FY19-1 Creating New Customer Value through Innovations

CEO Explanation

Mitsui Chemicals

Tsutomu Tannowa
Mitsui Chemicals Inc.
President & CEO

May 31, 2019
Contents

- Business Performance
- Topics on Targeted Business Domains
- Topics on Sustainability
- Financial Overview
- Management Target for Sustainable Growth
## FY18 Results and FY19 Outlook

**FY18 - Operating incomes driven down by Osaka Works fire etc. (△5 bn yen) and inventory valuation losses**

**FY19 - Record high profit expected**

<table>
<thead>
<tr>
<th>Items</th>
<th>FY2016</th>
<th>FY2017</th>
<th>FY2018</th>
<th>FY2019</th>
<th>FY18→FY19</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Results</td>
<td>Results</td>
<td>Results</td>
<td>Outlook</td>
<td></td>
</tr>
<tr>
<td>Sales</td>
<td>1,212</td>
<td>1,329</td>
<td>1,483</td>
<td>1,540</td>
<td>57.1</td>
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<tr>
<td>Operating income</td>
<td>102.1</td>
<td>103.5</td>
<td>93.4</td>
<td>105.0</td>
<td>11.6</td>
</tr>
<tr>
<td>Non-operating income</td>
<td>△ 4.9</td>
<td>6.7</td>
<td>9.6</td>
<td>5.0</td>
<td>△ 4.6</td>
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<tr>
<td>Ordinary income</td>
<td>97.2</td>
<td>110.2</td>
<td>103.0</td>
<td>110.0</td>
<td>7.0</td>
</tr>
<tr>
<td>Extraordinary gains/losses</td>
<td>△ 11.4</td>
<td>△ 16.0</td>
<td>△ 2.3</td>
<td>△ 5.0</td>
<td>△ 7.3</td>
</tr>
<tr>
<td>Net income*</td>
<td>64.8</td>
<td>71.6</td>
<td>76.1</td>
<td>76.0</td>
<td>△ 0.1</td>
</tr>
</tbody>
</table>

| Exchange rate (JPY/USD)            | 108    | 111    | 111    | 110    | △ 1       |
| Domestic standard naphtha price (JPY/KL) | 34,700 | 41,900 | 49,400 | 46,000 | △ 3,400   |

*Net income refers to Profit attributable to owners of parent
## Operating Income Outlook by Segment

<table>
<thead>
<tr>
<th>Segment</th>
<th>FY2016 (JPY bn)</th>
<th>FY2017 (JPY bn)</th>
<th>FY2018 (JPY bn)</th>
<th>FY2019 (JPY bn)</th>
<th>Increase (Decrease)</th>
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</thead>
<tbody>
<tr>
<td>Mobility</td>
<td>40.7</td>
<td>42.3</td>
<td>42.7</td>
<td>44.5</td>
<td>1.8</td>
</tr>
<tr>
<td>Health Care</td>
<td>10.1</td>
<td>10.8</td>
<td>13.6</td>
<td>15.5</td>
<td>1.9</td>
</tr>
<tr>
<td>Food&amp;Packaging</td>
<td>20.6</td>
<td>19.9</td>
<td>17.8</td>
<td>20.5</td>
<td>2.7</td>
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<tr>
<td><strong>3 Targeted Domains</strong></td>
<td><strong>71.4</strong></td>
<td><strong>73.0</strong></td>
<td><strong>74.1</strong></td>
<td><strong>80.5</strong></td>
<td><strong>6.4</strong></td>
</tr>
<tr>
<td>Basic Materials</td>
<td>38.5</td>
<td>38.9</td>
<td>27.8</td>
<td>33.0</td>
<td>5.2</td>
</tr>
<tr>
<td>Others</td>
<td>△7.8</td>
<td>△8.4</td>
<td>△8.5</td>
<td>△8.5</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>102.1</strong></td>
<td><strong>103.5</strong></td>
<td><strong>93.4</strong></td>
<td><strong>105.0</strong></td>
<td><strong>11.6</strong></td>
</tr>
</tbody>
</table>

Exchange rate (JPY/USD)  
108 111 111 110 △ 1

Domestic standard naphtha price (JPY/KL)  
34,700 41,900 49,400 46,000 △ 3400

✔ Continue to grow in 3 Targeted Business Domains
✔ Secure stable profit from Basic Materials domain despite Osaka Works fire etc. (△5 bn yen) and inventory valuation losses
## Management Targets

### (JPY bn)

<table>
<thead>
<tr>
<th></th>
<th>FY15 Results</th>
<th>FY18 Results</th>
<th>FY19 Outlook</th>
<th>FY21 Target</th>
<th>VISION 2025</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sales</strong></td>
<td>1,344</td>
<td>1,483</td>
<td>1,540</td>
<td>1,670</td>
<td>2,000</td>
</tr>
<tr>
<td><strong>Operating income (ROS)</strong></td>
<td>70.9 (5.3%)</td>
<td>93.4 (6.3%)</td>
<td>105 (6.8%)</td>
<td>140 (8.4%)</td>
<td>200 (10%)</td>
</tr>
<tr>
<td><strong>Net income</strong></td>
<td>23.0</td>
<td>76.1</td>
<td>76.0</td>
<td>100.0</td>
<td>—</td>
</tr>
<tr>
<td><strong>ROE</strong></td>
<td>5.8%</td>
<td>14.3%</td>
<td>13.1%</td>
<td>→</td>
<td>10% or more</td>
</tr>
<tr>
<td><strong>ROIC</strong>*</td>
<td>4.9%</td>
<td>6.0%</td>
<td>6.4%</td>
<td>7.5%</td>
<td>8% or more</td>
</tr>
<tr>
<td><strong>Net D/E</strong></td>
<td>1.03</td>
<td>0.68</td>
<td>0.65</td>
<td>→</td>
<td>0.8 or less</td>
</tr>
<tr>
<td><strong>Total return ratio</strong></td>
<td>34.9%</td>
<td>39.0%</td>
<td>30% or more</td>
<td>→</td>
<td>30% or more</td>
</tr>
</tbody>
</table>

*ROIC: Return on Invested Capital = NOPAT/Invested capital
ROIC by Business Domain

Focusing investments in high-ROIC targeted domains

**ROIC Results (FY18)**

- **Mobility**: Avg. 7.5%
- **Health Care**: Avg. 6.0%
- **Food & Packaging**: Avg. 5.0%
- **Basic Materials**: Avg. 5.0%

**Invested capital (JPY bn)**

**FY21 Target**

- **Average ROIC**: 7.5%
- **Exceeds WACC in all business domains**

Invested capital (JPY bn)
Expand investments for further growth

Reduce downward risk (JPY bn)

Stable profit

Growth trajectory

3 Targeted Business Domains

Three-year investments 430 billion yen

Operating Income
Net Income

FY15 Results
FY16 Results
FY17 Results
FY18 Results
FY19 Outlook
FY20 Target
FY21 Target
### Issues toward Growth Path

<table>
<thead>
<tr>
<th>Business Strategy</th>
<th>Manufacturing</th>
<th>Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>① <strong>Expansion in 3 targeted business domains</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Increase in investment themes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Including peripheral business area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Secure production capacity corresponding to demands</td>
<td></td>
<td></td>
</tr>
<tr>
<td>② <strong>Accelerate development of new next generation businesses and create new products</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>③ <strong>Further strengthen competitiveness of Basic Materials</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>④ <strong>Enhance manufacturing bases by utilizing advanced IoT/AI technologies</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>⑤ <strong>Ensure safety and enhance safety culture globally</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>⑥ <strong>Secure investment returns and improve inventory control</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>⑦ <strong>Enhance group-global management</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>⑧ <strong>Promote ESG management</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Five Business domains

Mobility
Elastomers, Performance polymers, Performance compounds, Engineering plastics

Health Care
Ophthalmic lens material, Nonwovens, Dental materials, Personal care materials

Food & Packaging
Packaging material, Coatings Agrochemicals, Seeds

Next Generation
Energy, Medical, Agri-system, and IoT Solution

Basic Materials
Phenol, PTA/PET Polyolefin, Polyurethane, and others

Targeted Business Domains

Sales (FY18 Results)
1,483 billion yen

27%
10%
13%
48%

May 31, 2019
Mobility

Provide solutions making full use of comprehensive strengths
- Strengthen next-gen pellicle business that meets semiconductor refinement needs
- Exclusive license for EUV pellicle acquired from ASML*

*ASML: Dutch-based, global leading manufacturer of semiconductor exposure machine

**Demand growth in cutting-edge exposure field (ArF, EUV)**

- **EUV** (Wavelength: 13.5nm)
- **ArF** (wavelength ≤ 193nm)
- **KrF** (Wavelength: 248nm)

Cutting-edge field (ArF, EUV)

Generic field

1995 2005 2015 2025

**Needs for refinement of semiconductor circuits**

- Ultrahigh speed
- Ultra low latency
- Multiple simultaneous connections

Next-gen pellicles that withstand ultra high-energy EUV exposure

*EUV: Extreme Ultraviolet

**Establish EUV pellicle facilities at Iwakuni-Ohtake Works**

(Completion: Jun. 2020)

**No.1 pellicle supplier in cutting-edge fields (ArF, EUV)**
**Strengthen Production Capacity**
- Local Production for Local Consumption -

**Long glass fiber reinforced PP**
**Establish global structure**

- **U.S.**
  - 3.5 KTA (Oct. 2019)

- **China**
  - 3.5 KTA (Sep. 2020)

- **Japan**
  - 3.5 KTA (Sep. 2019)

**Background**
- Growing needs for light-weight solution

**Application**
- Metal substitution
- Total production capacity: 10.5 KTA
- Meet global lightweight needs

**PP Compounds in Thailand**
**Increase capacity**

- **Capacity** +13 KTA (Jun. 2020)

**Background**
- Growing needs for light-weight solution
- Capture growing demand in Asia

**Application**
- Automotive inner/outer parts

Continue production increases at 8 global bases
Shift to resin parts leading to continued growth despite automotive production growth slowing down

**America**

440 KTA

- Ohio
- Tennessee
- Mexico
- Brazil

**Europe**

50 KTA

- Netherlands
  - New base in Netherlands: 30 KTA (Jun. 2020)
- India: +12 KTA (Oct. 2020)

**Asia**

630 KTA

- China
- Japan
- Thailand
- India: +13 KTA (Jun. 2020)

Production Capacity (FY20)

1,120 KTA

(Including outsourced production capacity)
Expanding Applications

**APEL™** Reforming application portfolio

✔ Expand business in smartphone camera lens use
✔ Continue high growth amid trend toward double-camera, triple-camera smartphones

**ADMER™** Expanding applications

✔ Growth due to gasoline tanks trending toward resins (adhesiveness, durability)
✔ Accelerating growth in LiB applications

**Growth in LiB applications**
(External materials, coolant tubes etc.)

**New products under development**

- Automotive camera lenses
- New devices
- Medical applications

Launching new products adherable to more materials
(Modified fluoropolymers, PPS, POK, PC, fiber-fillers etc.)
- Strengthen capabilities for creation and development
- Opened “Design & Solution Center” (Mar. 2019, Niigata)

- Group-wide Management

<table>
<thead>
<tr>
<th>Materials</th>
<th>Design/Analysis</th>
<th>Molds</th>
<th>Prototyping /Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>New materials and components</td>
<td>Mobility Development Center</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

✔ Group synergies for creation and development
✔ Speed up development in Mobility, Health Care and Food & Packaging domains

➡ Enhance capability to propose total solutions
Carbon fiber composite material - commercializing UD tapes

**TAFNEX™**
Carbon fiber reinforced UD tape

- UD tape
- Proposing applications in rear doors (Insert molding)

**Installation of laser equipment for UD tape production**

- Laser equipment
- Multilayer sheet by laser
- Winding tube

**New facility**
- Installed UD tape production facilities (Nagoya, Oct. 2017)

**Marketing**
- Expand matrix resins line-up
- In combination with CAE and production tech

**Offer lightweighting solutions**

**UD tape business to launch in FY2019 utilizing materials, CAE and processing technologies**

- High-speed layer fusion + Partial heat sealing
- Installed AFPT’s laser equipment (Design & Solution Center, March 2019)

**Marketing**
- Pursuing market development by combining processing technologies with UD tape
- Evaluations moving forward (oil field excavation pipes, auto parts etc.)
Showcasing TAFNEX™ - “hour’s Pod™” concept car exhibit at JEC World convention in France (Mar. 2019)

Achieved in collaboration with ARRK

TAFNEX™ CF/PP
- UD Tape -

TAFNEX™ CF/PP
UD-Winding Tube

POLYMETAC™

Urethane CFRP

FORTIMO™ & C
-Flexible carbon sheets-

NOSTRA™
Ultrahydrophilic coating

TAFNEX™ CF/PP
Foamed PP Sandwich Panel
## Mobility Project Schedule

**Expand scope of investments in high-ROIC Mobility domain ➔ accelerate growth**

<table>
<thead>
<tr>
<th>Mobility investment projects (partial list)</th>
<th>Capacity (KTA)</th>
<th>Schedule for profit contribution</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>PP Compounds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increased capacity@India</td>
<td>10</td>
<td>✔</td>
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<tr>
<td>Increased <a href="mailto:capacity@N.A">capacity@N.A</a></td>
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<td>✔</td>
<td></td>
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<tr>
<td>Increased capacity@Mexico</td>
<td>10</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>Increase capacity@India</td>
<td>12</td>
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</tr>
<tr>
<td>Increase capacity@Thailand</td>
<td>13</td>
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<td></td>
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<tr>
<td>New base@Netherland</td>
<td>30</td>
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<tr>
<td>Increased capacity@Japan</td>
<td>3.5</td>
<td>✔</td>
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<tr>
<td>New <a href="mailto:base@N.A">base@N.A</a></td>
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<td>✔</td>
<td></td>
</tr>
<tr>
<td>New base@China</td>
<td>3.5</td>
<td>✔</td>
<td></td>
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<tr>
<td>Long glass fiber reinforced PP</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Increase capacity@Japan</td>
<td>3.5</td>
<td>✔</td>
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<tr>
<td>New <a href="mailto:base@N.A">base@N.A</a></td>
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<td>✔</td>
<td></td>
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<tr>
<td>New base@China</td>
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<tr>
<td>Milastomer™</td>
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<tr>
<td>Increased capacity@Japan</td>
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<td></td>
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<tr>
<td>Acquired TPS business</td>
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<td>✔</td>
<td></td>
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<tr>
<td>Electolyte: Increased capacity@Japan</td>
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<td>✔</td>
<td></td>
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<tr>
<td>Electolyte: Increased capacity@China</td>
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<td></td>
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<td>HZ million: Increased capacity@Japan</td>
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<tr>
<td>LiB related materials</td>
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<tr>
<td>Elastomers</td>
<td></td>
<td></td>
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<tr>
<td>Tafmer™: Increase capacity@Singapore</td>
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<td>Semiconductor materials</td>
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<td>EUV pellicle: New facility@Japan</td>
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<tr>
<td>Lubricant oil materials</td>
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<td>Lucant™: New base@Japan</td>
<td>20</td>
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<tr>
<td>Solution</td>
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<tr>
<td>Acquired ARRK</td>
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<tr>
<td>Mobility Development Center</td>
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<td>✔</td>
<td></td>
</tr>
<tr>
<td>Design &amp; Solution Center</td>
<td>-</td>
<td>✔</td>
<td></td>
</tr>
</tbody>
</table>

**Note:**
- ✔ Global top strategy in 8 global bases
- ✔ Increase in automobile production
- ✔ PP usage continues to increase along with lightweight needs
- ✔ Establish 3-base global network
- ✔ Expand resin parts
- ✔ Global expansion via 7-base global network
- ✔ Enhance solution capability for inner parts
- ✔ Adopted major LiB manufacturer in Japan and China utilizing original additive technology
- ✔ Secure global standard position in LiB separator material
- ✔ Secure global top share
- ✔ Be a No.1 in cutting-edge area
- ✔ Expansion with Lubrizol
- ✔ Offer total solution globally
- ✔ Promote trend toward resin
Provide products & services contributing to Quality of Life through chemical innovations
Bolster global No. 1 position with full range of refractive index and functional lens materials

Global market share: 45%
Market growth rate: +4%

3 priority regions:
- U.S.
- India
- China

Global:
Growing need for high-refractive index lenses
Launched special website in each language

U.S.:
Need for good balance of optical properties along with strength

China:
Need for thinner and lighter lenses

India:
Ongoing shift from glass to plastic lenses

- Expanding sales by delivering high consumer value
- Capacity increase under feasibility study

Functional lens materials

UV+420cut™
- Cuts out harmful UV rays and high-energy visible (HEV) light
- Adopted by major European retailers for main products

NeoContrast™
- Reduces glare; helps distinguish between different colors
- Adopted by major Chinese retailers as anti-glare lenses

UV+420cut™
NeoContrast™
Ordinary lens
**E-focus glasses**

*TouchFocus™ achieves high sales*

- **Broad lineup**
  - 4 series, **61** varieties
  - **Launched** Customizable temples, colored lenses
  - **Preparing** Slim-frame option for women (FY2019)
  - **Preparing** Photochromic lenses (FY2019)
  - **Preparing** +1.0 type with electricity (FY2019)

- **More stores**
  - **As of May 31, 2019** **60** stores in Japan
  - **Japan** Steady progress toward 100-store target (FY2019)
  - **Overseas** Plans to begin sales in China by end of FY2019

- **Sales targets**
  - **FY2022 Target** **50 thousand units/year**
  - Establish sales methods in Japan; pursue rollouts across Asia and the West

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**Bolster development of nonwovens for industry use**

- **✔ Launched new organization for industrial applications development** (Apr. 2019)
- **✔ Rolling out industrial applications using sanitary material technologies**

- **Automobile**
- **Medical**
- **Active Senior**
- **Diapers**
- **Sanitary**
- **IC products**
- **Filters**
- **IoT**

**Stronger nonwovens business portfolio**
Polyolefin surface modifier

**Exfola™**

- Adds new functions to polyolefins
  - Releasability
  - Water repellency
  - Oil repellency
  - Slida-ability
  - Antifouling

Low skin irritation

**Hair coloring material**

- Low skin irritation

**Low skin irritation**

- General TDA
- 2,5-TDA
- Paramin

- Good coloration

- Developed hair coloring material with both low skin irritation and good coloration by using original technology
- Applicable to variety of colors
- Successfully developed technology for stabilization in storage

Start global deployment building on success in Japanese market

- Package for reduced food losses
- Protective films for LCD, building materials
- Antifouling films

2018 Chemical Society of Japan Award for Technical Development
Food & Packaging

Provide solutions for world food problems, seizing new business opportunities

May 31, 2019

Food & Packaging

Provide solutions for world food problems, seizing new business opportunities
## Agrochemicals

<table>
<thead>
<tr>
<th>Active ingredient</th>
<th>Target market</th>
<th>Progress</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tolprocarb</strong></td>
<td>Domestic market</td>
<td>✔ Domestic sales launched in FY2015 ✔ Positive feedback for new efficacy, receiving award from the Pesticide Science Society of Japan ✔ Expanded to 15 formulations</td>
</tr>
<tr>
<td><strong>CYRA™</strong></td>
<td>Domestic market</td>
<td>✔ Has new efficacy for weeds resistant to ALS inhibitors ✔ Completed registration ✔ Co-developed with ZEN-NOH</td>
</tr>
<tr>
<td><strong>TENEBENAL™</strong></td>
<td>Global market</td>
<td>✔ Long-term commercialization contract with BASF ✔ Registered new category with IRAC* ✔ Completed registration in eight countries (inc. Japan, U.S., India, South Korea, ASEAN)</td>
</tr>
</tbody>
</table>

*Insecticide Resistance Action Committee

**Steady progress with new product development**
Eco-friendly Packaging Materials

Mono-material X Barrier
Water-based PU coating with gas barrier

**TAKEŁAC™ WPB**

- **Issue**
  - Difficult to recycle high-performance packaging made of multi-material layers

- **Mono-material trends in Europe/India giving rise to new needs**

- **Realize mono-material packaging with gas barrier properties using TAKEŁAC™ WPB**

- **Example**
  - CPP
  - BOPE, PE

Paper recyclability, laminate replacement
Water-based heat-seal coating

**CHEMIPEARL™**

- Enables water-based layer with thinness and heat sealing properties

- **Less plastic**
  - Thinner, more recyclable (Can be broken down by pulper)
  - Eco-friendly, recyclable

- **CHEMIPEARL™**

**Offer valuable solutions to customers and brand owners**

**Sales growing in India and Europe as environmental regulations tighten**
Next Generation Business
Create solution & system businesses at the boundary or peripheral areas
<table>
<thead>
<tr>
<th>Next Generation Business</th>
<th>Energy Solution</th>
<th>Medical Solution</th>
<th>Agri Solution</th>
<th>IoT Solution</th>
<th>Corporate Venturing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power generation and diagnosis business of photovoltaic plant</strong></td>
<td>✓ Diagnosis accounts over 3.1GW</td>
<td>✓ Enter certification business in India (Oct. 2019)</td>
<td><strong>Rapid diagnosis system for bacterial identification</strong></td>
<td>✓ Provide re-agent for research</td>
<td>✓ Overseas deployment (Singapore, EU)</td>
</tr>
<tr>
<td><strong>Advanced cultivation system (iCAST™)</strong></td>
<td>✓ Good field test results and good evaluation at large-scale farmers in US and Australia</td>
<td><strong>Piezo-electric material for next generation display sensor</strong></td>
<td>✓ Collaborate with MURATA for Piezo-electric film</td>
<td>✓ Application development for Piezola™</td>
<td>✓ Customer evaluation on transparent-PI for OLED</td>
</tr>
<tr>
<td><strong>Open innovation &amp; CVC</strong></td>
<td>✓ Joint development of new models for surgical practice</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
Open Innovation

Joint development* of new models for surgical practice

**Eyeball model for practicing glaucoma surgery**
Layered structure with human collagen fibers

- Bionic-EyE™

**Nasal cavity/skull base model with Piezola™**
Visualize surgical training

- Bionic-Brain

---

**Social issue**

- ✔ Glaucoma: #1 cause for loss of eyesight in Japan
  - 200,000 glaucoma surgeries per year in Japan
- ✔ No detailed models for surgical practice previously
- ✔ Bionic-EyE™ will improve surgeon skills

---

**Technology**

- ✔ Material combination technologies
  - "Feels like a human eye"
  - "Can use it for multiple surgery practices"

---

**Social issue**

- ✔ High skill necessary for endoscopic endonasal skull base surgery - touching the optical nerve risks loss of eyesight

---

**Technology**

- ✔ Piezoelectric line PIEZOLA™
  - used in equipment to monitor contact and provide feedback, helping improve surgical skills
Basic Materials

Provide materials for the basis of society and industry
- Reduce volatility through restructuring
- Establish stable profit base for around 30 billion yen

**Petrochemical**
- Countermeasures for low cracker operation @ Ichihara
- Withdrawal from Keiyo Ethylene (approx. ▲170 KTA)
- Nghi Son Refinery starts up, ensuring competitive raw materials
- Further enhance cracker competitiveness

**Phenol**
- Closed 3 plants in JPN/SGP for PH/BPA (▲410 KTA)
- Started AC method for IPA (+60 KTA)
- Integrated operations with BPA

**Polyurethane**
- Transferred organic acid business (▲47 KTA)
- Established JV with SKC
- Started Large-scale XDI (+5 KTA)
- Closed MDI at Omuta Works (▲60 KTA)

**PTA·PET**
- Transferred PTA business in IDN (▲500KTA)
- ▲16.5 (▲0.8%)

**Operating income (JPY bn), ROS(%)**
- FY13: 1.0 (0.2%)
- FY14: ▲6.5 (▲0.8%)
- FY15: ▲16.5 (▲1.9%)
- FY16: 38.5 (6.8%)
- FY17: 38.9 (6.1%)
- FY18: 33.0 (4.6%)
- FY19: 27.8 (3.9%)

**Countermeasures for low cracker operation @ Ichihara**
- Closed 3 plants for general-purpose PE/PP (▲280 KTA)

**New Evolue plant in SGP (+300 KTA)**

**Nghi Son Refinery starts up**

**Further enhance cracker competitiveness**

**Closed 3 plants for general-purpose PE/PP (▲280 KTA)**

**Closed 3 plants in JPN/SGP for PH/BPA (▲410 KTA)**

**Started AC method for IPA (+60 KTA)**

**Established JV with SKC**

**Started phenol operations in CHN (+250 KTA)**

**Integrated operations with BPA**

**Closed all plants at Kashima Works (▲117 KTA)**

**Closed MDI at Omuta Works (▲60 KTA)**

**MDI expansion in KOR (+100 KTA)**

**MDI expansion in KOR (+60 KTA)**

**PPG expansion in KOR (+40 KTA)**

**Transferred PTA business in IDN (▲500KTA)**

**Moved to JV with PTTGC in THA**

**Reduced ownership ratio**
- PTA: 50% ➔ 26% (1440 KTA)
- PET: 60% ➔ 26% (100 KTA)
Reduce Volatility

Bolster presence in Asia market and build stable profit base

Our operating rate

FY18 FULL ➔ FY19 Outlook FULL

Resistance to market fluctuation

Phenol, Polyurethane, PTA

Local production for local consumption

✔ Restructure and establish sales strategies tailored to each region

Polyolefin, Phenol, Polyurethane, PTA

Formula-based pricing

✔ Establish sales strategies that are more resilient to market fluctuations

Preventing for impact of shale products

In-house ethylene consumption

✔ Export ratio is 10% or less

High value-added ethylene-based polymers

✔ Closed general-use PE plants
✔ Expand high value-added polymers such as Evolue™ and Elastomers

Reduce volatility and establish stronger profit base
Further Strengthen Cracker Competitiveness

Energy efficiency

New gas turbine facilities
(30 MW, Osaka)

✔ Cut costs by improving proportion of private power generation and recycling waste heat
✔ Reduce CO₂ emissions by 70,000 tons/year

Removing bottlenecks

Expand cracking furnace
(Ichihara)

✔ Cut costs by improving olefin yield
✔ Improve stability and facilitate maintenance of cracker facilities

Expand sales of olefin-based polymers; New plants; Improve on C3 shortage position

Increase capacity for high-purity propylene
(Ichihara)

✔ Boost propylene purification capacity for polymers
✔ Prepare for bolstering propylene-based polymers
✔ Address propylene shortage position

Diversifying raw materials

Increase propane cracking capacity
(Osaka)

✔ Shale-derived propane cracking
✔ Diversify raw materials at Osaka
(23% ➔ 40% of total raw materials)

Maintain world-leading naphtha cracker by further boosting cost competitiveness
Contents

- Business Performance
- Topics on Targeted Business Domains
- Topics on Sustainability
- Financial Overview
- Management Target for Sustainable Growth
Tackling climate change and plastic waste to achieve circular economy

**Plastic waste**

- Prevent leakage
- [Industry initiative] JaIME1
- *2 Alliance to End Plastic Waste

**Issue**

- Infrastructure/systems
  - Recovery Sorting After-treatment

- Reduce
  - Reduce amount used
  - Regulate/self-regulate (straws etc.)
  - Education awareness

- Recycle
  - Lighter/thinner
  - Longer operating life
  - Monomaterial
  - Transition to new materials
  - Production technologies

- Reuse
  - Biomass plastics

**Countermeasure**

- Energy Recovery
  - Naturally degrading (compost, biodegradables)
  - Bio-plastics

- Chemical

- Material
  - Recyclable

- Renewable energy
  - Bio-plastics

**Climate change**

- Paris Agreement
  - Plan against global warming
  - Popularize biomass plastics to reduce greenhouse gas emissions

**Ocean plastic waste**

- Microplastics

**CIRCULAR ECONOMY**

- Tackling climate change and plastic waste
- Achieving circular economy

---

*1) Japan Initiative for Marine Environment; September 2018
*2) AEPW; joined in January 2019
*3) TCFD; declared support in January 2019
Pursuing circular economy model throughout value chain

**Biomass strategy**
- Expand biomass plastics
  - Climate-friendly
  - Resource circulation
  - Bio-Polyol (Econykol™)
  - Plant cell culture

**Chemical materials**
- Material Recycle
  - Pursuing Recyclability
  - Mono-material
  - Compatibility (Polyolefin tech)

**Plastics Reduce**
- Lighter, thinner
- Plastic Products

**Recovery**
- Linear to Circular economy
  - More recyclable products
- Recovery

**Recycling strategy**
- Chemical Recycle
  - Developing recycling tech
  - Liquefaction process for automotive waste plastics

**Raw materials**
- Biomass
  - Fossil resources

**Energy Recovery**
- Collaboration & Open innovation

**Biomass plastics help cut CO₂ emissions**
- Bio-polypropylene
- Bio-Polyurethane (STABiO™)
- Bio-based lens monomer (DoGreen™)
- Dealing with climate change is our top priority
- Pursue cooperation and co-creation throughout global value chain

**Mitigation**

- Realizing low-carbon society by reducing GHG emissions

**Opportunities / Risks**

- Lower carbon emissions in manufacturing
  - Energy conservation, renewable energy
  - Transitioning to new raw materials/fuels

- Reducing GHG via products
  - Blue Value™ products

- Improving recycling technologies
  - Innovation with raw materials and design

**Adaptation**

- Realizing healthy and happy society resilient to climate change risks

**Opportunities / Risks**

- Managing water security
  - Dealing with production base risks
  - More efficient use of water resources

- Expanding products enabling adaptation
  - Rose Value™ products
  - Products for preventing and mitigating disasters

**Supporter of TCFD Recommendations**
(announced Jan. 2019)
Targeting commercialization of Bio-PP as Japan’s leading supplier

- PP: 23% of all plastic production in Japan
- Wide-ranging applications: auto parts, consumer electronics, medical, housing and food packaging
- Growing global demand

Polypropylene

Global Plastic Production

CO₂ emissions

- Per ton of propylene ▲4.2 tones

Process

- IPA method
- World’s first

Commercialization

- Target 2024

Target output

- In 2030 100KTA

Submitted open-call proposal for MOE* consignment project

*Ministry of Environment
Blue Value™, Rose Value™

Blue Value®
Reduce CO₂
Protect Resources
Harmony with Nature

Rose Value™
Declining Birth Rate & Aging Population
 Longer Healthy Life Expectancy
 Food Problem

Blue Value™
certified products sales ratio

13% 14% 15% 17% 17% 16%
FY13 FY14 FY15 FY16 FY17 FY18 FY25 (Target)

30%

Rose Value™
certified products sales ratio

14% 14% 13%
FY16 FY17 FY18 FY25 (Target)

30%

Contributing to “Reduce CO₂”

FY16
205 billion yen
Expand

FY18
236 billion yen

New Blue Value™ Products
-Milastomer™: Oil resistance grades for automotive use
-Polyolefin based photovoltaic encapsulant material

Contributing to “Longer Healthy Life Expectancy”

FY16
77 billion yen
Expand

FY18
88 billion yen

New Rose Value™ Products
-APEL™: Pre-filled Syringe
-Hz million™: Artificial limb
- Cash flow from operating income remains high
- Maintain active investment phase

(FY06 FY07 FY08 FY09 FY10 FY11 FY12 FY13 FY14 FY15 FY16 FY17 FY18 FY19 Outlook)

<table>
<thead>
<tr>
<th>Year</th>
<th>CF from Investment</th>
<th>CF from Operating Income</th>
<th>Free CF</th>
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<tbody>
<tr>
<td>FY06</td>
<td>-1,336</td>
<td>100.5</td>
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<tr>
<td>FY07</td>
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<tr>
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<tr>
<td>FY19</td>
<td>-643</td>
<td>109.5</td>
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</tbody>
</table>

(JPY bn)
- Improve Net D/E of 0.65 and continue active investments
- Further enhance corporate value

Net D/E Ratio

Equity ratio

Interest-bearing debt (net)
Shareholders' equity

FY11  FY12  FY13  FY14  FY15  FY16  FY17  FY18  FY19
29.2%  28.2%  24.6%  28.8%  30.3%  33.9%  35.7%  36.8%  0.65%

Outlook
Shareholder Returns

-Increasing returns to shareholders
-Acquired treasury stock of 10 billion yen in FY18

✔ Target total return ratio: 30% or more
✔ Stable and continuous dividend increase
✔ Flexibly acquire treasury stock

Dividends (year-end) Dividends (interim) Net income (JPY bn)

Total return ratio (yen/share)
FY13 FY14 FY15 FY16 FY17 FY18 FY19 Outlook

29.0% 34.9% 21.6% 32.1% 39.0% (25.7%)

*In October 2017, Mitsui Chemicals conducted a 5-to-1 share consolidation. All dividends are re-calculated based on the share consolidation.
**Targeted Position**

**Vision2025 Basic Strategies**
1. Pursue innovations
2. Accelerate global expansion
3. Strengthen competitiveness of existing businesses

- Growth Investment: 1,000 bn yen
- R&D expenses: 2x FY25
- Basic Materials: 70 bn yen

**Changes in value through paradigm shift**

**Reform business portfolio**

**Customer-driven Innovations**

**Operating income**

- Denotes a minus

- **Targeted business domains ratio**
  - FY25: 200
  - 86%

- **Changes in value**
  - Reform business portfolio
  - FY13: 24.9

**Operating income**

- (Corporate wide cost, others ▲10)

**Targeted business domains ratio**

- FY18: 93.4
- FY17: 103.5
- FY15: 70.9
- FY06: 91.7
- FY25: 70

**Growth Investment (FY16→25)**

- FY15: 70.9
- FY17: 103.5

**R&D expenses**

- FY15: 70.9
- FY17: 103.5

**Targeted business domains ratio**

- FY15: 34%
- FY17: 65%
- FY18: 73%
- FY25: 86%

**New & Next Generation**
Constantly pursuing innovation and growth to become a chemical group with an undisputed global presence.

1. **Restructuring**
   - Extensive business restructuring

2. **Restore**
   - Transform business portfolio

3. **Growth**
   - Shift to customer-driven business model

4. **Leap**
   - Actualize corporate target

Creating new customer value and solving social challenges through business activities.

Operating income: JPY bn

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<th>Year</th>
<th>FY04</th>
<th>06</th>
<th>08</th>
<th>11</th>
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<th>18</th>
<th>19</th>
<th>21</th>
<th>FY25</th>
</tr>
</thead>
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<tr>
<td>Ratio</td>
<td>91.7</td>
<td>34%</td>
<td></td>
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<td></td>
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</table>

Targeted business domains ratio
Creating new customer value and solving social challenges through business activities
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