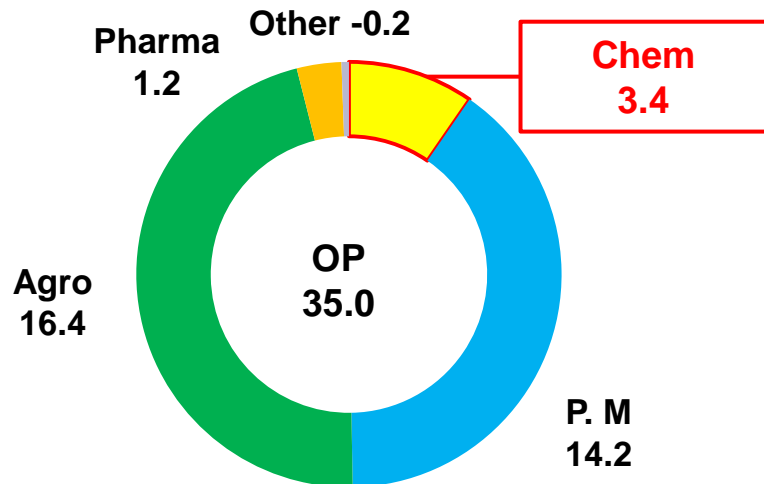
Efficient and greater scale cell culture

# Chemicals – (A) Recent Financial Performance

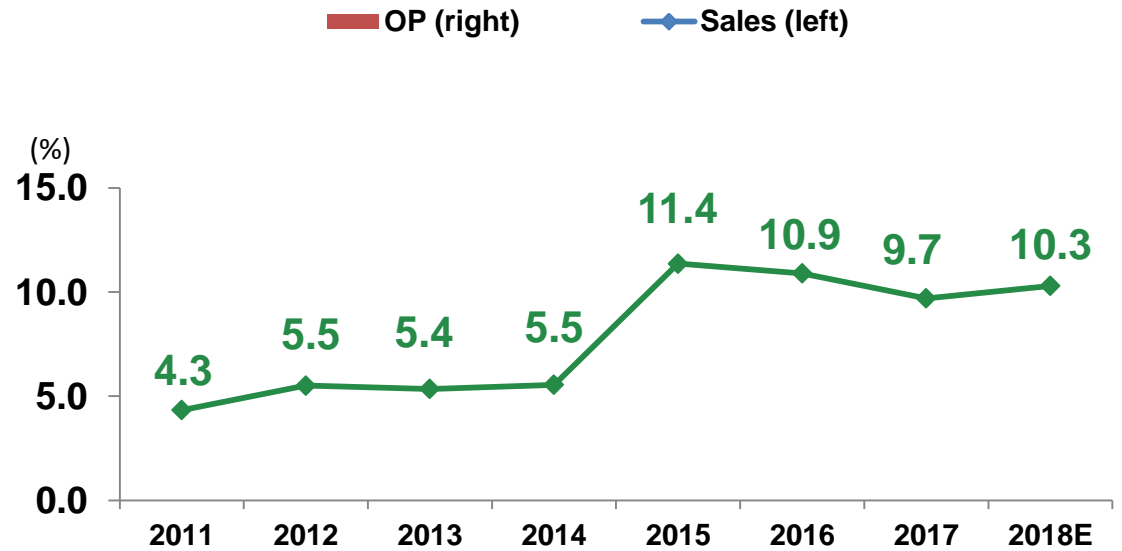
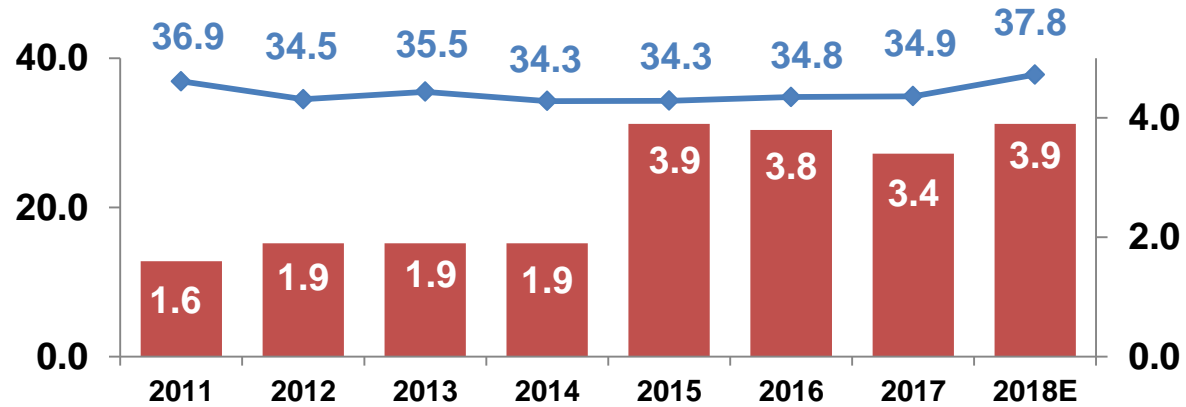
## 1. FY2017 Sales Distribution (¥billion)



## 2. FY2017 OP Distribution (¥billion)



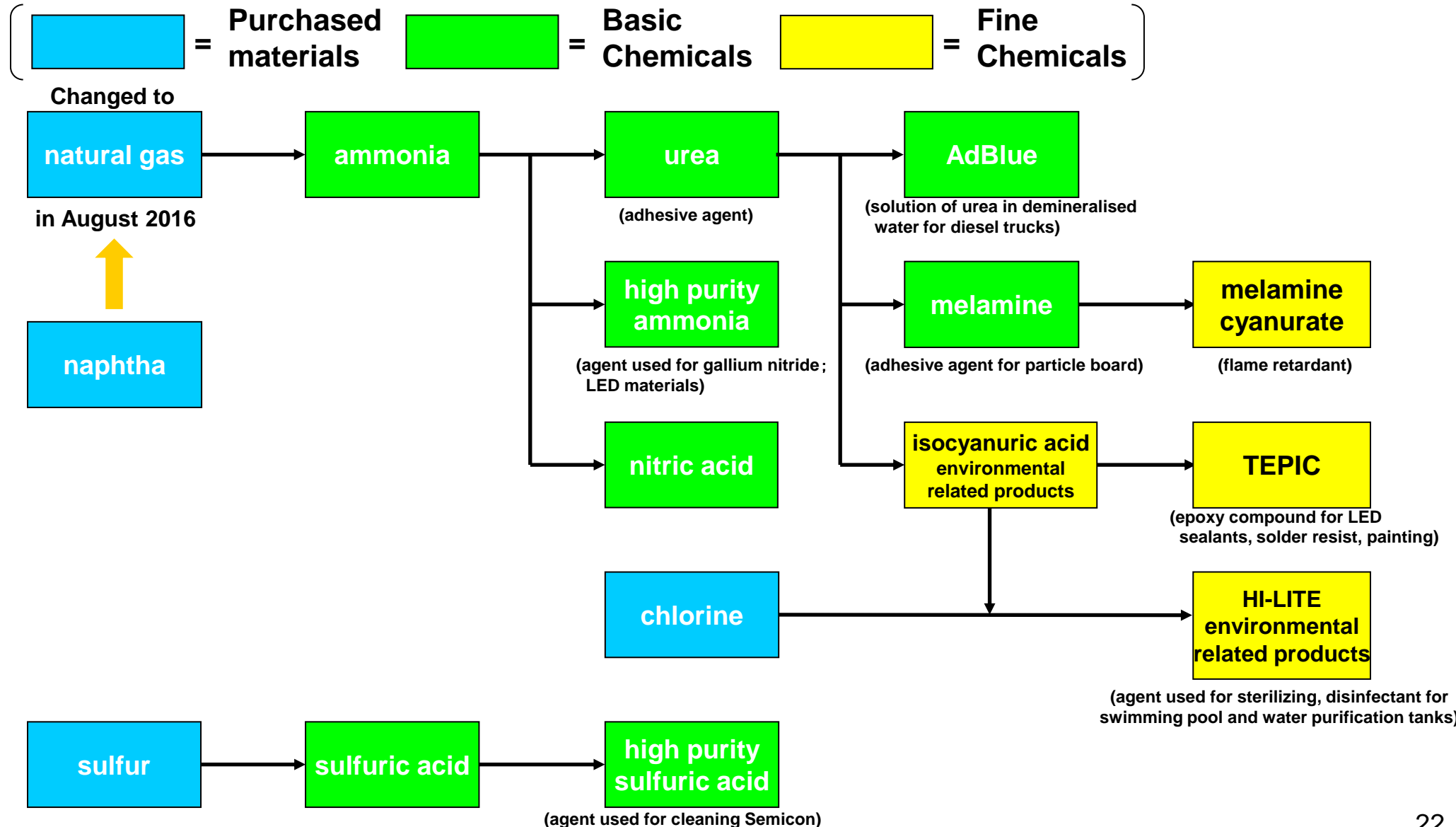
## 3. Recent Financial Performance (¥billion)



OP margin

# Chemicals – (B) Flow Chart of Selected Basic and Fine Chemicals Products

- ◆ Core products of Basic Chemicals : Ammonia related products and sulfuric acid related products
- ◆ FY2017 ammonia domestic production capacity share 11%, high percentage of self-consumption of ammonia



# Chemicals – (C) Fine Chemicals Subsegment

## 1H FY2018 Sales Review

### <vs. 1H FY2017>

- ◆ TEPIC : Export sales for general applications down (volume down, price increases), sales for electronic materials down
- ◆ Environmental related products : Domestic sales flat, export sales up, price increases

### <vs. 1H FY2018 Outlook as of May 2018>

- ◆ TEPIC : Export sales for general applications above target, sales for electronic materials below target
- ◆ Environmental related products : Domestic sales below target, export sales above target

## 2H FY2018 Sales Outlook

### <vs. 2H FY2017>

- ◆ TEPIC : Export sales for general applications up, sales for electronic materials up, price increases
- ◆ Environmental related products : Domestic sales up, export sales up, price increases

### <vs. 2H FY2018 Outlook as of May 2018>

- ◆ TEPIC : Export sales for general applications above target, sales for electronic materials above target
- ◆ Environmental related products : Domestic sales above target, export sales below target

Main Products		Sales YOY Change								
		FY2017 Actual			FY2018 Outlook as of May 2018			FY2018 Outlook as of Nov. 2018		
		1H	2H	Total	1H	2H	Total	1H Actual	2H	Total
Total Subsegment		-1%	+0%	-0%	+2%	+12%	+7%	-3%	+14%	+6%
TEPIC	◆ Epoxy compound for : (A) electronic materials (solder resist, LED sealant), (B) general applications such as powder coating agent for paint ◆ World largest producer	+24%	+11%	+17%	-4%	+12%	+5%	-6%	+18%	+7%
Environmental related products	◆ HI-LITE : made from chlorinated isocyanuric acid, used for sterilizing, disinfectant for swimming pool as well as water purification tank	-6%	-3%	-4%	+8%	+8%	+8%	+8%	+10%	+9%

Two products account for 81% of total consolidated subsegment sales (FY2017)

- ◆ FY2018 Production capacity expansion of TEPIC for electronic materials (to be completed in August 2019, capex ¥0.5 billion)

# Chemicals – (D) Basic Chemicals Subsegment

## 1H FY2018 Sales Review

<vs. 1H FY2017>

- ◆Melamine : Both domestic and export sales up, plant troubles in FY2017 and FY2018 (1)(2)
- ◆Urea including AdBlue : Urea down, AdBlue up
- ◆High purity sulfuric acid : Down (a customer's plant temporarily closed due to updating the system)

<vs. 1H FY2018 Outlook as of May 2018>

- ◆Melamine : Both domestic and export sales below target, plant troubles (2)
- ◆Urea including AdBlue : Urea below target, AdBlue below target
- ◆High purity sulfuric acid : Below target (a customer's plant temporarily closed due to updating the system)

## 2H FY2018 Sales Outlook

<vs. 2H FY2017>

- ◆Melamine : Both domestic and export sales up, price increases, plant troubles in FY2017 (1)
- ◆Urea including AdBlue : Urea down, AdBlue up
- ◆High purity sulfuric acid : Up

<vs. 2H FY2018 Outlook as of May 2018>

- ◆Melamine : Both domestic and export sales above target
- ◆Urea including AdBlue : Urea below target, AdBlue above target
- ◆High purity sulfuric acid : Above target

Main Products		Sales YOY Change								
		FY2017 Actual			FY2018 Outlook as of May 2018			FY2018 Outlook as of Nov. 2018		
		1H	2H	Total	1H	2H	Total	1H Actual	2H	Total
Total Subsegment		+2%	-0%	+1%	+12%	+7%	+10%	+4%	+14%	+9%
Melamine	◆ Mainly used as adhesive agent for particle board, medium density fiberboard, plywood	-18%	-4%	-10%	+62%	+26%	+41%	+27%	+46%	+39%
Urea including AdBlue	◆ Urea: mainly used for urea formaldehyde resin, adhesive agent ◆ AdBlue: solution of urea in demineralised water for diesel trucks to reduce Nox	+1%	+4%	+2%	+5%	+6%	+5%	-3%	+7%	+2%
High purity sulfuric acid	◆ Used to clean semiconductors ◆ Largest in domestic market	+23%	+6%	+14%	-1%	+4%	+1%	-4%	+5%	+0%

Three products account for 38% of total consolidated subsegment sales(FY2017)

(1) From August 2017 to October 2017, melamine plant temporarily shutdown due to mechanical troubles, and normalized on October 12, 2017

(Estimated impact) (1H) OP down ¥0.37 billion (3Q) OP down ¥0.12 billion

In March 2018, ammonia plant temporarily shutdown due to mechanical troubles, and normalized on March 24, 2018

(Estimated impact) (4Q) OP down ¥0.27 billion

(2) In 1H FY2018, ammonia and melamine plants temporarily shutdown several times (and normalized) (Estimated impact) (1H) OP down ¥0.38 billion



# Chemicals – (E) Profit Overview

(¥billion)

	FY2017 Actual (A)							FY2018 Outlook as of May 2018			FY2018 Outlook(B) as of Nov. 2018							Change (B)-(A)		
	1Q	2Q	1H	3Q	4Q	2H	Total	1H	2H	Total	1Q Actual	2Q Actual	1H Actual	3Q	4Q	2H	Total	1H Actual	2H	Total
<b>Sales</b>	8.8	7.9	16.7	9.2	9.0	18.2	34.9	18.2	19.8	38.0	8.7	8.3	17.0	10.2	10.6	20.8	37.8	+0.3	+2.6	+2.9
<b>Fine</b>	2.8	2.5	5.3	2.8	2.5	5.3	10.6	5.4	5.9	11.3	2.7	2.4	5.1	2.8	3.4	6.2	11.3	-0.2	+0.9	+0.7
<b>Basic</b>	6.0	5.4	11.4	6.4	6.5	12.9	24.3	12.8	13.9	26.7	6.0	5.9	11.9	7.4	7.2	14.6	26.5	+0.5	+1.7	+2.2
<b>OP</b>	1.5	-0.2	1.3	1.2	0.9	2.1	3.4	1.5	2.4	3.9	1.6	-0.4	1.2	1.4	1.3	2.7	3.9	-0.1	+0.6	+0.5

## 1H FY2018 Review

<vs. 1H FY2017>

### (Fine Chemicals)

- ◆ Sales of TEPIC for both general applications and electronic materials down, sales of environmental related products up
- ◆ Sales down, OP down

### (Basic Chemicals)

- ◆ Sales of melamine up
- ◆ Sales of urea including AdBlue and high purity sulfuric acid down
- ◆ Price increases, plant troubles in FY2017 and FY2018 (p24)
- ◆ Feedstock and raw materials cost up, fixed cost up
- ◆ Sales up, OP down

### (Total Segment)

- ◆ Sales up ¥0.3 billion, OP down ¥0.1 billion

<vs. 1H FY2018 Outlook as of May 2018>

### (Fine Chemicals)

- ◆ Sales of TEPIC for general applications above target, for electronic materials below target, sales of environmental related products in line with target, sales of other products below target
- ◆ Sales below target, OP below target

### (Basic Chemicals)

- ◆ Sales of melamine, urea including AdBlue and high purity sulfuric acid below target
- ◆ Plant troubles in FY2018 (p24)
- ◆ Feedstock and raw materials cost below expectations
- ◆ Sales below target, OP below target

### (Total Segment)

- ◆ Sales down ¥1.2 billion, OP down ¥0.3 billion

## 2H FY2018 Outlook

<vs. 2H FY2017>

### (Fine Chemicals)

- ◆ Sales of TEPIC for both general applications and electronic materials up, sales of environmental related products up, price increases
- ◆ Sales up, OP up

### (Basic Chemicals)

- ◆ Sales of melamine, urea including AdBlue and high purity sulfuric acid up
- ◆ Price increases, plant troubles in FY2017 (p24)
- ◆ Feedstock and raw materials cost up
- ◆ Sales up, OP up

### (Total Segment)

- ◆ Sales up ¥2.6 billion, OP up ¥0.6 billion

<vs. 2H FY2018 Outlook as of May 2018>

### (Fine Chemicals)

- ◆ Sales of TEPIC for both general applications and electronic materials above target, sales of environmental related products above target
- ◆ Sales above target, OP below target

### (Basic Chemicals)

- ◆ Sales of melamine, urea including AdBlue and high purity sulfuric acid above target
- ◆ Price increases
- ◆ Feedstock and raw materials cost above expectations
- ◆ Sales above target, OP above target

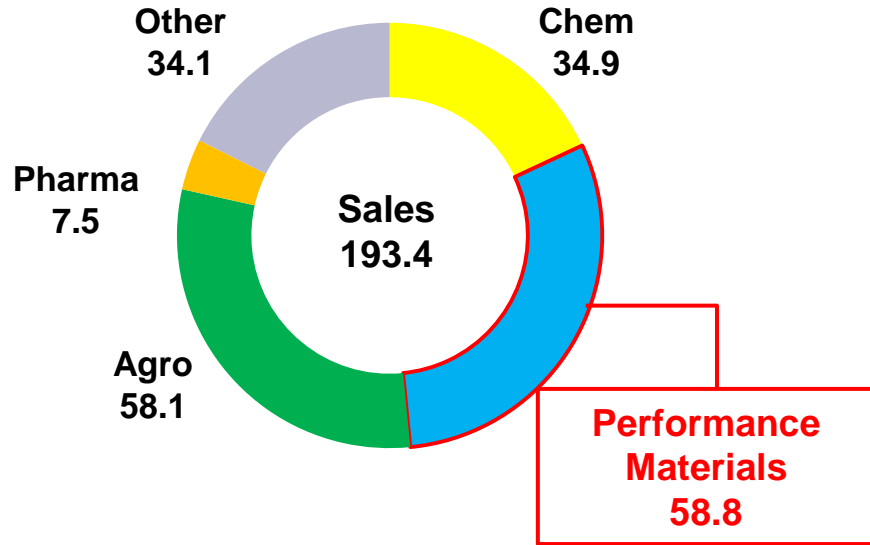
### (Total Segment)

- ◆ Sales up ¥1.0 billion, OP up ¥0.3 billion

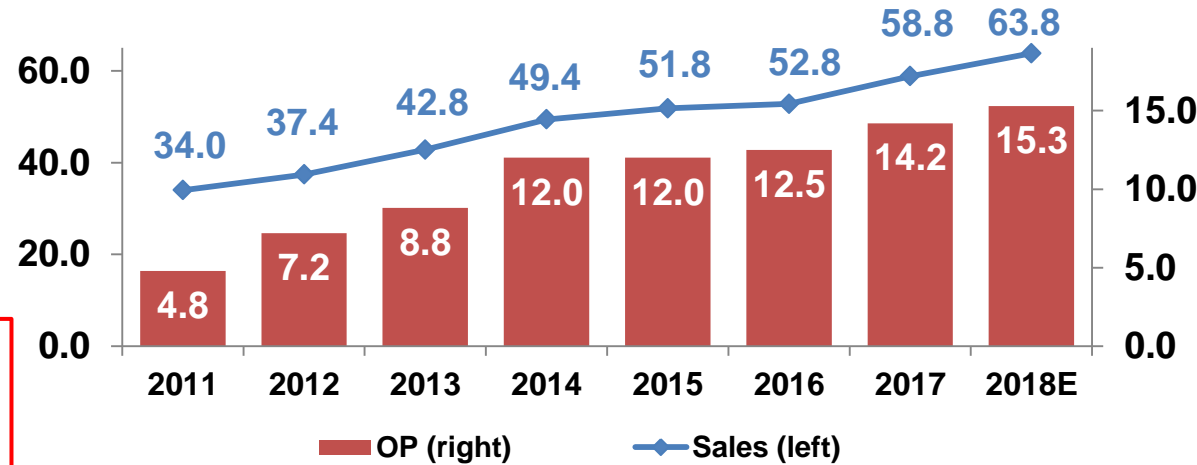
(Blank)

# Performance Materials – (A) Recent Financial Performance

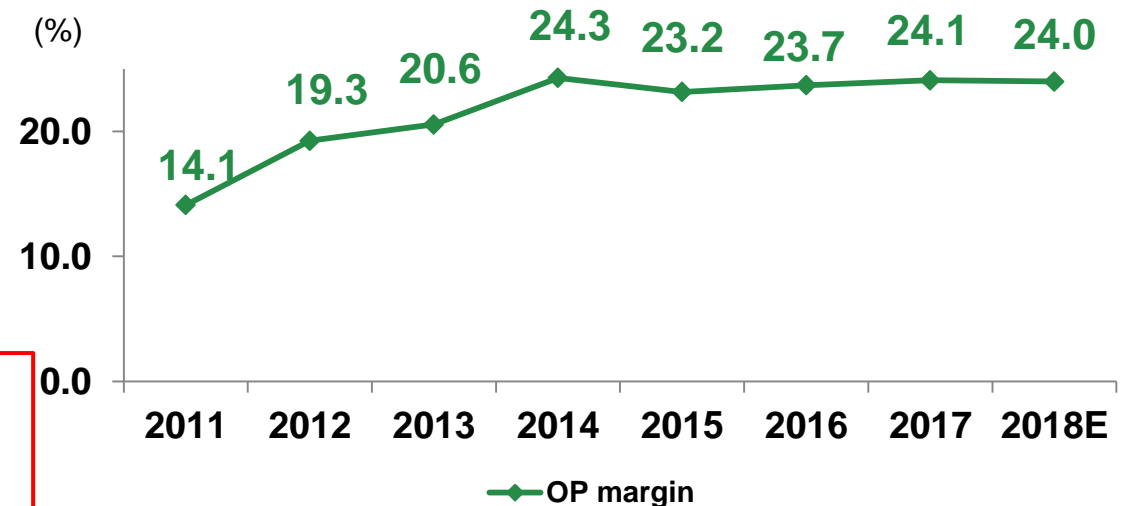
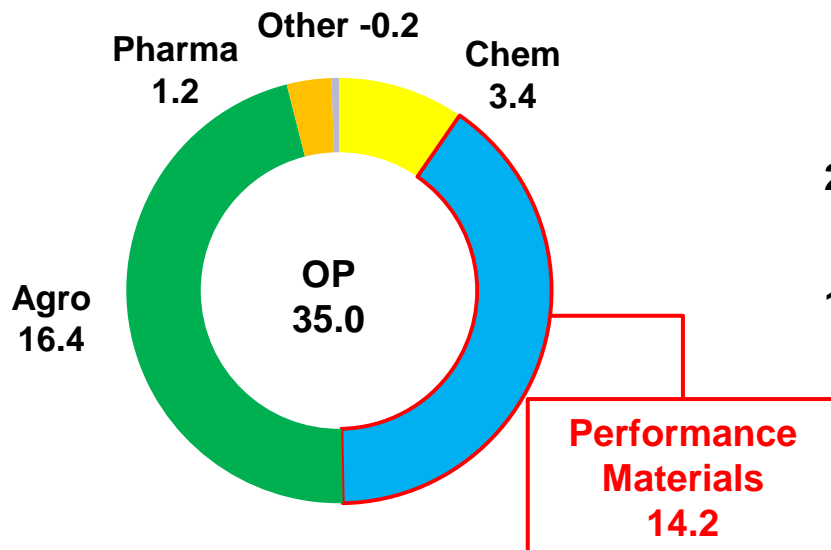
## 1. FY2017 Sales Distribution (¥billion)



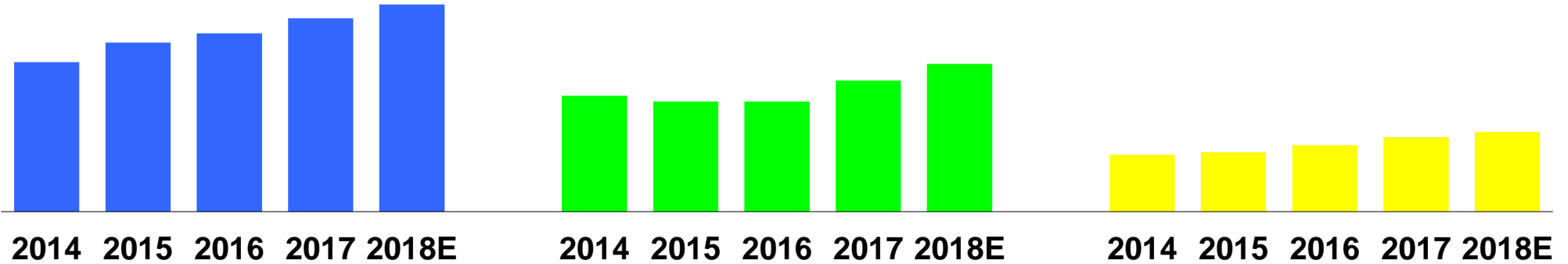
## 3. Recent Financial Performance (¥billion)



## 2. FY2017 OP Distribution (¥billion)



# Performance Materials – (B) FY2014-2018E Sales Distribution



## < Display Materials >

SUNEVER : LCD alignment coating

## < Semis Materials >

ARC® : Bottom anti-reflective coating for semis  
 Multi layer process materials (OptiStack®)

## < Inorganic \* >

SNOWTEX : Silica sol for:  
 polishing materials (silicon wafer, compound semiconductors, semiconductors CMP and etc.) and non-polishing materials (NOx reduction catalyst materials, special steel sheet and etc.)  
 Organo/Monomer sol : Hard coating materials, electronic information materials, resin additive  
 Oilfield materials : For enhancing oil recovery

\*2014-2015 : Non-consolidated basis

# Performance Materials – (C-1) Display Materials

## 1H FY2018 Sales Review

<vs. 1H FY2017>

- ◆ Total SUNEVER up +8%
- ◆ IPS and TN up, VA flat
- ◆ Photo-alignment IPS SUNEVER sales increasing substantially

<vs. 1H FY2018 Outlook as of May 2018>

- ◆ Total SUNEVER above target
- ◆ IPS above target, VA below target, TN in line with target

## 2H FY2018 Sales Outlook

<vs. 2H FY2017>

- ◆ Total SUNEVER up +6%
- ◆ IPS and VA up, TN down
- ◆ Photo-alignment IPS SUNEVER sales increasing substantially

<vs. 2H FY2018 Outlook as of May 2018>

- ◆ Total SUNEVER above target
- ◆ IPS above target, TN and VA below target

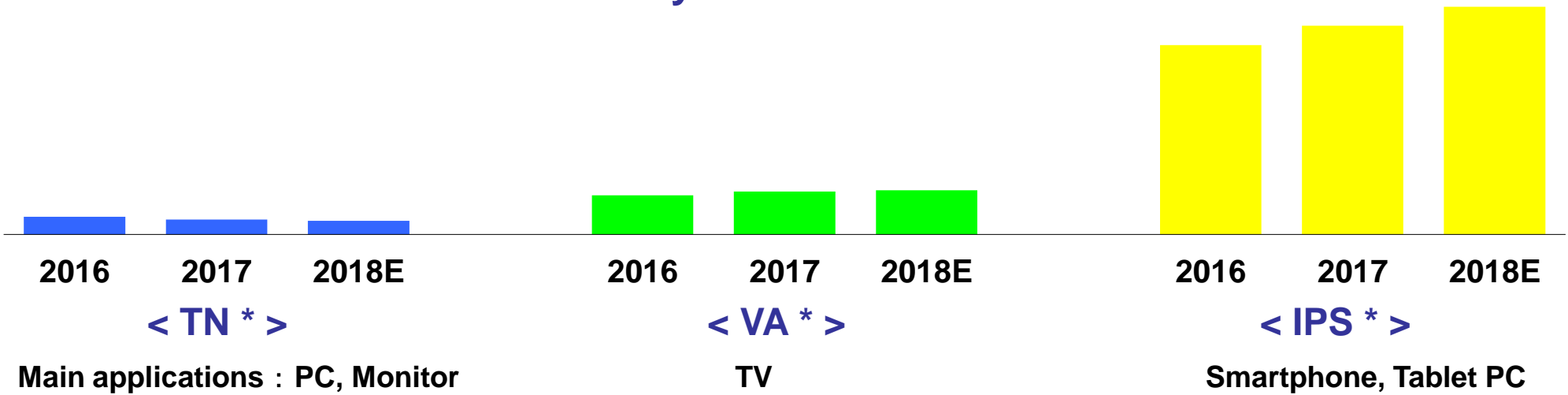
Main Products	Sales YOY Change								
	FY2017 Actual			FY2018 Outlook as of May 2018			FY2018 Outlook as of Nov. 2018		
	1H	2H	Total	1H	2H	Total	1H Actual	2H	Total
<b>Total SUNEVER</b>	+11%	+6%	+8%	+2%	+5%	+4%	+8%	+6%	+7%
<b>Other Display Materials (1)</b>	+21%	-2%	+9%	+9%	+99%	+53%	-4%	+28%	+12%
<b>Total Display Materials</b>	+11%	+6%	+8%	+2%	+7%	+5%	+8%	+6%	+7%

(1) Including OLED materials (Hole injection layer materials, Alignment materials for LC retarder, etc.)

- ◆ Purchased patents and expertise of OLED hole injection and hole transport materials from Solvay (September 2016)
- ◆ Established subsidiary in Suzhou, China (NSU) for strengthening technical support, customer service and product development (July 2017)

# Performance Materials – (C-2) SUNEVER

## <SUNEVER Sales Distribution by Mode>



## <Sales YOY Change by Mode>

	FY2017 Actual	FY2018 Outlook as of May 2018	FY2018 Outlook as of Nov.2018
TN	↘ ↘	↘	↘
VA	↗ ↗	↗	↗
IPS	↗ ↗	↗	↗
Total	+8%	+4%	+7%

### YOY Change

+20~+29%	↗↗↗
+10~+19%	↗↗
+0~+9%	↗
-0~-9%	↘
-10~-19%	↘↘
-20~-29%	↘↘↘

\*TN : Twisted Nematic, VA : Vertical Alignment, IPS : In-Plane Switching

# Performance Materials – (D) Semiconductors Materials

## 1H FY2018 Sales Review

<vs. 1H FY2017>

◆ Total Semis Materials sales up +17%

KrF down, ArF and other semis materials up  
(Multi layer process materials up, total of EUV under layer/CMOS image sensor materials/3D packaging process materials up)

<vs. 1H FY2018 Outlook as of May 2018>

◆ Total Semis Materials sales above target

KrF in line with target, ArF above target, other semis materials in line with target  
(Multi layer process materials above target, total of EUV under layer/CMOS image sensor materials/3D packaging process materials below target)

## 2H FY2018 Sales Outlook

<vs. 2H FY2017>

◆ Total Semis Materials sales up +9%

KrF down, ArF and other semis materials up  
(Multi layer process materials up, total of EUV under layer/CMOS image sensor materials/3D packaging process materials up)

<vs. 2H FY2018 Outlook as of May 2018>

◆ Total Semis Materials sales above target

KrF below target, ArF above target, other semis materials below target  
(Multi layer process materials above target, total of EUV under layer/CMOS image sensor materials/3D packaging process materials below target)

Main Products		Sales YOY Change								
		FY2017 Actual			FY2018 Outlook as of May 2018			FY2018 Outlook as of Nov. 2018		
		1H	2H	Total	1H	2H	Total	1H Actual	2H	Total
	KrF (ARC®)	+13%	+4%	+8%	-1%	+2%	+0%	-1%	-6%	-4%
	ArF (ARC®)	+22%	+19%	+21%	+3%	-3%	+0%	+14%	+4%	+9%
	<b>Total</b>	<b>+16%</b>	<b>+12%</b>	<b>+14%</b>	<b>+1%</b>	<b>-1%</b>	<b>+0%</b>	<b>+9%</b>	<b>+2%</b>	<b>+6%</b>
	<b>Other Semis Materials (1)</b>	<b>+37%</b>	<b>+44%</b>	<b>+41%</b>	<b>+43%</b>	<b>+34%</b>	<b>+38%</b>	<b>+43%</b>	<b>+32%</b>	<b>+37%</b>
	<b>Total Semis Materials</b>	<b>+20%</b>	<b>+18%</b>	<b>+19%</b>	<b>+10%</b>	<b>+7%</b>	<b>+9%</b>	<b>+17%</b>	<b>+9%</b>	<b>+13%</b>

(1) Multi layer process materials (OptiStack®), EUV under layer, CMOS image sensor materials, 3D packaging process materials, etc

◆ Semiconductor capex plan to capture long-term future business: Main capex (approval basis)

FY2014 Analyzing and evaluation R&D equipment (¥1.1 billion)

FY2015 Product development facilities(¥2.8 billion), Analyzing and evaluation R&D equipment (¥0.8 billion), Production capacity expansion (¥0.8 billion), NCK\* (¥0.7 billion), Material Research Lab. (¥0.5 billion)

FY2016 NCK\* production capacity expansion (¥2.6 billion), Analyzing and evaluation R&D equipment (¥1.0 billion), Material Research Lab. (¥0.4 billion)

FY2017 Material Research Lab. (¥0.4 billion)

FY2018 Material Research Lab. new annex (¥3.0 billion), ARC® Production capacity expansion (¥0.2 billion)

\*NCK: Consolidated subsidiary in South Korea. R&D, production and sales of display and semis materials.

# Performance Materials –

## (E) SNOWTEX, Organo/Monomer sol, Oilfield materials

### 1H FY2018 Sales Review

<vs. 1H FY2017>

- ◆ SNOWTEX : Up (sales for polishing materials down, non-polishing materials up)
- ◆ Organo/Monomer sol : Down
- ◆ Oilfield materials : Up

<vs. 1H FY2018 Outlook as of May 2018>

- ◆ SNOWTEX : Below target (sales for polishing materials above target, non-polishing materials below target)
- ◆ Organo/Monomer sol : Below target
- ◆ Oilfield materials : Below target

### 2H FY2018 Sales Outlook

<vs. 2H FY2017>

- ◆ SNOWTEX : Down (sales for polishing materials down, non-polishing materials up)
- ◆ Organo/Monomer sol : Up
- ◆ Oilfield materials : Up

<vs. 2H FY2018 Outlook as of May 2018>

- ◆ SNOWTEX : Below target (sales for polishing materials below target, non-polishing materials in line with target)
- ◆ Organo/Monomer sol : Below target
- ◆ Oilfield materials : Below target

Main Products	Sales YOY Change								
	FY2017 Actual			FY2018 Outlook as of May 2018			FY2018 Outlook as of Nov. 2018		
	1H	2H	Total	1H	2H	Total	1H Actual	2H	Total
SNOWTEX	+7%	+7%	+7%	+3%	+1%	+2%	+2%	-1%	+1%
Organo/Monomer sol	+21%	-10%	+4%	-5%	+13%	+4%	-8%	+9%	-0%
Oilfield materials	+513%	+80%	+164%	+54%	+64%	+60%	+40%	+62%	+52%

Three products account for 83% of total consolidated subsegment sales (FY2017)

Total Inorganic Materials	+15%	+9%	+12%	+8%	+7%	+8%	+8%	+6%	+7%
---------------------------	------	-----	------	-----	-----	-----	-----	-----	-----



# Performance Materials – (F) Profit Overview

(¥billion)

	FY2017 Actual (A)							FY2018 Outlook as of May 2018			FY2018 Outlook(B) as of Nov. 2018							Change (B)-(A)		
	1Q	2Q	1H	3Q	4Q	2H	Total	1H	2H	Total	1Q Actual	2Q Actual	1H Actual	3Q	4Q	2H	Total	1H Actual	2H	Total
Sales	14.1	15.0	29.1	15.1	14.6	29.7	58.8	30.6	31.9	62.5	15.6	16.4	32.0	15.8	16.0	31.8	63.8	+2.9	+2.1	+5.0
OP	3.6	4.1	7.7	4.0	2.5	6.5	14.2	6.8	7.3	14.1	3.9	4.2	8.1	3.5	3.7	7.2	15.3	+0.4	+0.7	+1.1

## 1H FY2018 Review

<vs. 1H FY2017>

- ◆ SUNEVER sales up (IPS and TN up, VA flat)
- ◆ Total Semis Materials sales up (KrF down, ArF and other semis materials up (Multi layer up, EUV and other new materials up))
- ◆ Inorganic Materials sales up (SNOWTEX up, Organo/Monomer sol down, Oilfield materials up)
- ◆ Fixed cost up ¥1.1billion (including R&D)
- ◆ Inventory adjustment cost up ¥0.3billion
- ◆ Sales up ¥2.9billion, OP up ¥0.4billion (OP: DP up, Semis up, Inorganic down)

<vs. 1H FY2018 Outlook as of May 2018>

- ◆ SUNEVER sales above target (IPS above target, VA below target, TN in line with target)
- ◆ Total Semis Materials sales above target (ArF above target, KrF and other semis materials in line with target (Multi layer above target, EUV and other new materials below target))
- ◆ Inorganic Materials sales in line with target (SNOWTEX and Organo/Monomer sol below target, Oilfield materials below target, other materials above target)
- ◆ Fixed cost below expectations ¥0.6billion (including R&D)
- ◆ Sales up ¥1.4billion, OP up ¥1.3billion (OP: DP up, Semis up, Inorganic flat)

## 2H FY2018 Outlook

<vs. 2H FY2017>

- ◆ SUNEVER sales up (IPS and VA up, TN down)
- ◆ Total Semis Materials sales up (KrF down, ArF and other semis materials up (Multi layer up, EUV and other new materials up))
- ◆ Inorganic Materials sales up (SNOWTEX down, Organo/Monomer sol up, Oilfield materials up)
- ◆ Fixed cost up ¥0.8billion (including R&D)
- ◆ Sales up ¥2.1billion, OP up ¥0.7billion (OP: DP up, Semis up, Inorganic flat)

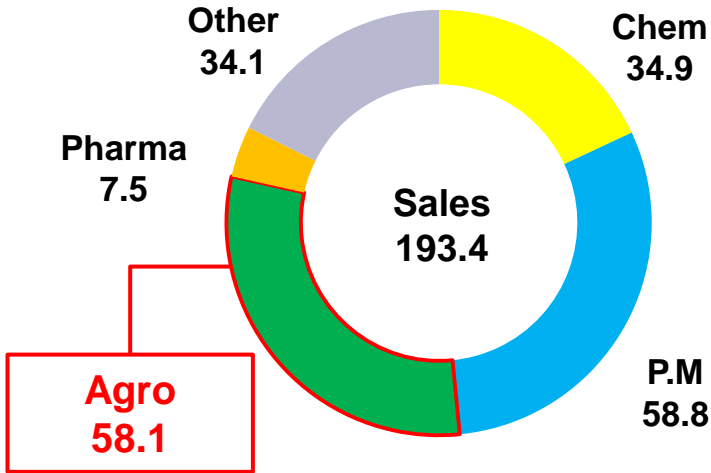
<vs. 2H FY2018 Outlook as of May 2018>

- ◆ SUNEVER sales above target (IPS above target, VA and TN below target)
- ◆ Total Semis Materials sales above target (ArF above target, KrF and other semis materials below target (Multi layer above target, EUV and other new materials below target))
- ◆ Inorganic Materials sales below target (SNOWTEX below target, Organo/Monomer and Oilfield materials below target)
- ◆ Fixed cost above expectations ¥0.2billion (including R&D)
- ◆ Sales down ¥0.1billion, OP down ¥0.1billion (OP: DP flat, Semis down, Inorganic up)

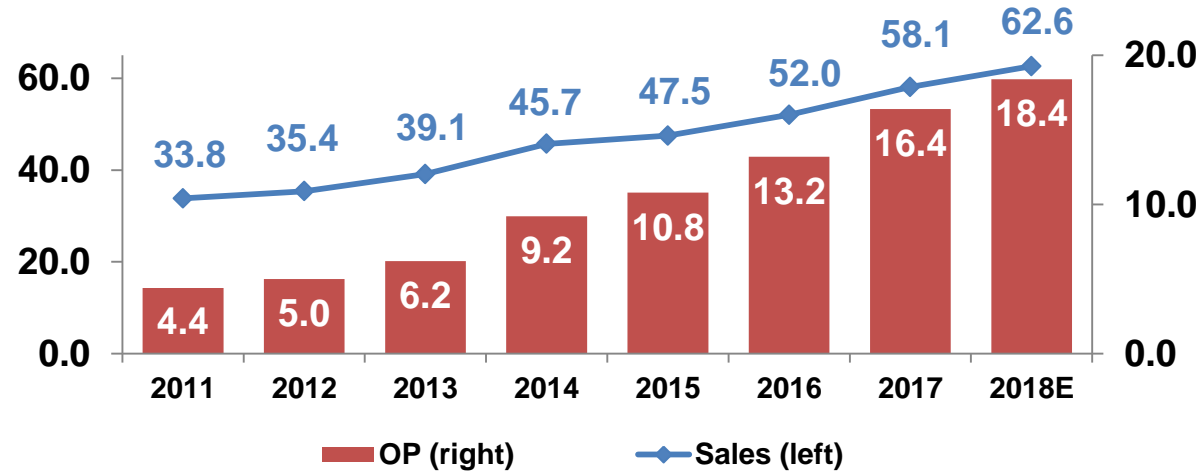
(Blank)

# Agrochemicals – (A) Recent Financial Performance

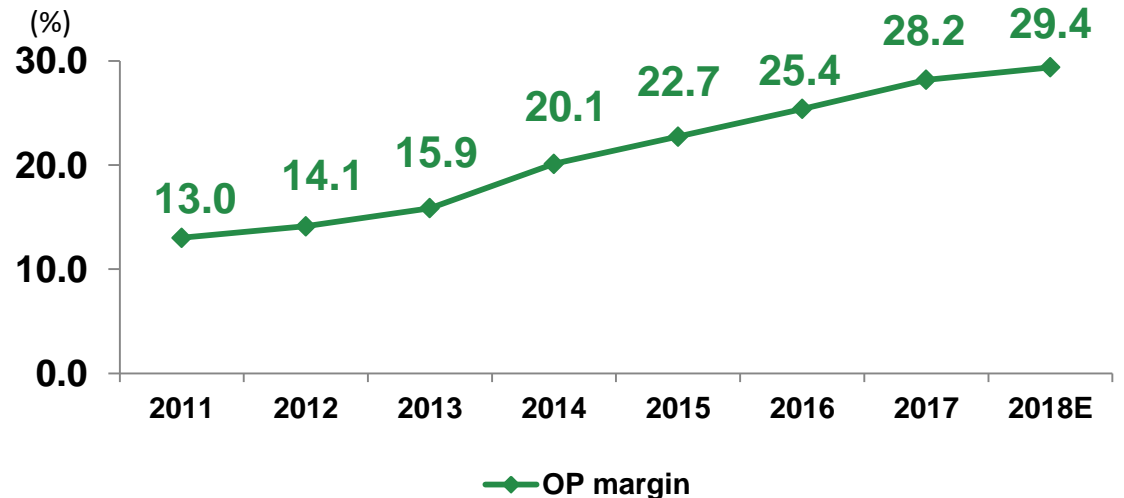
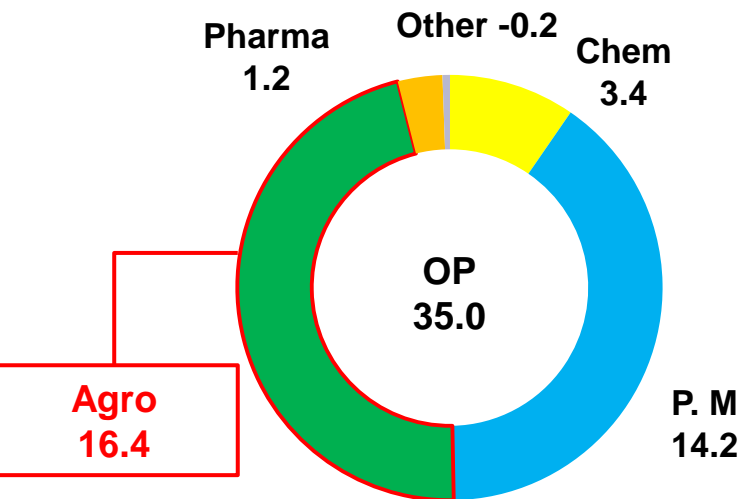
## 1. FY2017 Sales Distribution (¥billion)



## 3. Recent Financial Performance (¥billion)



## 2. FY2017 OP Distribution (¥billion)

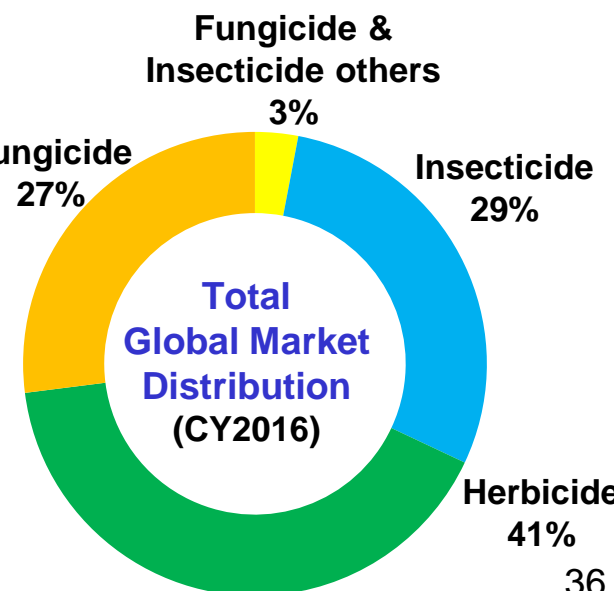
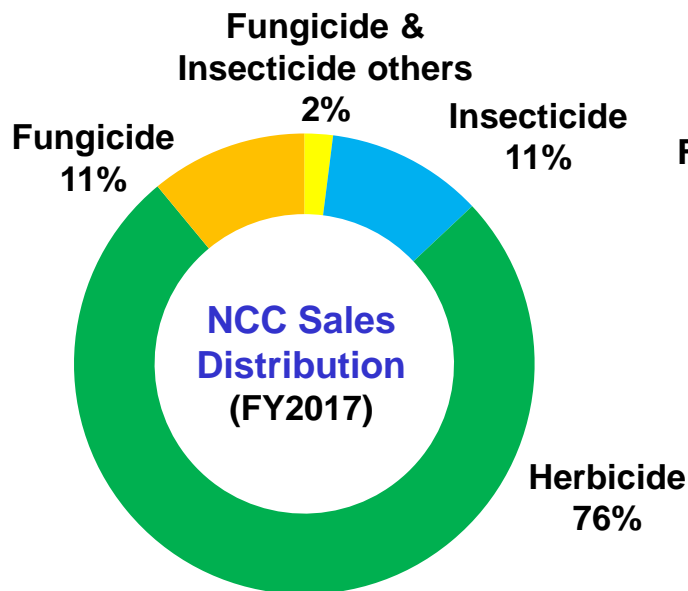


# Agrochemicals – (B) Sales YOY Change (Before Discount)

		Sales YOY Change			
Main Products (in order of FY2017 sales amount)		FY2016 /FY2015(1)	FY2017 /FY2016(2)	FY2018E as of May2018 /FY2017(2)	FY2018E as of Nov.2018 /FY2017(2)
ROUNDUP (3)	Herbicide	+13%	+8%	+2%	-6%
Fluralaner	Animal health products	↗↗↗↗↗↗	↗↗↗↗↗↗	↗↗↗	↗↗↗
ALTAIR	Herbicide	↗↗↗	↗	↗	↗
TARGA	Herbicide	↗	↗	↗	↗
PERMIT	Herbicide	↘↘↘	↗	↗↗	↗
Other main products (4)	-	↘↘	↗	↘	↗
<b>Total segment</b>	-	<b>+10%</b>	<b>+10%</b>	<b>+8%</b>	<b>+7%</b>

YOY Change	
+40~+59%	↗↗↗↗↗
+30~+39%	↗↗↗↗
+20~+29%	↗↗↗
+10~+19%	↗↗
+0~+9%	↗
-0~-9%	↘
-10~-19%	↘↘
-20~-29%	↘↘↘
-30~-39%	↘↘↘↘

- (1) Non-consolidated basis
- (2) Consolidated basis
- (3) ROUNDUP AL for general household accounting for 17% of FY2017 ROUNDUP sales
- (4) LEIMAY, SIRIUS, PULSOR(THIFLUZAMIDE), STARMITE, SANMITE



# Agrochemicals – (C) Main Products

Launch	Products	Application	Product development type	Notes
2002	ROUNDUP	Herbicide	Acquired	Acquired domestic business from Monsanto, continuing to grow
2008	LEIMAY	Fungicide	In-house	
2008	STARMITE	Insecticide	In-house	
2009	PULSOR (THIFLUZAMIDE)	Fungicide	Acquired	Acquired world business from Dow
2009	PREVATHON	Insecticide	Licensed-in	Licensed from DuPont
2010	ROUNDUP AL	Herbicide	In-house	For general household shower-type herbicide market, launched ROUNDUP ALII in FY2016 and ALIII in FY2017, growing sharply
2011	ALTAIR	Herbicide	In-house	Launched in Korea in FY2011 and in Japan in FY2012
2013	Fluralaner	Animal health products	In-house	Started to be supplied to MSD* in July as scheduled
2014	BRAVECTO**	Veterinary medical product for companion animals	-	Launched in several countries in EU in April, and in the USA in June by MSD
2014	EXIREL / PRYROSSO	Insecticide	Licensed-in	Licensed from DuPont
2015	BRAVECTO**	Veterinary medical product for companion animals	-	Launched in Japan in July by Intervet K.K Intervet K.K :a Japanese subsidiary of MSD
2015	TREFANOCIDE	Herbicide	Licensed-in	Acquired by Gowan from Dow, exclusive sales right in Japan transferred to NCC
2017	NEXTER	Fungicide	Licensed-in	Licensed from Syngenta
2017	TRANSFORM™ / EXCEED™	Insecticide	Licensed-in	Licensed from Dow
2017	EXZOLT**	Veterinary medical product for poultry	-	Launched in EU in September for poultry red mites by MSD
2018	GRACIA	Insecticide	In-house	Effective against a wide range of serious pests, having less negative impact on honeybees. Launched in Korea in FY2018
2022	NC-241(PYRAPROPOYNE)	Fungicide	In-house	General fungicide
2024	NC-653	Herbicide	In-house	Effective against resistant weeds, having excellent safety to rice

\*MSD: MSD Animal Health, the global animal health business unit of Merck

\*\*BRAVECTO, EXZOLT: the product names developed by MSD, containing the active substance Fluralaner

- ◆ Export sales account for 38% of FY2017 consolidated segment sales (Asia:19%, Europe/Africa:72%, North/Central/South America:9%)
- \*Including Fluralaner
- ◆ Acquired 3% share of IHARABRÁS (leading agro company in Brazil) in September 2011
- ◆ Established subsidiaries in China (January 2014), Brazil (August 2016) and India (July 2017) for sales support and product development
- ◆ Expanded Fluralaner production capacity at two outsourced factories (March 2017)
- ◆ Full reconstruction of Biological Research Laboratories for Agro and Pharma completed (April 2017) (FY2010-2017 total capex ¥6.4 billion)
- ◆ Construction of GRACIA plant completed (September 2018, capex ¥1.4billion) and Fluralaner plant completed (September 2018)
- ◆ Construction of R&D facilities specializing in formulation started in 2018 (to be completed in September 2019, capex ¥0.6billion)

# Agrochemicals – (D) Fluralaner

## ◆ Fluralaner

\*Invented by NCC and supplied to MSD as the active pharmaceutical ingredient of BRAVECTO

## ◆ BRAVECTO

\*Developed by MSD

\*Veterinary medical product providing unique immediate and persistent tick and flea killing activity for dogs for 12 weeks, longer than currently available once-monthly commercialized products

\*Chewable tablet for dogs launched by MSD

April 2014 Europe

June 2014 USA, July 2015 Japan

Currently, available in more than 85 countries

\*Spot-on solution for dogs and cats launched by MSD

July 2016 EU(cats), December 2016 USA(cats)

January 2017 USA, Germany, Austria(dogs)

June 2018 Japan(cats)

## ◆ EXZOLT

\*For poultry red mites launched by MSD

(administered via drinking water)

September 2017 Europe

## ◆ BRAVECTO Plus

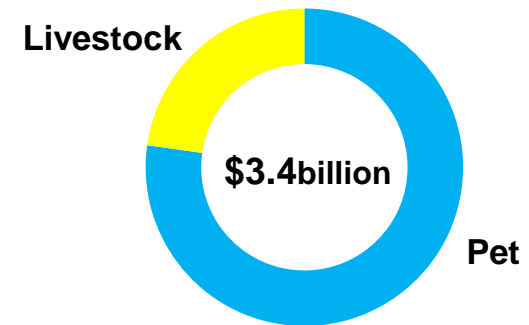
\*A broad-spectrum combination spot-on solution for cats

to treat internal and external parasite infestations

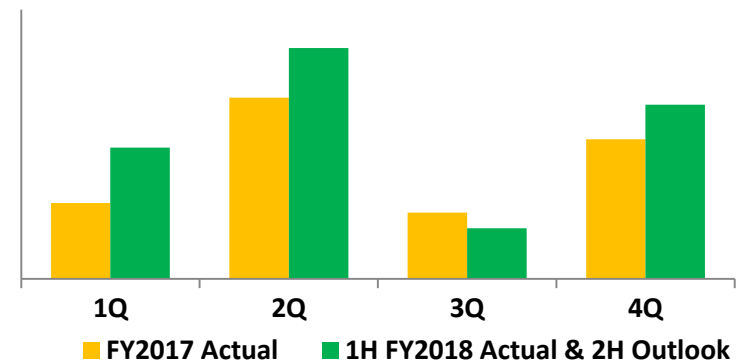
approved in the EU in May 2018



## ■ Estimated Global External Parasite Drug Market (CY2016)



## ■ Fluralaner Quarterly Sales (Including royalty)



# Agrochemicals – (E) Profit Overview

(¥billion)

	FY2017 Actual (A)							FY2018 Outlook as of May 2018			FY2018 Outlook(B) as of Nov. 2018							Change (B)-(A)		
	1Q	2Q	1H	3Q	4Q	2H	Total	1H	2H	Total	1Q Actual	2Q Actual	1H Actual	3Q	4Q	2H	Total	1H Actual	2H	Total
Sales	14.6	11.5	26.1	6.4	25.6	32.0	58.1	28.9	34.1	63.0	16.4	12.3	28.7	5.7	28.2	33.9	62.6	+2.6	+1.9	+4.5
OP	4.5	3.6	8.1	-0.6	8.9	8.3	16.4	10.0	7.7	17.7	5.1	4.7	9.8	-1.4	10.0	8.6	18.4	+1.7	+0.3	+2.0

## 1H FY 2018 Review

<vs. 1H FY2017>

- ◆ Sales up : Fluralaner, PULSOR(export), TARGA(export), PERMIT(export), GRACIA(export)
- ◆ Sales down : ROUNDUP ML(Intense heat and natural disasters), ALTAIR(export), SANMITE(export), LEIMAY(export)
- ◆ Fixed costs up ¥0.5 billion
- ◆ Inventory adjustment cost down ¥0.5billion
- ◆ Sales up ¥2.6billion, OP up ¥1.7billion

<vs. 1H FY2018 Outlook as of May 2018>

- ◆ Sales above target : Fluralaner, ALTAIR(domestic), PULSOR, PERMIT(export), STARMITE(export), LEIMAY, TARGA(export),
- ◆ Sales below target : ROUNDUP(ML, AL), SANMITE, SIRIUS
- ◆ Fixed costs below expectations ¥0.4billion
- ◆ Inventory adjustment cost above expectations ¥0.4billion
- ◆ Sales down ¥0.2billion, OP down ¥0.2billion

## 2H FY 2018 Outlook

<vs. 2H FY2017>

- ◆ Sales up : ALTAIR, Fluralaner, GRACIA(export), PULSOR(export), TARGA(export), ROUNDUP(ML,AL)
- ◆ Sales down : LEIMAY(export), SANMITE
- ◆ Fixed costs up ¥0.5 billion
- ◆ Sales up ¥1.9billion, OP up ¥0.3billion

<vs. 2H FY2018 Outlook as of May 2018>

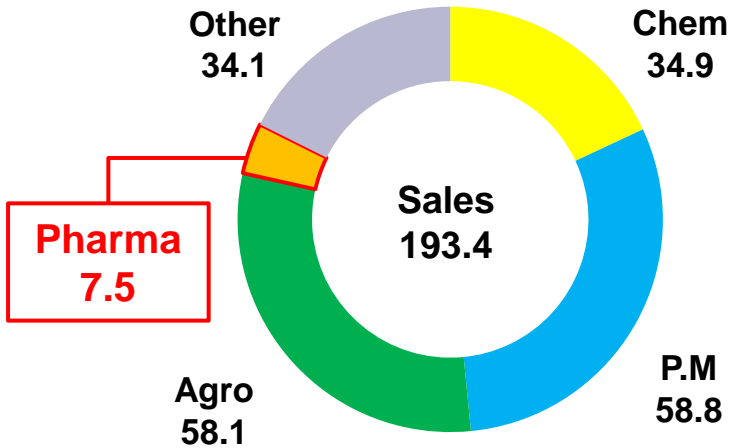
- ◆ Sales above target : ALTAIR(domestic), GRACIA(export), LEIMAY(export), STARMITE(export), PULSOR, ROUNDUP ML
- ◆ Sales below target : PERMIT, SANMITE(export), SIRIUS
- ◆ Inventory adjustment cost below expectations (¥0.7billion)
- ◆ Sales down ¥0.2billion, OP up ¥0.9billion

(Blank)

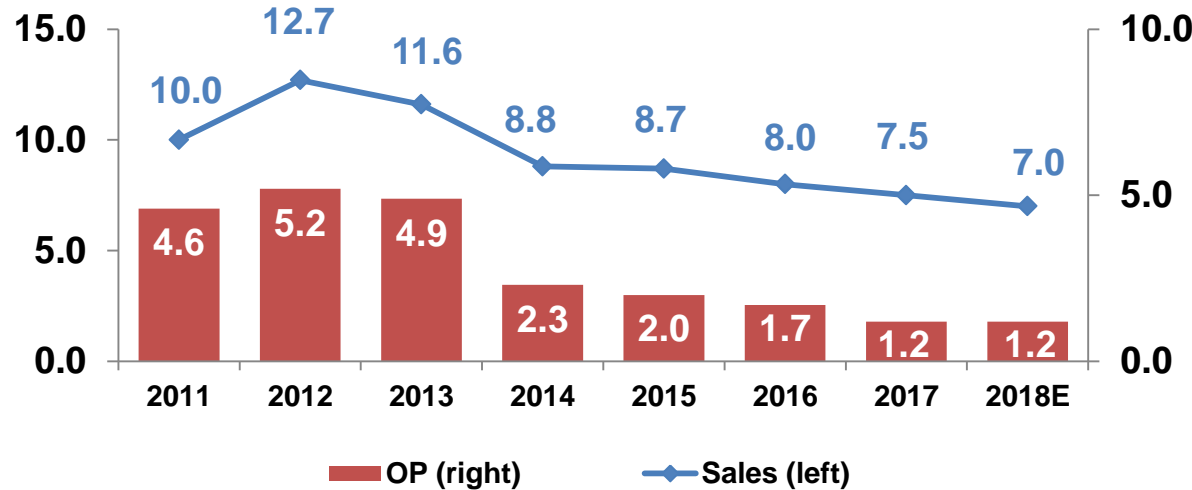


# Pharmaceuticals – (A) Recent Financial Performance

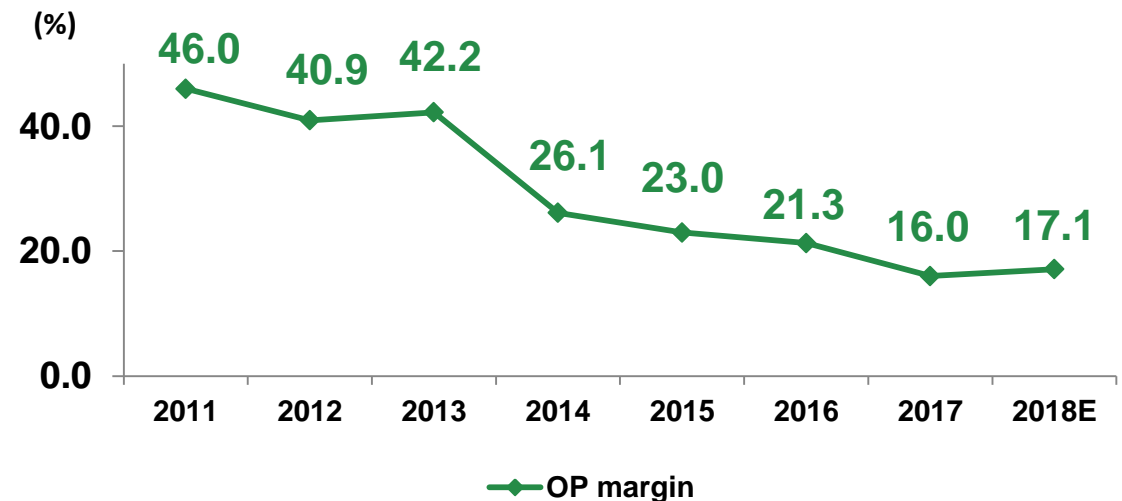
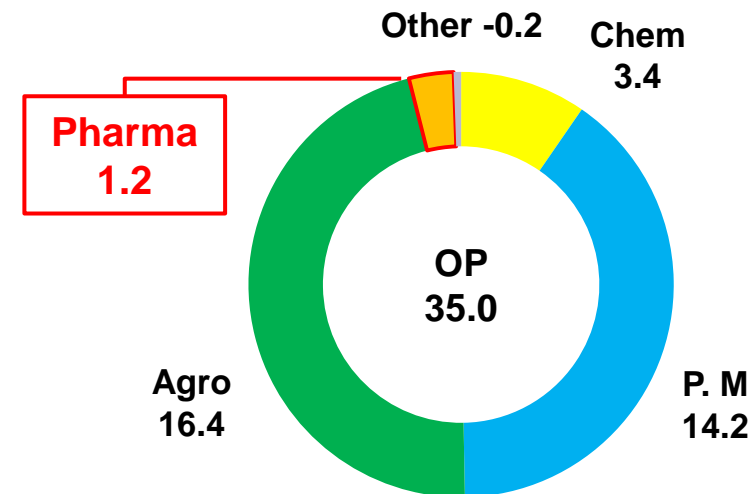
## 1. FY2017 Sales Distribution (¥billion)



## 3. Recent Financial Performance (¥billion)

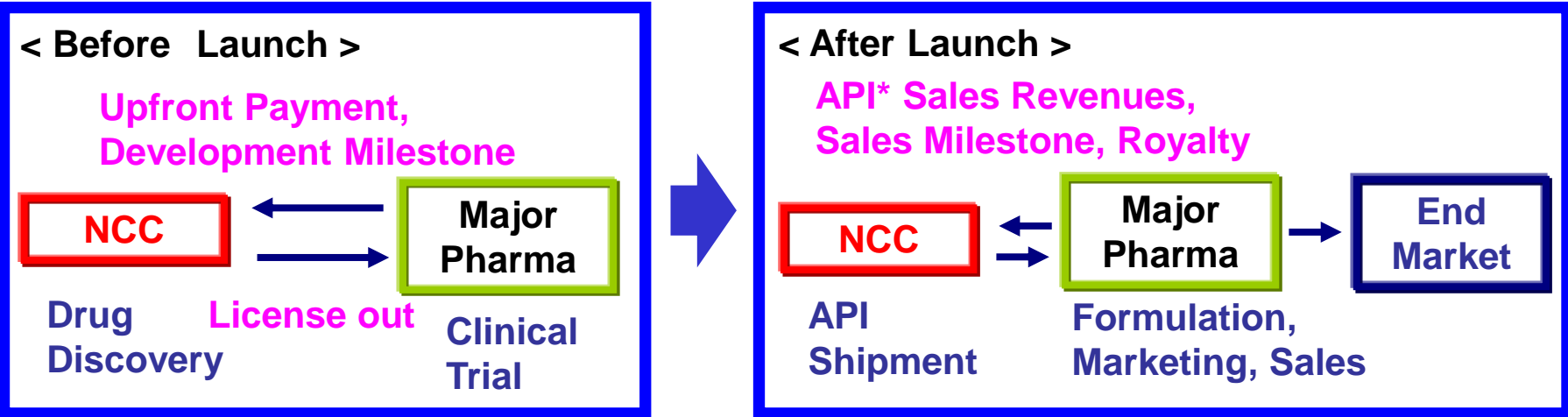


## 2. FY2017 OP Distribution (¥billion)



# Pharmaceuticals – (B) Business Model (New Drug) and LIVALO

◆ Unique ethical pharma business model without sales force



API\*: Active Pharmaceutical Ingredient

◆ LIVALO (Anti-Cholesterol Drug)

	FY2013 Actual	FY2014 Actual	FY2015 Actual	FY2016 Actual	FY2017 Actual	FY2018 Outlook as of May 2018	FY2018 Outlook as of Nov. 2018
Domestic End Market Sales (NHI drug price basis, ¥billion)	52.6	34.5	29.7	23.9	21.0	-	-
Our Domestic and Export API Sales (¥billion)	10.2	6.9	5.8	5.2	4.8	4.4	4.5
Our Domestic and Export API Sales YOY Change	-2%	-32%	-15%	-11%	-7%	-8%	-7%
(Domestic API Sales YOY Change)	(-2%)	(-46%)	(-27%)	(-42%)	(-73%)	(+4%)	(-42%)
(Export API Sales YOY Change)	(-1%)	(+21%)	(+5%)	(+26%)	(+29%)	(-10%)	(-2%)

- August 2013, domestic compound patent expired
- April 2014, filed complaints against certain companies in USA which had submitted Abbreviated New Drug Application(ANDA) with FDA
- Currently, available in 25 countries

# Pharmaceuticals – (C) Pipeline

Product	Mechanism of action	Expected indications	Development partners
NIP-022	<ul style="list-style-type: none"> <li>Thrombopoietin (TPO) receptor activation</li> </ul>	<ul style="list-style-type: none"> <li>Thrombocytopenia</li> </ul>	<ul style="list-style-type: none"> <li>Terminated the license agreement with Ono in April 2014</li> <li>Entered into the license agreement with Yakult in October 2015</li> <li>Completed a Phase I clinical trial in Japan in July 2017</li> </ul>
NTC-801	<ul style="list-style-type: none"> <li>Acetylcholine-activated K<sup>+</sup> channel current (IKACH) inhibition</li> </ul>	<ul style="list-style-type: none"> <li>Arrhythmia (Atrial fibrillation)</li> </ul>	<ul style="list-style-type: none"> <li>Terminated the license agreement with Teijin and BMS in September 2015</li> <li>Under consideration regarding seeking new partners</li> </ul>

## ◆ Strategic research collaboration

- With Shionogi for discovering novel antifungal drug candidates (Started in January 2016)
- With Shionogi for discovering novel analgesic drug candidates (Started in April 2017)

## ◆ Novel drug discovery research

To create innovative medicines by using the strategic chemical library, the precise organic synthesis technology and the state-of-the-art evaluation technology;

- In-house research : Focusing on cardiovascular disease and neurological disease as core therapeutic areas.
- Collaborative research : Utilizing open innovation effectively (e.g. Shionogi)

# Pharmaceuticals – (D) Custom Chemicals

- ◆ Custom manufacturing and process researching services for pharmaceutical ingredients and intermediates from pre-clinical to commercial production stages
- ◆ October 2013, Custom Chemicals shifted from Chemicals Segment to Pharma Segment to seek synergy of the two divisions (organic synthesis technology, R&D/manufacturing/quality control systems)
- ◆ Focusing on obtaining new contracts including high activity and high-valued added GE API products (Prostaglandin and vitamin D3, etc.)

## 1H FY2018 Sales Review

<vs. 1H FY2017>

- ◆ Up due to shipment time shift

<vs. 1H FY2018 Outlook as of May 2018>

- ◆ Below target (some shipments shifted to 2H FY2018 and volume below expectations)

## 2H FY2018 Sales Outlook

<vs. 2H FY2017>

- ◆ Down due to volume decrease

<vs. 2H FY2018 Outlook as of May 2018>

- ◆ Below target (volume below expectations)

Sales YOY Change								
FY2017 Actual			FY2018 Outlook as of May 2018			FY2018 Outlook as of Nov. 2018		
1H	2H	Total	1H	2H	Total	1H Actual	2H	Total
+9%	+5%	+6%	+25%	-15%	+3%	+18%	-20%	-3%

# Pharmaceuticals – (E) Equity participation in PeptiStar Inc. (PS)

- ◆ **Our Investment Amount:**      **¥0.9 billion, (8.2% of the number of shares outstanding after the third-party allotment)**
  
- ◆ **Outline of PS:**                      **The world's first Contract Manufacturing Organization (CMO) for the research and commercial manufacture of constrained peptide therapeutics.  
Established by PeptiDream, Shionogi and Sekisui Chemical in September 2017**
  
- ◆ **Funding of PS :**                      **¥11.0 billion      Equity provided by about 20 companies by way of (approximate amount)      third-party allotment  
¥9.0 billion      Grant program of Cyclic Innovation for Clinical Empowerment (CiCLE) by the Japan Agency for Medical Research and Development (AMED)  
Total ¥20.0 billion**
  
- ◆ **Business Plan of PS :**                      **Expected to start commercial production constrained peptide therapeutics in fall 2019**
  
- ◆ **Our Role and Objective:**                      **Develop solution-phase synthesis suitable for mass production of constrained peptides**
  
- ◆ **Impact on our Business:**                      **Improve our novel synthetic method (solution-phase synthesis) of constrained peptides, reduce manufacturing cost substantially and expand our CMO business.**

# Pharmaceuticals – (F) Profit Overview

(¥billion)

	FY2017 Actual (A)							FY2018 Outlook as of May 2018			FY2018 Outlook(B) as of Nov. 2018							Change (B)-(A)		
	1Q	2Q	1H	3Q	4Q	2H	Total	1H	2H	Total	1Q Actual	2Q Actual	1H Actual	3Q	4Q	2H	Total	1H Actual	2H	Total
Sales	2.1	1.4	3.5	2.3	1.7	4.0	7.5	3.8	3.4	7.2	1.8	1.9	3.7	1.3	2.0	3.3	7.0	+0.2	-0.7	-0.5
OP	0.5	0.0	0.5	0.6	0.1	0.7	1.2	0.6	0.9	1.5	0.3	0.3	0.6	0.1	0.5	0.6	1.2	+0.1	-0.1	-0.0

## 1H FY 2018 Review

<vs. 1H FY2017>

- ◆ LIVALO sales up (domestic down due to GE, export up)
- ◆ Custom Chemicals sales up
- ◆ Sales up ¥0.2billion, OP up ¥0.1billion

<vs. 1H FY2018 Outlook as of May 2018>

- ◆ LIVALO sales above target  
(domestic sales below target, export above target)
- ◆ Custom Chemicals sales below target
- ◆ Sales down ¥0.1billion, OP in line with target

## 2H FY 2018 Outlook

<vs. 2H FY2017>

- ◆ LIVALO sales down (domestic down due to GE, export down)
- ◆ Custom Chemicals sales down
- ◆ Absence of up-front payment
- ◆ Inventory adjustment cost down ¥0.2 billion
- ◆ Sales down ¥0.7billion, OP down ¥0.1billion

<vs. 2H FY2018 Outlook as of May 2018>

- ◆ LIVALO sales above target  
(domestic sales below target, export above target)
- ◆ Custom Chemicals sales below target
- ◆ Absence of up-front payment
- ◆ Fixed costs above expectations ¥0.1billion
- ◆ Sales down ¥0.1billion, OP down ¥0.3billion

# Mid-Term Business Plan Vista 2021 (FY2016-2021) announced in May 2016 -Financial Indicators (A)

(¥billion)

1.PL	Actual		Outlook as of Nov. 2018		Plan (announced in May 2016)		
	2016	2017	2018		2016	2018	2021
Sales	180.3	193.4	205.5		187.5	217.0	250.0
Operating Profit	31.4	35.0	38.1		29.7	35.0	40.0
Ordinary Income	31.7	36.2	40.1		30.4	35.6	40.8
Net Income	24.0	27.1	30.0		23.0	27.1	31.0
OP Margin	17.4%	18.1%	18.5%		15.8%	16.1%	16.0%
ROE	15.1%	16.1%	16.5%		14.3%	above 14%	above 14%
Dividend Payout Ratio	33.1%	37.7%	40.6%		33.3%	40%	40%
Total Payout Ratio	70.4%	70.7%	57.3%		maintain 70%	maintain 70%	maintain 70%

FX Rate (¥/\$)	1H 105 2H 112	1H 111 2H 111	1H 110 2H 110	FY2016 onward 115		
Naphtha (¥/KL)	1H 31,400 2H 38,200	1H 37,700 2H 46,200	1H 51,200 2H 52,400	35,400	FY2017 onward 51,100	

(¥billion)

2.Segment (1)	Actual				Outlook as of Nov. 2018		Plan (announced in May 2016)					
	Sales		OP		Sales	OP	Sales			OP		
	2016	2017	2016	2017	2018	2018	2016	2018	2021	2016	2018	2021
Chem	34.8	34.9	3.8	3.4	37.8	3.9	35.4	38.0	40.5	4.9	4.0	4.5
Performance M.	52.8	58.8	12.5	14.2	63.8	15.3	55.3	68.0	82.9	11.7	15.4	18.4
Agro	52.0	58.1	13.2	16.4	62.6	18.4	52.1	58.6	67.0	11.3	12.9	16.7
Pharma	8.0	7.5	1.7	1.2	7.0	1.2	7.4	8.1	8.3	1.4	2.0	2.4
Trading, Others, Adj	32.7	34.1	0.2	-0.2	34.3	-0.7	37.3	44.3	51.3	0.4	0.7	-2.0
<b>Total</b>	<b>180.3</b>	<b>193.4</b>	<b>31.4</b>	<b>35.0</b>	<b>205.5</b>	<b>38.1</b>	<b>187.5</b>	<b>217.0</b>	<b>250.0</b>	<b>29.7</b>	<b>35.0</b>	<b>40.0</b>

(1) Including inter-segment sales/transfers

# Mid-Term Business Plan Vista 2021 (FY2016-2021) <sup>(1)</sup> announced in May 2016 -Financial Indicators (B)

- ◆ **OP Margin : Maintain above 15% (FY2017 Actual 18.1%)**
- ◆ **ROE : Maintain above 14% (FY2017 Actual 16.1%)**
- ◆ **Dividend Payout Ratio :  
Gradually increase to 40% in FY2018 (FY2017 Actual 37.7%)**
- ◆ **Total Payout Ratio :  
Maintain 70% (FY2017 Actual 70.7%) New indicator**
- ◆ **R&D expenses/sales : above 8% (FY2017 Actual 8.9%)**



# FY2018 Outlook as of November 2018 vs. FY2018 Mid-term Plan announced in May 2016

(¥billion)

		FY2018 Outlook (A)	FY2018 Mid-term Plan (B)	(A) - (B)	
Chemicals	Sales	37.8	38.0	-0.2	<ul style="list-style-type: none"> <li>◆ Above target: melamine(export), high purity sulfuric acid, TEPIC(general applications)</li> <li>◆ Below target: melamine(domestic), urea including AdBlue, high purity ammonia, TEPIC(new grades)</li> </ul>
	OP	3.9	4.0	-0.1	<ul style="list-style-type: none"> <li>◆ Sales below target, feedstock and raw materials cost below expectations, price increases above target, fixed cost in line with expectations</li> <li>◆ Fine Chemicals OP below target, Basic Chemicals OP above target</li> </ul>
Performance Materials	Sales	63.8	68.0	-4.2	<ul style="list-style-type: none"> <li>◆ Above target: Photo-alignment IPS, KrF, EUV under layer, 3D packaging process materials, SNOWTEX (polishing), Organo/Monomer sol</li> <li>◆ Below target: DP (SUNEVER TN, Rubbing IPS, VA, HYPERTECH), Semis (ArF, multi layer process materials, CMOS image sensor materials, new litho materials), OLED materials, Inorganic (Oilfield materials)</li> </ul>
	OP	15.3	15.4	-0.1	<ul style="list-style-type: none"> <li>◆ Sales below target, Semis fixed cost above expectations, DP fixed cost below expectations, Inorganic fixed cost above expectations</li> <li>◆ DP OP above target, Semis OP below target, Inorganic OP in line with target</li> </ul>
Agro	Sales	62.6	58.6	+4.0	<ul style="list-style-type: none"> <li>◆ Above target: Fluralaner, ALTAIR, ROUNUP, GRACIA (export)</li> <li>◆ Below target: PERMIT (export), PULSOR (export), TARGA (export)</li> </ul>
	OP	18.4	12.9	+5.5	◆ Sales above target, fixed cost below expectations
Pharma	Sales	7.0	8.1	-1.1	<ul style="list-style-type: none"> <li>◆ Above target: LIVALO (export)</li> <li>◆ Below target: LIVALO (domestic), up-front and milestone payments, Custom Chemicals</li> </ul>
	OP	1.2	2.0	-0.8	◆ Sales below target, up-front and milestone payments below expectations fixed cost in line with expectations
Trading, Others, Adjustment	Sales	34.3	44.3	-10.0	◆ Trading -2.7, other domestic subs -1.2, Adjustment calculation -6.1
	OP	-0.7	0.7	-1.4	◆ Trading -0.2, other domestic subs -0.1, Adjustment calculation -1.1
Total	Sales	205.5	217.0	-11.5	
	OP	38.1	35.0	+3.1	

- ◆ **September 2018**  
NCC was selected for the first time as an inclusion in the Dow Jones Sustainability Asia Pacific Index
- ◆ **September 28, 2018**  
NCC published its integrated reports “Integrated Reports 2018” for the first time (English translation under preparation)

# Capex/Depreciation/R&D by Segment

(¥billion)

	Capex (1)					Depreciation (2)					R&D expenses					% of Sales				
	2014	2015	2016	2017	2018E	2014	2015	2016	2017	2018E	2014	2015	2016	2017	2018E					
Chem	1.4	2.3	2.0	2.6	2.4	1.4	1.4	1.6	1.7	1.8	0.5	0.5	0.5	0.6	0.7	1.9%				
Performance M.	5.2	5.4	8.4	7.2	4.1	3.6	5.2	4.8	5.9	6.2	6.7	7.4	7.9	8.1	8.3	13.0%				
Agro	1.8	1.3	2.4	2.6	3.3	1.8	1.4	1.3	1.4	1.7	3.5	3.9	3.8	4.3	4.5	7.2%				
Pharma	0.4	0.4	0.9	0.7	0.6	0.9	0.8	0.7	0.7	0.7	2.7	2.4	2.2	2.5	2.5	35.7%				
Trading	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	-				
Others	1.0	0.8	0.6	0.6	0.8	0.7	0.8	0.4	0.7	0.6	1.6	1.6	1.7	1.7	1.9	-				
<b>Total</b>	<b>9.8</b>	<b>10.2</b>	<b>14.3</b>	<b>13.7</b>	<b>11.4</b>	<b>8.5</b>	<b>9.7</b>	<b>8.9</b>	<b>10.5</b>	<b>11.1</b>	<b>15.0</b>	<b>15.8</b>	<b>16.1</b>	<b>17.2</b>	<b>17.9</b>					
											R&D expenses/Sales					8.7%	8.9%	8.9%	8.9%	8.7%

(1) Capex

Actual - Acceptance basis

Outlook - Production commencement basis

(2) Depreciation Method

SUNEVER, ARC®, OptiStack®

- 4 year declining balance method

(50.0% of initial capex amount in the 1<sup>st</sup> year)

Other products - 8 year declining balance method

(25.0% of initial capex amount in the 1<sup>st</sup> year)

R&D Personnel (Sept. 2018) –A	430
Total Professionals (Sept. 2018) –B	1,080
A/B	40%

※Parent company only

※Round number

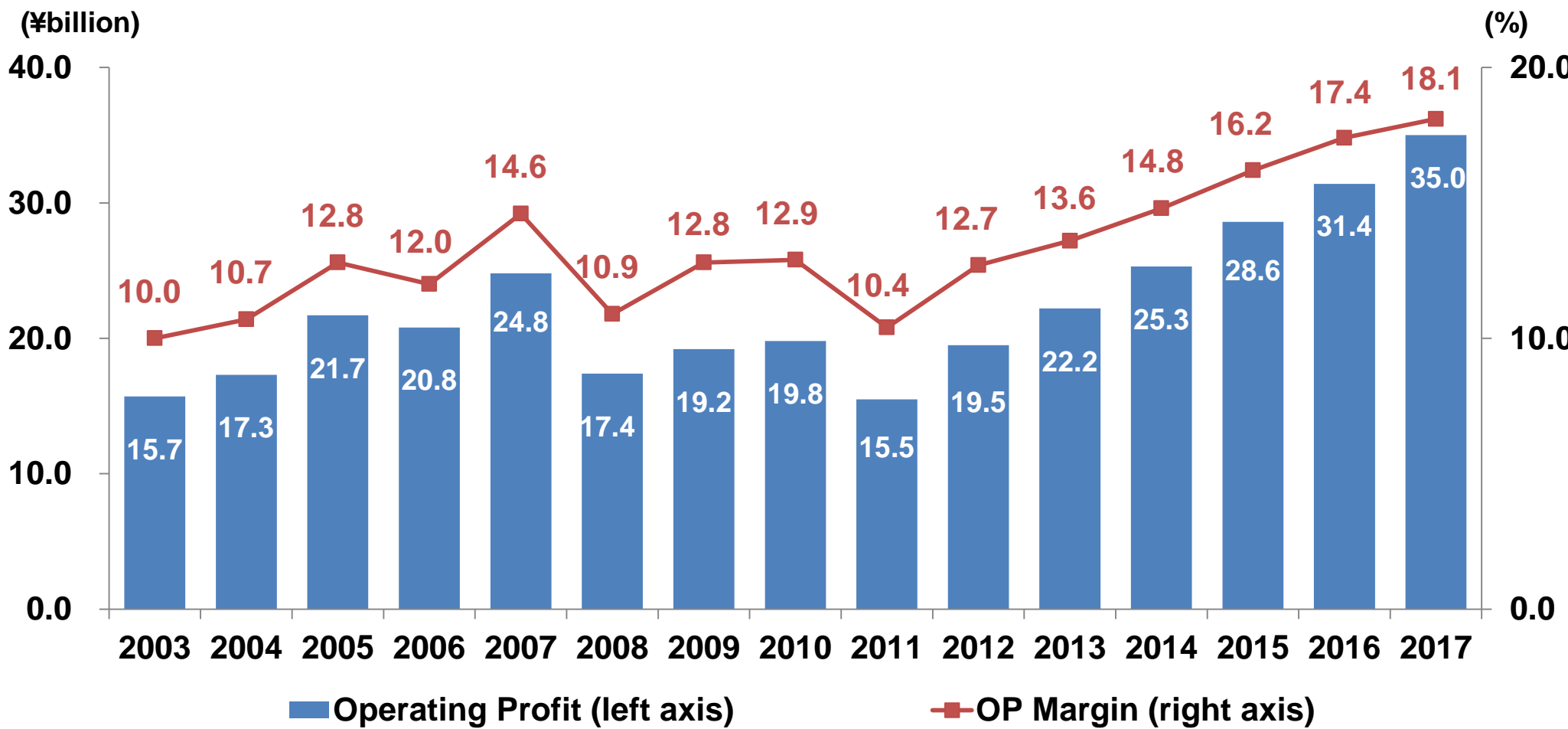
# Main Capex Items (Approval Basis)

(¥billion)

FY2015 Actual		FY2016 Actual		FY2017 Actual		FY2018 Outlook	
Semis (Product development facilities)	2.8	NCK Semis (Production capacity expansion)	2.6	Agro (Production facilities)	1.4	Semis (Material Research Lab. new annex)	3.0
Material Research Lab. (Instruments)	1.7	Material Research Lab. (Instruments)	1.1	NSU R&D Center	1.0	Material Research Lab. (Instruments)	0.8
Agro (Formulation facilities)	1.2	Semis (Analyzing and evaluation R&D equipment)	1.0	Material Research Lab. (Instruments)	0.9	Chemical Research Lab. (Instruments)	0.8
SUNEVER (Raw materials products)	1.0	Chemical Research Lab. (Instruments)	0.6	Chemical Research Lab. (Instruments)	0.6	Agro (Product development facilities)	0.6
Semis (Analyzing and evaluation R&D equipment)	0.8	SNOWTEX (Production capacity expansion)	0.5	Display (Test facilities)	0.3	TEPIC (Production capacity expansion)	0.5
Semis (Production capacity expansion)	0.8	NCK SUNEVER (Production capacity expansion)	0.3	Biological Research Lab. (Instruments)	0.3	NSU R&D Center	0.5
NCK Semis (Production capacity expansion)	0.7	SNOWTEX (Production capacity expansion)	0.3	Display (production facilities)	0.3	Biological Research Lab. (Instruments)	0.4
Custom Chemicals (Production capacity expansion)	0.4	Biological Research Lab. (Instruments)	0.2			High Purity Sulfuric Acid (Production capacity expansion)	0.4
TEPIC (Production capacity expansion)	0.3	NCK R&D Center (Instruments)	0.2			Semis (Production test)	0.2
Biological Research Lab. (Instruments)	0.2					SNOWTEX (Production capacity expansion)	0.2
NCK R&D Center (Instruments)	0.2						

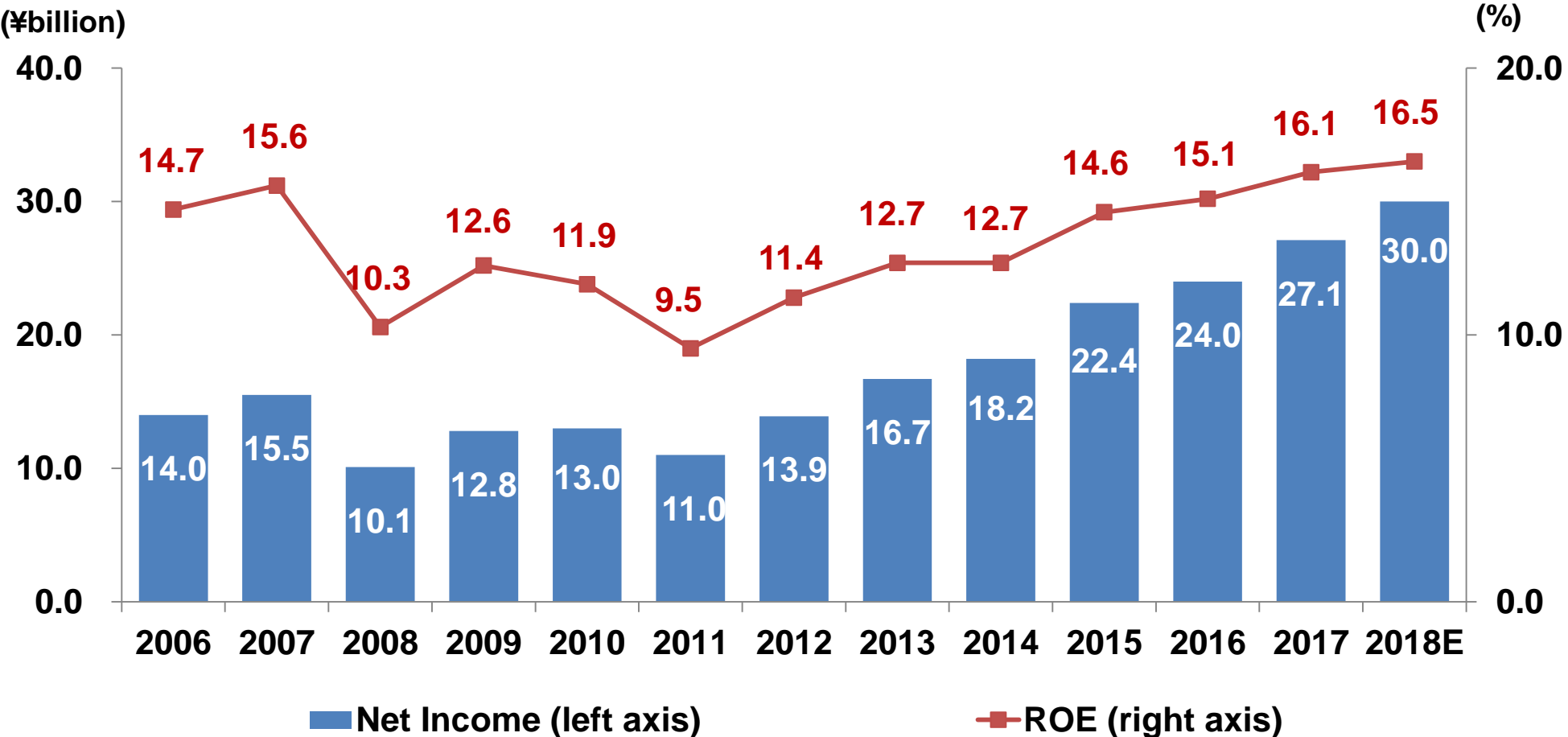
# Our Characteristics - (A) Recording Stable OP Margin

◆ NCC has recorded more than 10% OP margin in 15 consecutive years (FY2003-2017)



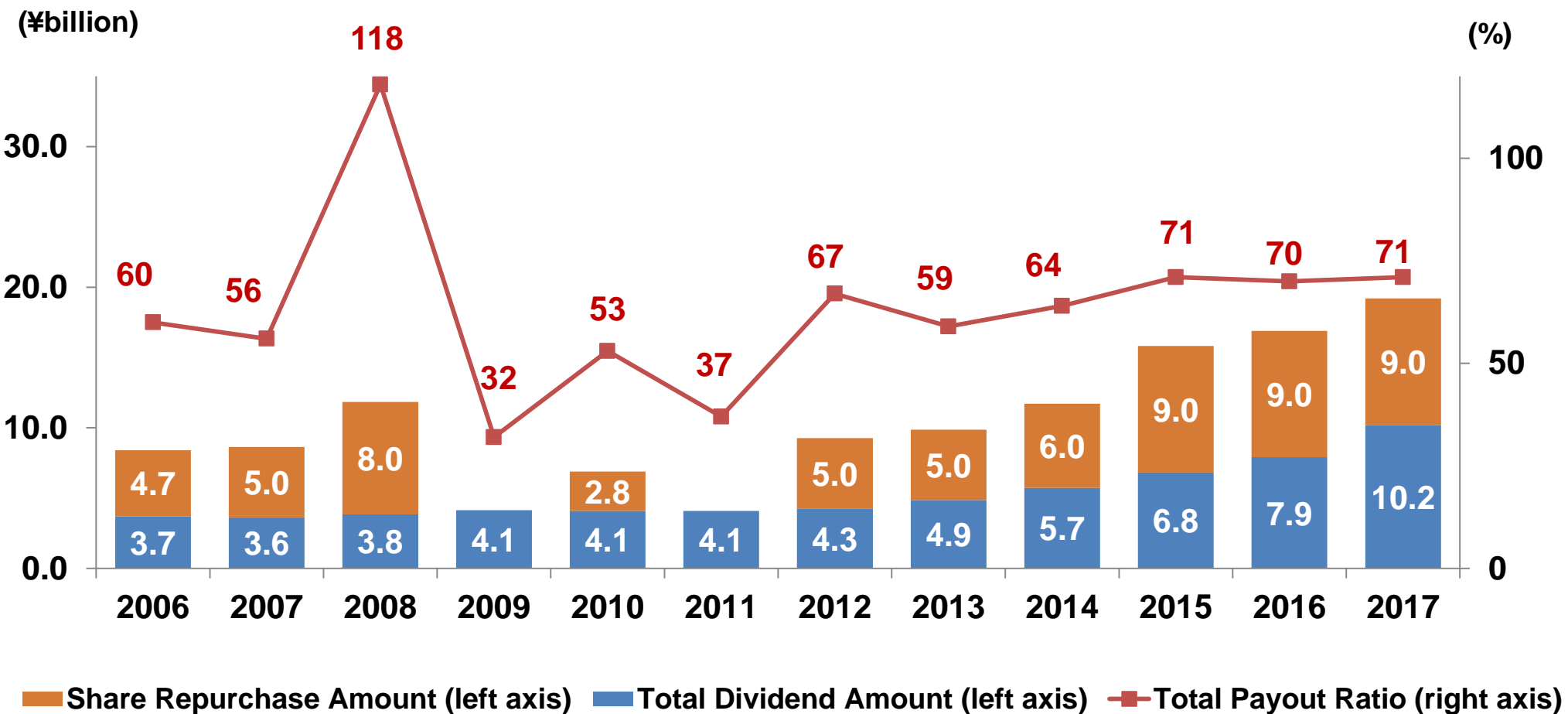
# Our Characteristics - (B) High ROE

- ◆ The most important financial indicator for a long time
- ◆ Target : Maintain above 14% (FY2017 Actual 16.1%)  
(Mid-Term Business Plan Vista 2021 (FY2016-2021))



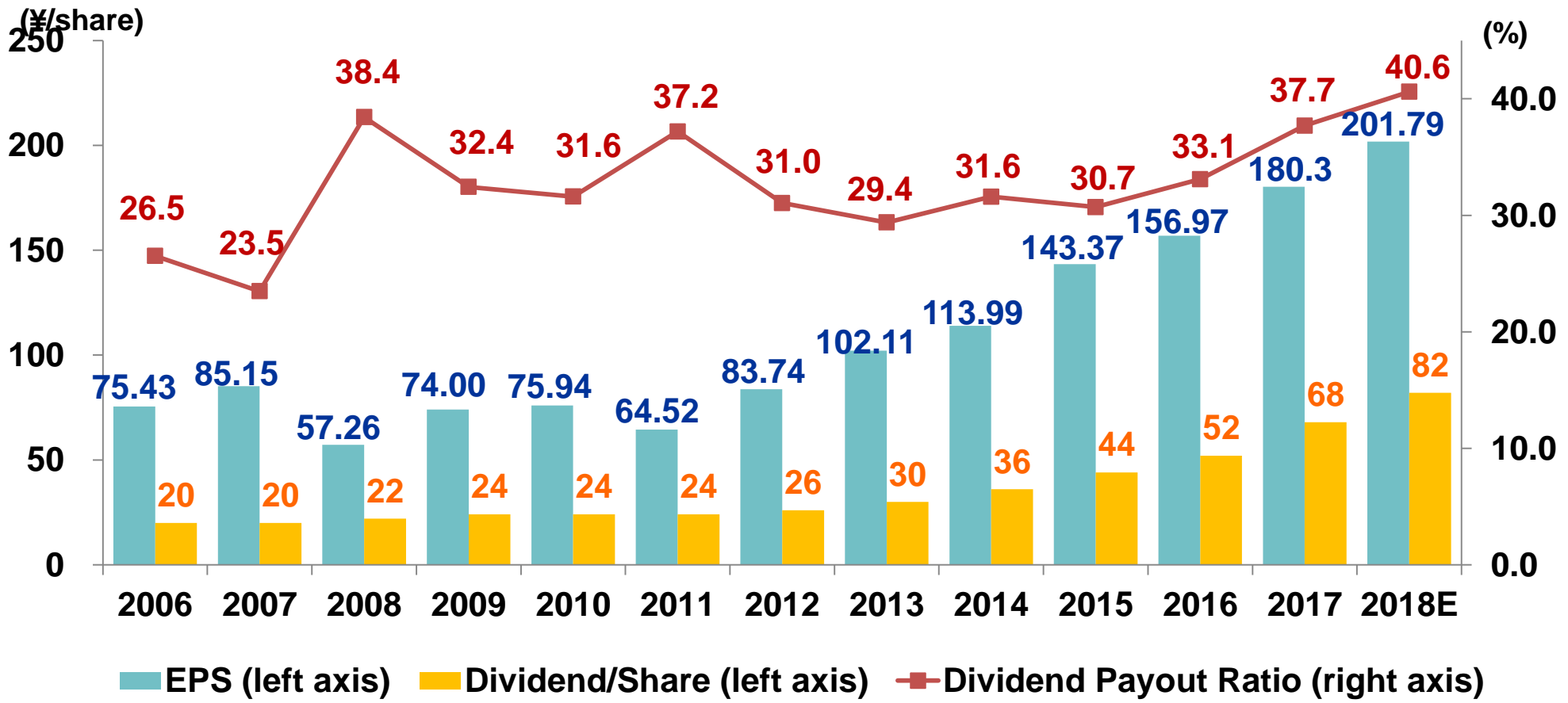
# Our Characteristics - (C) Shareholders Return Policy

- ◆ Maintaining an aggressive shareholders return policy
- ◆ Target : Maintain 70% total payout ratio (FY2017 Actual 70.7%)  
(Mid-Term Business Plan Vista 2021 (FY2016-2021))



# Our Characteristics - (D) Shareholders Return Policy - Dividend

- ◆ Maintaining about 30% dividend payout ratio in recent years
- ◆ Target : Gradually increase to 40% in FY2018  
 (FY2016 Actual 33.1%, FY2017 Actual 37.7%)  
 (Mid-Term Business Plan Vista 2021 (FY2016-2021))





# Our Characteristics - (E) Shareholders Return Policy - Share Repurchase

- ◆ Started share repurchase in 2006 only to enhance ROE
- ◆ Repurchased ¥63.5 billion, 37.1 million shares (19.8% of shares issued) in total from FY2006 to FY2017
- ◆ **Cancelled all repurchased shares**
- ◆ Target : Continue to repurchase shares to achieve the 70% total payout ratio

## Shareholders Return FY2006 - 2017

Fiscal year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
Shares purchased (thousand shares)	3,500	3,399	7,355	0	2,167	0	6,372	3,263	2,764	3,333	2,621	2,292	37,066
Purchase costs (¥billion)	4.7	5.0	8.0	0.0	2.8	0.0	5.0	5.0	6.0	9.0	9.0	9.0	63.5
Shares cancelled (thousand shares)	3,000	3,635	7,000	0	3,000	0	6,000	4,000	3,000	2,000	2,000	3,000	36,635
Shares issued at FY end (million shares)	185	181	174	174	171	171	165	161	158	156	154	151	
Treasury shares at FY end (thousand shares)	1,367	1,233	1,660	1,709	885	886	1,258	522	287	1,621	2,242	1,535	

- ◆ FY2018 share repurchase program (announced on May 11, 2018)
  - Total number of shares repurchased : 0.98 million shares
  - Total amount : ¥5.0 billion
  - Period of repurchase : From May 14, 2018 to June 8, 2018
- ◆ FY2018 cancellation of treasury shares:
  - May 8, 2018 : 1.0 million shares
  - August 31, 2018 : 1.0 million shares

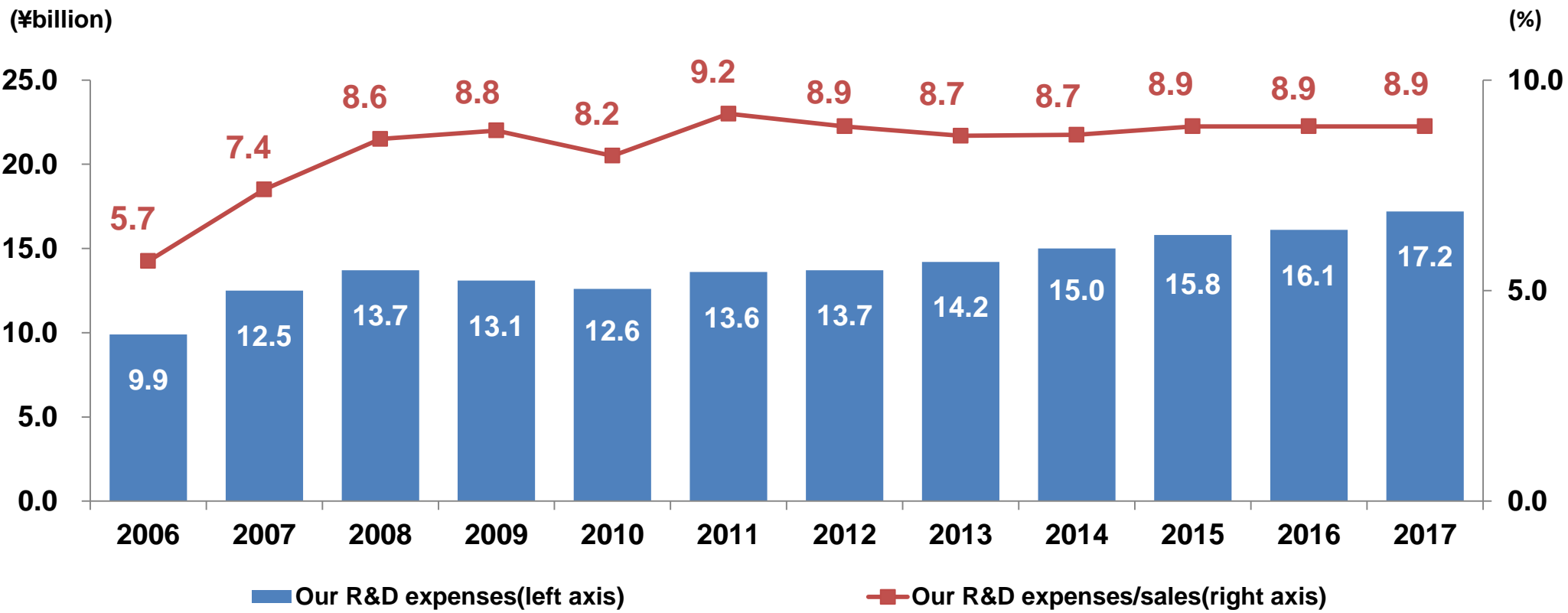
## Cash Management Policy

Aiming to control cash balance around the level of

- = Minimum required level
- + 1/3 of annual scheduled long-term borrowings repayment
- + 1/3 of short-term borrowings outstanding + Contingent risk reserves

# Our Characteristics- (F-1) R&D Oriented Chemical Company

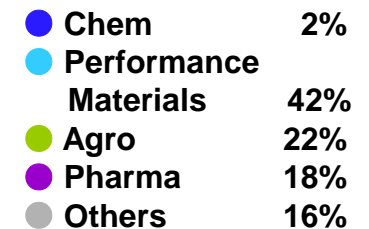
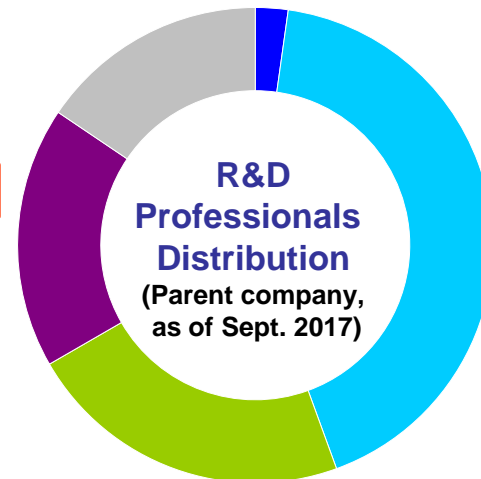
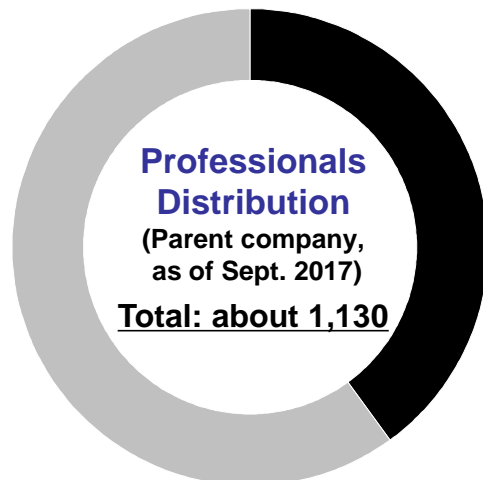
- ◆ FY2017 R&D expenses/sales: 8.9%
- ◆ Target: Maintain above 8% R&D expenses/sales  
(Mid-Term Business Plan Vista 2021 (FY2016-2021))
- ◆ 40% of profession staff assigned to R&D centers



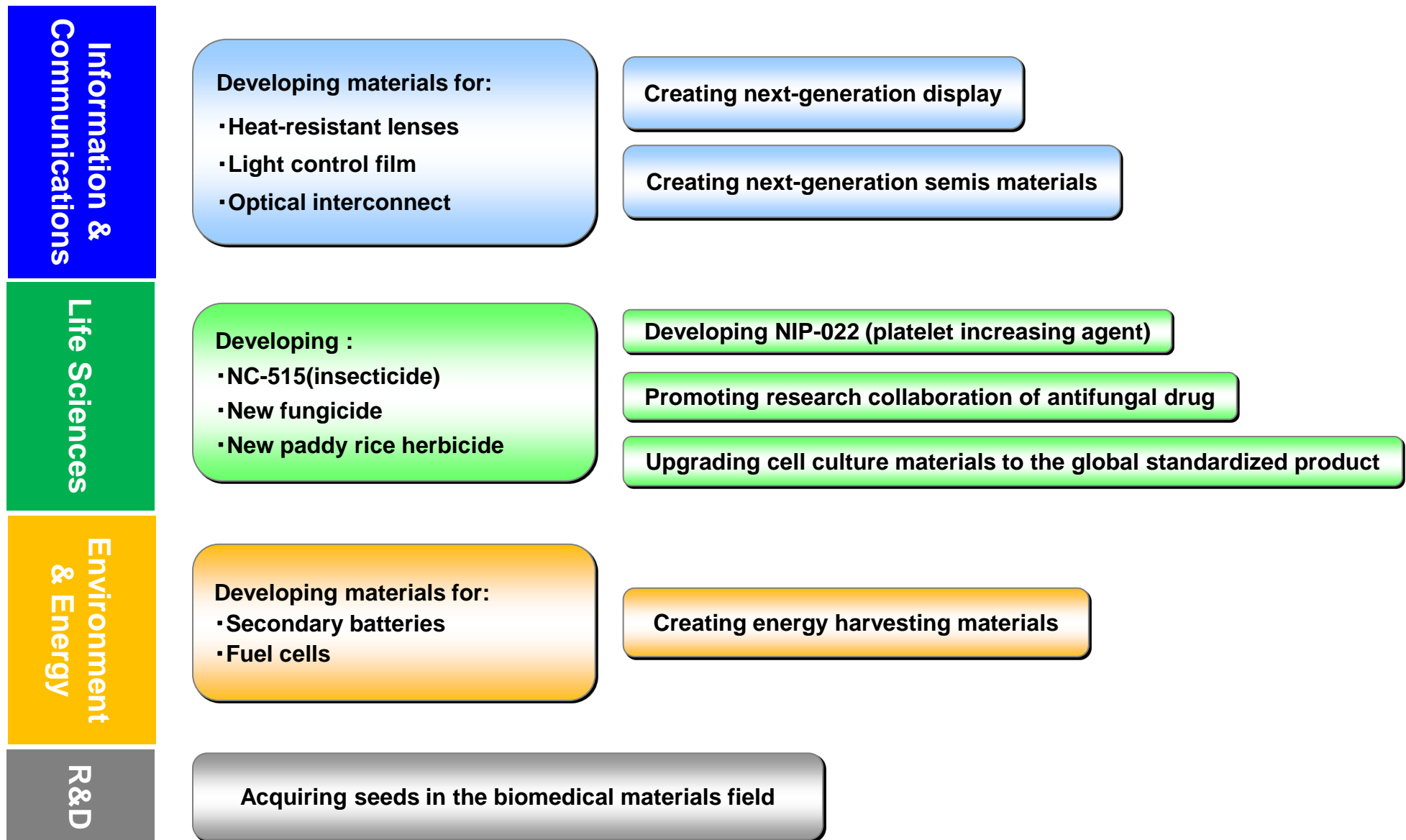
# Our Characteristics- (F-2) R&D Oriented Chemical Company

## ◆ R&D by segment

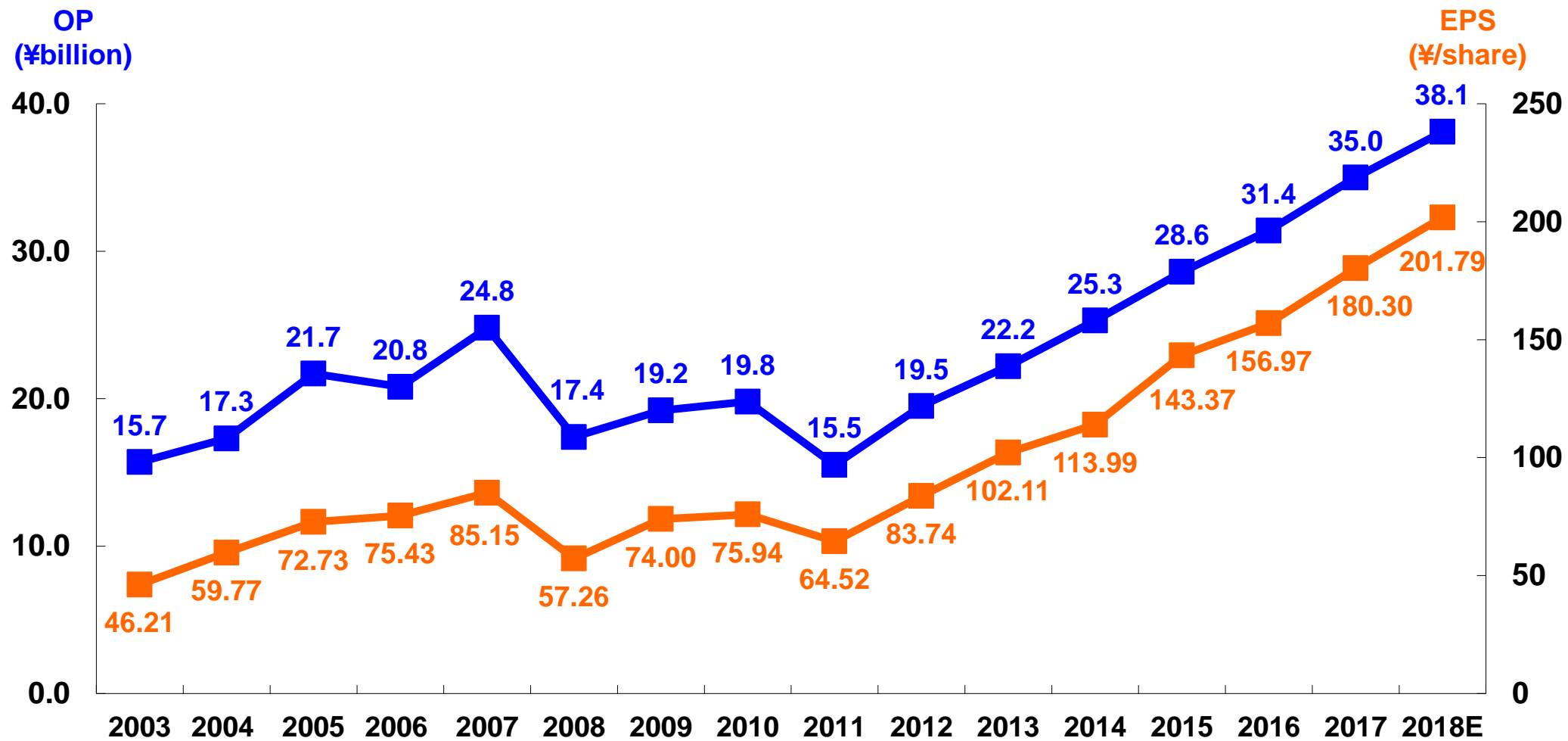
Segment	FY2017 Actual				
	Sales (¥billion)	OP (¥billion)	OP margin	R&D expenses (¥billion)	% of Sales
Chem	34.9	3.4	9.7%	0.6	1.7%
Performance Materials	58.8	14.2	24.1%	8.1	13.8%
Agro	58.1	16.4	28.2%	4.3	7.4%
Pharma	7.5	1.2	16.0%	2.5	33.3%
Others	-	-	-	1.7	-
<b>Total (including others and adjustment)</b>	<b>193.4</b>	<b>35.0</b>	<b>18.1%</b>	<b>17.2</b>	<b>8.9%</b>



# Mid-Term Business Plan Vista 2021 (FY2016-2021) announced in May 2016 -Initiatives for 2019 Onwards(G)



# Long-term Financial Performance Trend



# Long Term Financial Performance Trend

(¥billion)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018E
Sales	155.9	161.4	169.1	174.4	169.2	160.2	149.0	154.2	148.6	153.8	163.7	171.2	176.9	180.3	193.4	205.5
Operating Profit	15.7	17.3	21.7	20.8	24.8	17.4	19.2	19.8	15.5	19.5	22.2	25.3	28.6	31.4	35.0	38.1
Ordinary Income	14.6	17.4	21.3	21.2	24.4	16.9	19.2	19.4	15.9	20.5	23.7	26.4	29.5	31.7	36.2	40.1
Net Income	8.7	11.3	13.7	14.0	15.5	10.1	12.8	13.0	11.0	13.9	16.7	18.2	22.4	24.0	27.1	30.0
EBITDA	26.1	26.9	31.6	30.5	34.5	27.6	30.1	30.2	25.9	29.0	30.8	33.8	38.3	40.3	45.5	49.2
OP Margin	10.0%	10.7%	12.8%	12.0%	14.6%	10.9%	12.8%	12.9%	10.4%	12.7%	13.6%	14.8%	16.2%	17.4%	18.1%	18.5%
ROE	13.4%	15.2%	16.1%	14.7%	15.6%	10.3%	12.6%	11.9%	9.5%	11.4%	12.7%	12.7%	14.6%	15.1%	16.1%	16.5%
EPS(¥/share)	46.21	59.77	72.73	75.43	85.15	57.26	74.00	75.94	64.52	83.74	102.11	113.99	143.37	156.97	180.30	201.79
Dividend(¥/share)	11	11	15	20	20	22	24	24	24	26	30	36	44	52	68	82
Dividend Payout Ratio	23.8%	18.4%	20.6%	26.5%	23.5%	38.4%	32.4%	31.6%	37.2%	31.0%	29.4%	31.6%	30.7%	33.1%	37.7%	40.6%
Share Repurchase	-	-	-	4.7	5.0	8.0	-	2.8	-	5.0	5.0	6.0	9.0	9.0	9.0	5.0
Total Assets	172.6	169.4	183.2	177.3	172.7	172.3	181.4	183.4	190.1	199.2	208.0	223.9	228.2	231.7	246.0	-
Net Assets	70.4	80.0	93.6	99.3	101.2	96.8	107.7	112.4	119.6	126.7	137.8	151.3	156.9	163.7	176.4	-
Cash	5.9	4.3	8.5	11.0	7.6	9.7	14.8	21.1	27.9	31.9	30.8	31.3	35.3	35.7	37.7	-
Liabilities with Interest	57.4	44.6	41.5	32.4	34.4	45.5	42.1	39.9	38.9	38.1	36.1	35.1	33.1	30.8	28.6	-
D/E Ratio	78.0%	53.7%	38.5%	23.2%	27.2%	37.1%	26.0%	16.9%	9.3%	5.0%	4.1%	2.7%	-1.6%	-3.2%	-5.7%	-
Equity Ratio	40.1%	46.4%	50.2%	55.3%	58.0%	55.5%	58.7%	60.7%	62.4%	63.0%	65.7%	66.9%	68.1%	69.9%	71.0%	-
Capex	6.6	6.6	9.2	12.1	10.9	13.9	10.1	9.6	8.3	8.1	8.8	9.8	10.2	14.3	13.7	11.4
Depreciation	10.4	9.6	9.9	9.7	9.7	10.2	11.0	10.4	10.5	9.5	8.5	8.5	9.7	8.9	10.5	11.1
R&D Expenses	8.7	8.6	9.2	9.9	12.5	13.7	13.1	12.6	13.6	13.7	14.2	15.0	15.8	16.1	17.2	17.9
R&D Expenses/Sales	5.6%	5.3%	5.4%	5.7%	7.4%	8.6%	8.8%	8.2%	9.2%	8.9%	8.7%	8.7%	8.9%	8.9%	8.9%	8.7%

\*Total Assets as of FY2017 are restated to reflect changes in presentation from including an impact of "Partial Amendments to Accounting Standard for Tax Effect Accounting"

# FY2013-2Q FY2018 Quarterly Sales by Segment (1)

(¥billion)

	FY2013 Actual					FY2014 Actual					FY2015 Actual					FY2016 Actual					FY2017 Actual					FY2018 Actual	
	1Q	2Q	3Q	4Q	Total	1Q	2Q	3Q	4Q	Total	1Q	2Q	3Q	4Q	Total	1Q	2Q	3Q	4Q	Total	1Q	2Q	3Q	4Q	Total	1Q	2Q
Chem	9.3	8.6	8.8	8.8	35.5	8.5	8.2	9.1	8.5	34.3	8.7	8.0	9.0	8.6	34.3	8.5	8.0	9.1	9.2	34.8	8.8	7.9	9.2	9.0	34.9	8.7	8.3
Fine	2.7	2.6	2.3	2.3	9.9	2.7	2.6	2.8	2.5	10.6	3.0	2.5	2.5	2.6	10.6	2.8	2.5	2.7	2.7	10.7	2.8	2.5	2.8	2.5	10.6	2.7	2.4
Basic	6.6	6.0	6.5	6.5	25.6	5.8	5.6	6.3	6.0	23.7	5.7	5.5	6.5	6.0	23.7	5.7	5.5	6.4	6.5	24.1	6.0	5.4	6.4	6.5	24.3	6.0	5.9
P.M	10.3	10.3	11.1	11.1	42.8	11.8	12.4	13.0	12.2	49.4	13.0	13.0	13.6	12.2	51.8	12.6	12.9	13.8	13.5	52.8	14.1	15.0	15.1	14.6	58.8	15.6	16.4
Agro	9.9	6.1	5.5	17.6	39.1	12.3	6.2	5.7	21.5	45.7	13.6	7.5	5.0	21.4	47.5	14.5	9.5	4.2	23.8	52.0	14.6	11.5	6.4	25.6	58.1	16.4	12.3
Pharma	3.1	3.3	3.0	2.2	11.6	2.5	2.5	2.1	1.7	8.8	2.1	1.6	3.5	1.5	8.7	2.2	1.5	2.4	1.9	8.0	2.1	1.4	2.3	1.7	7.5	1.8	1.9
Trading	12.7	11.8	12.8	13.4	50.7	14.1	13.2	14.1	13.0	54.4	14.7	12.8	14.9	13.2	55.6	14.4	13.2	13.7	13.9	55.2	14.6	14.5	15.9	14.5	59.5	17.8	15.6
Others	4.6	5.1	4.9	6.8	21.4	3.8	4.7	4.6	7.8	20.9	4.1	4.8	4.7	7.3	20.9	4.0	4.6	5.8	9.6	24.0	5.4	4.3	4.6	7.2	21.5	4.6	5.9
Adjust	-9.7	-9.0	-8.9	-9.8	-37.4	-10.5	-9.8	-10.7	-11.3	-42.3	-11.0	-9.2	-11.0	-10.7	-41.9	-11.1	-10.3	-11.4	-13.7	-46.5	-12.2	-11.0	-11.8	-11.9	-46.9	-14.0	-13.3
<b>Total</b>	<b>40.2</b>	<b>36.2</b>	<b>37.2</b>	<b>50.1</b>	<b>163.7</b>	<b>42.5</b>	<b>37.4</b>	<b>37.9</b>	<b>53.4</b>	<b>171.2</b>	<b>45.2</b>	<b>38.5</b>	<b>39.7</b>	<b>53.5</b>	<b>176.9</b>	<b>45.1</b>	<b>39.4</b>	<b>37.6</b>	<b>58.2</b>	<b>180.3</b>	<b>47.4</b>	<b>43.6</b>	<b>41.7</b>	<b>60.7</b>	<b>193.4</b>	<b>50.9</b>	<b>47.1</b>

(1) Including inter-segment sales/transfers

# FY2013-2Q FY2018 Quarterly OP by Segment

(¥billion)

	FY2013 Actual					FY2014 Actual					FY2015 Actual					FY2016 Actual					FY2017 Actual					FY2018 Actual	
	1Q	2Q	3Q	4Q	Total	1Q	2Q	3Q	4Q	Total	1Q	2Q	3Q	4Q	Total	1Q	2Q	3Q	4Q	Total	1Q	2Q	3Q	4Q	Total	1Q	2Q
Chem	1.0	-0.2	0.6	0.5	1.9	1.0	-0.6	0.6	0.9	1.9	1.5	-0.1	1.2	1.3	3.9	1.5	-0.2	1.3	1.2	3.8	1.5	-0.2	1.2	0.9	3.4	1.6	-0.4
P.M	2.1	2.3	2.3	2.1	8.8	3.3	3.4	3.2	2.1	12.0	3.4	2.9	3.6	2.1	12.0	3.0	3.2	3.8	2.5	12.5	3.6	4.1	4.0	2.5	14.2	3.9	4.2
Agro	2.3	0.1	-0.8	4.6	6.2	4.0	0.0	-0.5	5.7	9.2	4.4	1.8	-1.3	5.9	10.8	4.5	2.4	-2.0	8.3	13.2	4.5	3.6	-0.6	8.9	16.4	5.1	4.7
Pharma	1.4	1.7	1.4	0.4	4.9	0.8	0.8	0.4	0.3	2.3	0.4	0.2	1.6	-0.2	2.0	0.6	0.0	0.8	0.3	1.7	0.5	0.0	0.6	0.1	1.2	0.3	0.3
Trading	0.4	0.3	0.4	0.4	1.5	0.5	0.4	0.5	0.3	1.7	0.5	0.4	0.5	0.4	1.8	0.4	0.4	0.5	0.4	1.7	0.4	0.5	0.5	0.4	1.8	0.6	0.5
Others	0.1	0.1	0.1	0.5	0.8	-0.1	0.0	0.1	0.6	0.6	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.2	0.8	1.0	0.1	0.1	0.1	0.3	0.6	0.1	0.1
Adjust	-0.6	-0.4	-0.5	-0.4	-1.9	-0.6	-0.4	-0.7	-0.7	-2.4	-0.8	-0.3	-0.7	-0.6	-2.4	-0.5	-0.6	-0.6	-0.8	-2.5	-0.6	-0.8	-0.7	-0.5	-2.6	-0.9	-0.7
<b>Total</b>	<b>6.7</b>	<b>3.9</b>	<b>3.5</b>	<b>8.1</b>	<b>22.2</b>	<b>8.9</b>	<b>3.6</b>	<b>3.6</b>	<b>9.2</b>	<b>25.3</b>	<b>9.4</b>	<b>4.9</b>	<b>4.9</b>	<b>9.4</b>	<b>28.6</b>	<b>9.5</b>	<b>5.2</b>	<b>4.0</b>	<b>12.7</b>	<b>31.4</b>	<b>10.0</b>	<b>7.3</b>	<b>5.1</b>	<b>12.6</b>	<b>35.0</b>	<b>10.7</b>	<b>8.7</b>
OPMargin	16.7%	10.6%	9.3%	16.4%	13.6%	21.0%	9.6%	9.6%	17.2%	14.8%	20.9%	12.6%	12.5%	17.6%	16.2%	21.1%	13.3%	10.6%	21.9%	17.4%	21.2%	16.6%	12.3%	20.7%	18.1%	21.0%	18.5%



# Sales and Operating Profit by Segment (1) (2)

<Sales (A)>

	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018E	(¥billion)
Chem	38.1	36.9	34.5	35.5	34.3	34.3	34.8	34.9	37.8	
P.M	38.0	34.0	37.4	42.8	49.4	51.8	52.8	58.8	63.8	
Agro	34.4	33.8	35.4	39.1	45.7	47.5	52.0	58.1	62.6	
Pharma	9.6	10.0	12.7	11.6	8.8	8.7	8.0	7.5	7.0	
Trading	44.1	44.8	46.6	50.7	54.4	55.6	55.2	59.5	66.3	
Others	27.0	20.0	21.2	21.4	20.9	20.9	24.0	21.5	22.5	
Adjust	-37.0	-30.9	-34.0	-37.4	-42.3	-41.9	-46.5	-46.9	-54.5	
<b>Total</b>	<b>154.2</b>	<b>148.6</b>	<b>153.8</b>	<b>163.7</b>	<b>171.2</b>	<b>176.9</b>	<b>180.3</b>	<b>193.4</b>	<b>205.5</b>	

<Segment Assets (D)(3)>

<OP (B)>

Chem	2.4	1.6	1.9	1.9	1.9	3.9	3.8	3.4	3.9
P.M	7.9	4.8	7.2	8.8	12.0	12.0	12.5	14.2	15.3
Agro	4.8	4.4	5.0	6.2	9.2	10.8	13.2	16.4	18.4
Pharma	4.4	4.6	5.2	4.9	2.3	2.0	1.7	1.2	1.2
Trading	1.4	1.3	1.4	1.5	1.7	1.8	1.7	1.8	2.1
Others	1.0	0.3	0.7	0.8	0.6	0.5	1.0	0.6	0.6
Adjust	-2.1	-1.5	-1.9	-1.9	-2.4	-2.4	-2.5	-2.6	-3.4
<b>Total</b>	<b>19.8</b>	<b>15.5</b>	<b>19.5</b>	<b>22.2</b>	<b>25.3</b>	<b>28.6</b>	<b>31.4</b>	<b>35.0</b>	<b>38.1</b>

FY2017
27.0
52.9
56.6
9.1
23.3
9.6
67.5
<b>246.0</b>

<OP Margin (C)=(B)/(A)>

Chem	6.3%	4.3%	5.5%	5.4%	5.5%	11.4%	10.9%	9.7%	10.3%
P.M	20.8%	14.1%	19.3%	20.6%	24.3%	23.2%	23.7%	24.1%	24.0%
Agro	14.0%	13.0%	14.1%	15.9%	20.1%	22.7%	25.4%	28.2%	29.4%
Pharma	45.8%	46.0%	40.9%	42.2%	26.1%	23.0%	21.3%	16.0%	17.1%
Trading	3.2%	2.9%	3.0%	3.0%	3.1%	3.2%	3.1%	3.0%	3.2%
Others	3.7%	1.5%	3.3%	3.7%	2.9%	2.4%	4.2%	2.8%	2.7%
<b>Total</b>	<b>12.9%</b>	<b>10.4%</b>	<b>12.7%</b>	<b>13.6%</b>	<b>14.8%</b>	<b>16.2%</b>	<b>17.4%</b>	<b>18.1%</b>	<b>18.5%</b>

<ROA (E)=(B)/(D)>

12.6%
26.8%
29.0%
13.2%
7.7%
6.3%
<b>14.2%</b>

(1) FY2010-2011 : Former Segmentation, FY2012- : New Segmentation

(2) Including inter-segment sales/transfers

(3) Total Assets as of FY2017 are restated to reflect changes in presentation from including an impact of "Partial Amendments to Accounting Standard for Tax Effect Accounting"

# Main Products by Segment

Segment	Products	Main Applications
Chem	<p>◆ <b>Fine Chemicals</b> TEPIC Melamine cyanurate Environmental product</p>	<p>epoxy compound for LED sealants, solder resist, painting flame retardant HI-LITE (chlorinated isocyanuric acid for sterilizing)</p>
	<p>◆ <b>Basic Chemicals</b> Melamine AdBlue Ammonia, Sulfuric acid, Nitric acid High purity chemicals</p>	<p>adhesive agent for plywood solution of urea in demineralised water for diesel trucks to reduce NOx  agents used for cleaning semiconductors</p>
Performance Materials	<p>◆ <b>Electronic Materials</b> SUNEVER ARC®  OptiStack® NHC OPTIFOCUS ELSOURCE</p>	<p>LCD alignment coating bottom anti-reflective coating for semiconductors multi layer process material for semiconductors (Si-HM/SOC) *ARC® and OptiStack® are registered trade mark of Brewer Science, Inc. protective coating for touch panel microlens material for image sensor application hole injection layer materials for OLED</p>
	<p>◆ <b>Inorganic Materials</b> SNOWTEX  Organo silica sol Monomer sol Alumina sol SUNCOLLOID CELNAX Oilfield Materials</p>	<p>water dispersed colloidal silica sol for polishing silicon wafers, special steel sheets, NOx reduction catalyst, electronic printing materials film coating, antistatic interference shielding, electronic printing materials resin additive automotive catalyst, electronic printing materials high refractive sol for lens antistatic sol for film for enhancing oil recovery</p>
Agro	<p>◆ <b>Herbicide</b> TARGA PERMIT SIRIUS, ALTAIR ROUNDUP</p>	<p>soybean, rapeseed, sugarbeet corn, sugarcane, rice paddy rice non-selective herbicide for orchard, noncrop land</p>
	<p>◆ <b>Insecticide</b> STARMITE, SANMITE, MITOKOHNE ◆ <b>Fungicide</b> LEIMAY/ORACLE PULSOR, IKARUGA, GREATAM (THIFLUZAMIDE) ◆ <b>Animal health products</b>  Fluralaner</p>	<p>fruits, tea, vegetables  vegetables, potato, fruits potato, grape, turf  active substance of BRAVECTO (veterinary medical product for dogs and cats) and EXZOLT (for poultry red mites)</p>
Pharma	LIVALO Custom Chemicals	anti-cholesterol drug custom manufacturing and process services for pharmaceutical companies
Trading	Nissei Corporation	
Others	Transportation, Landscaping, Engineering, Fertilizer	

# Forward Looking Statements

**The forward looking statements in this material are based on information available at the time of preparation of the material. Although they reflect our current expectations, these statements are not guarantees of future performance, but include a number of risks and uncertainties. Actual results may largely differ from these statements due to various factors which may be beyond company control.**

**No information in this material is provided as an offer to buy or sell the shares of the company. We urge users of the material to make investment decision based upon own judgment.**



**Nissan Chemical**  
CORPORATION