Mitsubishi Chemical Holdings Group Investor Meeting

June 12, 2012

Yoshimitsu Kobayashi
President & Chief Executive Officer
Mitsubishi Chemical Holdings Corporation
The forward-looking statements are based largely on information available as of the date hereof, and are subject to risks and uncertainties which may be beyond company control. Actual results could differ largely, due to numerous factors, including but not limited to the following: Group companies execute businesses in many different fields, such as information and electronics, performance products, polymers and processed products, pharmaceuticals, carbon and inorganic products, petrochemicals, and these business results are subjected to influences of world demands, exchange rates, price and procurement volume of crude oil and naphtha, trend of market price, speed in technology innovation, National Health Insurance price revision, product liabilities, lawsuits, laws and regulations.
List of Abbreviations

MCHC: Mitsubishi Chemical Holdings Corporation
MCC: Mitsubishi Chemical Corporation
MTPC: Mitsubishi Tanabe Pharma Corporation
MPI: Mitsubishi Plastics, Inc.
MRC: Mitsubishi Rayon Co., Ltd.
NNE: Nishi Nippon Ethylene LLP
AKC: Asahi Kasei Chemicals Corporation
JXE: JX Nippon Oil & Energy Corporation

MOS: Management of SUSTAINABILITY
MMA: Methyl methacrylate
PMMA: Polymethylmethacrylate
PHL: Phenol
PCR: Polycarbonate resin
BPA: Bisphenol-A
PTA: Purified terephthalic acid
TPA: Terephthalic acid
PP: Polypropylene
PVC: Polyvinyl chloride
VCM: Vinyl chloride monomer
CHX: Cyclohexane
CPL: Caprolactam
PX: Para-xylene
SM: Styrene monomer
1,4-BG: 1,4-butandiol
PE: Polyethylene
EO: Ethylene oxide
EC: Ethylene carbonate
EG: Ethylene glycol
PVOH: Polyvinyl alcohol
FCC: Fluid catalytic cracking
GaN: Gallium nitride
MBR: Membrane bioreactor

1Q: April 1 – June 30
2Q: July 1 – September 30
3Q: October 1 – December 31
4Q: January 1 – March 31
1H: April 1 – September 30
2H: October 1 – March 31
FY2012: April 1, 2012 – March 31, 2013
Today’s Agenda

- MCHC (The KAITEKI COMPANY)
  - Review of Business Results
  - Enhancing Group Strengths
  - KAITEKI Management and MOS Indexes
  - Prospects under APTSIS 15

- MCC  Reforming Structure and Transforming Domestic Petrochemicals Business
- MTPC  Healthcare Solutions and MTPC Topics
- MPI   Polyester Film Business, MAFTEC Business, and Agribusiness Solutions
- MRC   MMA/PMMA, Carbon Fibers, and Aqua
Mitsubishi Chemical Holdings Corporation

The KAITEKI COMPANY

1. Review of Business Results
   1-1: Business Results and FY2012 Forecasts
   1-2: Business Results and FY2012 Forecasts by Segment
   1-3: Current Market Status and Forecasts for Major Products

2. Enhancing Group Strengths
   2-1: Further Transforming Management Structures of the MCHC Group
   2-2: Relocating and Consolidating Head Office Functions
   2-3: Reforming Structure and Transforming Domestic Petrochemicals Business

3. KAITEKI Management and MOS Indexes
   3-1: MOS Indexes
   3-2: Examples of MOS Results in FY2011

4. Prospects under APTSIS 15
   4-1: APTSIS 15 Reference Figures and Forecasts for FY2012
   4-2: Difference between the FY2012 Forecasts and APTSIS 15 Reference Figures by Segment
   4-3: The APTSIS 15 Plan
1. Review of Business Results

1-1: Business Results and FY2012 Forecasts

FY2011 profits down due to the Great East Japan Earthquake, strong yen, and market deterioration; aiming for recovery in FY2012

Net sales (Billions of yen)  Profit (Billions of yen)

<table>
<thead>
<tr>
<th>Year</th>
<th>Net sales</th>
<th>Operating income</th>
<th>Net income</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY2008</td>
<td>2,909.0</td>
<td>8.2</td>
<td>-67.2</td>
</tr>
<tr>
<td>FY2009</td>
<td>2,515.1</td>
<td>66.3</td>
<td>12.8</td>
</tr>
<tr>
<td>FY2010</td>
<td>3,166.8</td>
<td>203.0</td>
<td>83.6</td>
</tr>
<tr>
<td>FY2011</td>
<td>3,208.2</td>
<td>130.6</td>
<td>35.5</td>
</tr>
<tr>
<td>FY2012</td>
<td>3,450.0</td>
<td>160.0</td>
<td>50.0</td>
</tr>
</tbody>
</table>

Good Chemistry for Tomorrow  Mitsubishi Chemical Holdings Group
1. Review of Business Results

1-2: Business Results and FY2012 Forecasts by Segment

Economic climate and market changes remain a concern for FY2012, but aiming for profit increase by recovering in volumes and rigorous cost reductions

<table>
<thead>
<tr>
<th>Operating Income</th>
<th>FY2011 Results vs. FY2012 Forecasts</th>
<th>(Billions of yen)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FY2011 Results</td>
<td>FY2012 Forecasts</td>
</tr>
<tr>
<td>Electronics Applications</td>
<td>(5.3)</td>
<td>0</td>
</tr>
<tr>
<td>Designed Materials</td>
<td>23.1</td>
<td>33.0</td>
</tr>
<tr>
<td>Health Care</td>
<td>76.4</td>
<td>79.0</td>
</tr>
<tr>
<td>Chemicals</td>
<td>14.8</td>
<td>29.0</td>
</tr>
<tr>
<td>Polymers</td>
<td>23.8</td>
<td>24.0</td>
</tr>
<tr>
<td>Others</td>
<td>6.1</td>
<td>4.0</td>
</tr>
<tr>
<td>Corporate</td>
<td>(8.3)</td>
<td>(9.0)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>130.6</strong></td>
<td><strong>160.0</strong></td>
</tr>
</tbody>
</table>

Some consolidated subsidiaries in the Polymers segment have been transferred to the Designed Materials segment. Part of expenses for basic research activities previously recorded in Corporate have been transferred to the Designed Materials segment, as a result of research progress. Concomitant with these changes, FY2011 results have been reclassified for comparison with fiscal 2012 forecasts.
1-3: Current Market Status and Forecasts for Major Products

**MMA/PMMA**
MMA bottomed in Dec/Jan and the market is improving. Price adjustments, volume growth and rationalization should contribute from 1Q FY2012. In PMMA, aiming to raise capacity utilization through sales increase for FPD applications and shift to general applications in acrylic sheets.

**Terephthalic acid**
Polyester market prices are still depressed, but volumes are expected to rise smoothly throughout the year due to Asian (primarily Chinese) demand. Spreads should recover in 2H FY2012.

**Pharmaceuticals**
FY2012 will be affected by NHI drug price revisions, but revenues should increase due to new product contributions. However, we forecast a small profit increase owing to higher SG&A and R&D costs.

**FPD components**
Volumes are recovering as a whole, despite variability by product, and sales overseas should continue to expand. Competitive environment remains tough but aiming to turn around profitability through cost cuts and other such initiatives.

**Carbon**
We expect similar operating income in 1H FY2012 to that of 2H FY2011. In 2H, we expect export environment of cokes to improve.

**PHL/PCR**
PC demand is gradually recovering after the drop in 2H FY2011. The pace of recovery in BPA and PHL demand and pricing is slow, but we expect it to improve in 2H FY2012.
2. Enhancing Group Strengths

2-1 Further Transforming Management Structures of the MCHC Group

Accelerating orchestration of Group strengths

MCHC Management Structures
Separate management between MCHC and core operating companies
Appoint Mission Coordinators

Set up new Healthcare Solutions Office
Strengthen function of the Group Synergy Office

MCHC

The KAITEKI Institute, Inc.
Mitsubishi Chemical Holdings America, Inc.
Mitsubishi Chemical Holdings (Beijing) Co., Ltd.
MCFA Inc.
Consolidating Group funding and management functions

MCC
Incorporation: Oct. 1994

56.3%

MTPC
Incorporation: Oct. 2007

100%

MPI
Integration: Apr. 2008

MRC
Integration: Apr. 2010

100%

Consolidating engineering functions and materials procurement of the MCHC Group into Mitsubishi Chemical Engineering Corporation
2. Enhancing Group Strengths

Accelerating Group Synergy (1)

Undertaking organizational and personnel changes to foster “synergy to grow”

- Appoint Mission Coordinators (April 1, 2012)
  Formulate group-wide strategic plans for business areas where rapid synergies can be achieved.
  Guide and advise on those business operations.

  - Healthcare solutions
  - Specialty chemicals
  - Polymer processing and information and electronics
  - Carbon fiber composite materials
  - Water treatment system
  - FPD components

- Establish new Healthcare Solutions Office (April 1, 2012)
  Further strengthen the Group healthcare strategy and promote the commercialization of new healthcare solutions business by transcending individual core operating company boundaries.

- Strengthen function of the Group Synergy Office (April 1, 2012)
  In order to enhance proactive proposals, mediation and support functions for Group companies, synergy projects were reviewed and a director and person responsible for implementing each project were appointed.
Strengthening shared Group functions to promote “synergy to grow”

- **Consolidate Group funding and management functions (June 1, 2012)**
  In order to promote the orchestration of Group strengths and achieve synergistic effects, MCFA (100% owned by MCC) became a 100% subsidiary of MCHC.

- **Consolidate engineering and materials procurement functions (April 1, 2012)**
  The engineering functions at three core operating companies were consolidated into Mitsubishi Chemical Engineering in order to further raise the overall strength and pricing power of the Group engineering capabilities.

- **Integrate Group public relations functions (June 1, 2012)**
  Public relations and investor relations functions at three core operating companies were consolidated into MCHC with the aim of making the functions more effective and more efficient.
2. Enhancing Group Strengths

2-2: Relocating and Consolidating Head Office Functions

Fostering “synergy to grow” through proactive dialogue

- Proximity of offices for directors and core operating companies*
- Locating common functions on the same floor

*excl. MTPC

MCHC  MCC  MTPC  MPI  MRC

22F  Directors’ offices
     Corporate Strategy Office
     Healthcare Solutions Office
     Corporate Planning Office
     Group Synergy Office
     The KAITEKI Institute, Inc.

21F  Directors’ offices
     Business Development & Licensing Dept.

20F  Corporate div. (Corporate planning, Internal control, Internal audit,
     Public relations and investor relations, Administration, IP, RD, etc.)

19F  Corporate div. (HR, Finance and accounting, Information systems, etc.)

18F  Corporate div. (Environment, Safety and Quality, Technology Coordination, etc.)
     Business div. (Basic petrochemicals, Chemical derivatives, Polymer,
     Petrochemicals R&D, Petrochemicals Planning and Coordination

17F  Meeting rooms

16F  Corporate div. (Purchasing and logistics, Marketing, etc.)
     Japan Polymers, Japan Polyethylene, Japan Polypropylene, etc.

15F  Business div. (Information and electronics, Performance products, Battery materials, Carbon)
     New Business Promotion Div.

14F  Business div. (High Performance Film Field, part of High Performance Molded Products Field)

13F  Business div.
     Group companies

12F  Shared office service companies, Medical center

11F  Group reception, Guest rooms, Showroom

1F  Reception
2-3: Example of Business Reorganization for Growth (Petrochemicals)

Reforming structure and transforming domestic petrochemicals business

Pursue Growth Strategy
- Expand global operation and shift to high-performance products
- Regional partners, the US shale gas revolution
  - MMA and PMMA, performance polymers

Promote Innovation Strategy
- Deliver new materials that contribute to the environment and to the “Sustainable Carbon Society”
  - Sustainable resources (Isosorbide polymer, GS-Pla)

Optimize Cash-generating Businesses
- Stabilize earnings and reinforce business structure
  - Stabilize operations and minimize environmental impact
  - Reinforce business structure by leveraging high-value-added products, expanding knowledge business & improving process technologies
  - DTP, Hexene-1, BTcB

Business to be Restructured
- Implement second stage of structural reforms

DTP: Dominant technology for propylene
BTcB: Butene to crude butadiene
### 3-1: MOS Indexes

Each item to be evaluated with a target of 300 points by FY2015

<table>
<thead>
<tr>
<th>Sustainability</th>
<th>S-1</th>
<th>Contribution to reduce environmental impact through products and services</th>
<th>100 pts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>S-2</td>
<td>Practice energy saving &amp; reduction of depletion resources</td>
<td></td>
</tr>
<tr>
<td></td>
<td>S-3</td>
<td>Contribution to reduce environmental impact through supply chain management</td>
<td></td>
</tr>
<tr>
<td>Health</td>
<td>H-1</td>
<td>Contribution to medical treatment</td>
<td>100 pts</td>
</tr>
<tr>
<td></td>
<td>H-2</td>
<td>Contribution to improvements of QOL</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H-3</td>
<td>Contribution to early detection and prevention of diseases</td>
<td></td>
</tr>
<tr>
<td>Comfort</td>
<td>C-1</td>
<td>Deliver products (development and manufacturing) for comfortable lifestyle</td>
<td>100 pts</td>
</tr>
<tr>
<td></td>
<td>C-2</td>
<td>Improve stakeholder satisfaction</td>
<td></td>
</tr>
<tr>
<td></td>
<td>C-3</td>
<td>Recognition of corporate trust</td>
<td></td>
</tr>
</tbody>
</table>

Aiming to establish “My Own MOS” within Group company and organization
3. KAITEKI Management and MOS Indexes

3-2: Trend in MOS Results

MOS Indexes quantified and monitoring began in FY2011

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustainability</td>
<td>140</td>
<td>177</td>
<td>29</td>
<td>40</td>
<td>86</td>
<td>51</td>
</tr>
<tr>
<td>Health</td>
<td>77</td>
<td>177</td>
<td>34</td>
<td>51</td>
<td>86</td>
<td>51</td>
</tr>
<tr>
<td>Comfort</td>
<td>34</td>
<td>177</td>
<td>29</td>
<td>40</td>
<td>86</td>
<td>51</td>
</tr>
</tbody>
</table>

- **Sustainability**
  - Reduction in fuel/raw material costs through production efficiencies (raw material and energy saving efforts).
  - Amount saved was double that of FY2010

- **Health**
  - Contribution to QOL improvements by launching products for unmet medical needs
  - 57% increase (verses FY2009)

- **Comfort**
  - Providing products for better standard of living
  - Ratio of new products: 14% increase (verses FY2010)
  - Increased stakeholder satisfaction
  - Company rankings up in external survey

**Up 37 points**
## 4. Prospects under APTSIS 15

### 4-1: APTSIS 15 Reference Figures and Forecasts for FY2012

<table>
<thead>
<tr>
<th></th>
<th>FY2012 APTSIS 15 Reference Figures</th>
<th>FY2012 Forecasts</th>
<th>FY2015 APTSIS 15 Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Net Sales</strong></td>
<td>¥3.6 trillion</td>
<td>¥3.5 trillion</td>
<td>¥5.0 trillion (¥4.2 trillion*)</td>
</tr>
<tr>
<td><strong>Operating Income</strong></td>
<td>¥230 billion</td>
<td>¥160 billion</td>
<td>¥400 billion (¥330 billion*)</td>
</tr>
</tbody>
</table>

* excl. Leaping Ahead (M&A)

### Operating income

- **Industrial Materials**: ¥89.0B
- **Health Care**: ¥79.0B
- **Performance Products**: ¥42.0B
- **Leaping Ahead (M&A) & Impact of Mission Coordinators**:
  - FY2012 APTSIS 15 Reference Figures
  - FY2012 Forecasts
  - FY2015 APTSIS 15 Plan
## 4-2: Difference between the FY2012 Forecasts and APTSIS 15 Reference Figures by Segment

**Major impact from weaker market prices, slower market growth and changes in the competitive environment**

<table>
<thead>
<tr>
<th>Domain</th>
<th>Segment</th>
<th>FY2012 APTSIS 15 Reference Figures</th>
<th>FY2012 Forecasts</th>
<th>Difference</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Performance Products</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Electronics</td>
<td></td>
<td>12.0</td>
<td>0.0</td>
<td>(12.0) Slower growth in the market and deteriorating profitability for recording media and FPD components. Delay in growth of new markets. (GaN substrates, White LED lighting/materials)</td>
</tr>
<tr>
<td></td>
<td>Designed Materials</td>
<td></td>
<td>54.0</td>
<td>33.0</td>
<td>(21.0) Slower growth in the market and deteriorating profitability for FPD components. Delay in growth of new markets. (Lithium-ion battery materials)</td>
</tr>
<tr>
<td><strong>Health Care</strong></td>
<td>Health Care</td>
<td></td>
<td>79.0</td>
<td>79.0</td>
<td>0.0 Pharmaceuticals performing better than expected but shortfall in diagnostic agents and instruments and clinical testing.</td>
</tr>
<tr>
<td><strong>Industrial Materials</strong></td>
<td></td>
<td></td>
<td>35.0</td>
<td>29.0</td>
<td>(6.0) Difference in PTA spreads, otherwise virtually as expected.</td>
</tr>
<tr>
<td></td>
<td>Polymers</td>
<td></td>
<td>48.0</td>
<td>24.0</td>
<td>(24.0) Major impact from decline in market prices for MMA/PMMA and sluggish demand for light guide panels.</td>
</tr>
</tbody>
</table>
4-3: The APTSIS 15 Plan

Responding to changes in business environment by reviewing APTSIS 15 STEP 2 for FY2013-2015

New factors to consider since formulation of APTSIS 15 in 3Q FY2010
- Power supply, disaster recovery demand, consumption tax increase, European sovereign debt crisis, (forex rates), etc.

Undertaking review based on developments in FY2012

<table>
<thead>
<tr>
<th>Situation in FY2012</th>
<th>Review perspective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market structure changes</td>
<td>Developing new business areas, securing new customers, reducing costs</td>
</tr>
<tr>
<td>• FPD components, recording media</td>
<td></td>
</tr>
<tr>
<td>Delay in growth of new markets</td>
<td>Selecting businesses, concentrating development</td>
</tr>
<tr>
<td>• Lithium-ion battery materials, White LED lighting/materials</td>
<td></td>
</tr>
<tr>
<td>Worsening economic climate</td>
<td>Reforming structure and reducing costs to improve earnings capacity from bottom up</td>
</tr>
<tr>
<td>• Petrochemicals</td>
<td></td>
</tr>
<tr>
<td>Realizing stable earnings</td>
<td>Further growing ability to generate stable earnings</td>
</tr>
<tr>
<td>• Pharmaceuticals, Food ingredients, Carbon</td>
<td></td>
</tr>
</tbody>
</table>

Review topics
1) Attainability of targets
2) Validity of the current strategy / formulation of alternatives
3) New business opportunities
### Business Topics

#### Positioning of business areas within the MCHC Group business portfolio

<table>
<thead>
<tr>
<th>Category</th>
<th>Businesses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Performance Products</strong></td>
<td>◆ White LED lighting and materials</td>
</tr>
<tr>
<td></td>
<td>◆ Lithium-ion battery materials</td>
</tr>
<tr>
<td></td>
<td>◆ FPD components</td>
</tr>
<tr>
<td></td>
<td>◆ Performance composite materials</td>
</tr>
<tr>
<td></td>
<td>◆ High performance molding products</td>
</tr>
<tr>
<td></td>
<td>◆ Specialty chemicals</td>
</tr>
<tr>
<td></td>
<td>◆ Water treatment system and services</td>
</tr>
<tr>
<td></td>
<td>◆ Pharmaceuticals</td>
</tr>
<tr>
<td></td>
<td>◆ High performance graphite</td>
</tr>
<tr>
<td></td>
<td>◆ Performance polymers</td>
</tr>
<tr>
<td></td>
<td>◆ MMA/PMMA</td>
</tr>
<tr>
<td><strong>Health Care</strong></td>
<td>◆ Organic photovoltaic modules and materials</td>
</tr>
<tr>
<td></td>
<td>◆ Organic photo semiconductors</td>
</tr>
<tr>
<td><strong>Industrial Materials</strong></td>
<td>◆ Advanced performance products</td>
</tr>
<tr>
<td></td>
<td>◆ Agribusiness solutions</td>
</tr>
<tr>
<td></td>
<td>◆ Healthcare solutions</td>
</tr>
<tr>
<td></td>
<td>◆ Sustainable resources</td>
</tr>
<tr>
<td><strong>Next-generation Growth Businesses (6)</strong></td>
<td>◆ Recording media</td>
</tr>
<tr>
<td></td>
<td>◆ Performance films</td>
</tr>
<tr>
<td></td>
<td>◆ Food ingredients</td>
</tr>
<tr>
<td></td>
<td>◆ Diagnostics &amp; support for new pharmaceutical development</td>
</tr>
<tr>
<td></td>
<td>◆ Terephthalic acid</td>
</tr>
<tr>
<td></td>
<td>◆ Coke</td>
</tr>
<tr>
<td></td>
<td>◆ PHL/BPA/PC</td>
</tr>
<tr>
<td></td>
<td>◆ PP</td>
</tr>
<tr>
<td><strong>Businesses to be Restructured (15)</strong></td>
<td>Naphtha crackers, etc.</td>
</tr>
<tr>
<td><strong>Cash-generating Businesses (18)</strong></td>
<td></td>
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<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Mitsubishi Chemical Corporation

Reforming Structure and Transforming Domestic Petrochemicals Business

1. Overview of Structural Reforms

2. Structural Reforms of Basic Petrochemicals Business

MCHC’s Business Portfolio

<table>
<thead>
<tr>
<th>Next-generation Growth Business (6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organic photovoltaic modules and materials</td>
</tr>
<tr>
<td>Organic photo semiconductors</td>
</tr>
<tr>
<td>Advanced performance products</td>
</tr>
<tr>
<td>Agribusiness solutions</td>
</tr>
<tr>
<td>Healthcare solutions</td>
</tr>
<tr>
<td>Sustainable resources</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Growth Business (11)</th>
</tr>
</thead>
<tbody>
<tr>
<td>White LED lighting and materials</td>
</tr>
<tr>
<td>Lithium-ion battery materials</td>
</tr>
<tr>
<td>FPD components</td>
</tr>
<tr>
<td>Performance composite materials</td>
</tr>
<tr>
<td>High performance molding products</td>
</tr>
<tr>
<td>Specialty chemicals</td>
</tr>
<tr>
<td>Water treatment system and services</td>
</tr>
<tr>
<td>Pharmaceuticals</td>
</tr>
<tr>
<td>High performance graphite</td>
</tr>
<tr>
<td>Performance polymers</td>
</tr>
<tr>
<td>MMA/PMMA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Business to be Restructured (15)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naphtha crackers, etc.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cash-generating Business (18)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recording media</td>
</tr>
<tr>
<td>Performance films</td>
</tr>
<tr>
<td>Food ingredients</td>
</tr>
<tr>
<td>Diagnostics &amp; support for new pharmaceutical development</td>
</tr>
<tr>
<td>Terephthalic acid</td>
</tr>
<tr>
<td>Coke</td>
</tr>
<tr>
<td>PPh/BPA/PC</td>
</tr>
<tr>
<td>PP</td>
</tr>
</tbody>
</table>
Basic Strategies for Petrochemical Business

Reforming structure and transforming domestic petrochemicals business

Pursue Growth Strategy
- Expand global operation and shift to high-performance products
  (Regional partners, the US shale gas revolution)
  - MMA and PMMA, performance polymers

Promote Innovation Strategy
- Deliver new materials that contribute to the environment and to the ‘Sustainable Carbon Society’
  - Sustainable resources (Isosorbide polymer, GS-Pla)

Optimize Cash-generating Businesses
- Stabilize earnings and reinforce business structure
  - Stabilize operations and minimize environmental impact
  - Reinforce business structure by leveraging high-value-added products, expanding knowledge business & improving process technologies
    - DTP, Hexene-1, BTcB

Business to be Restructured
- Implement second stage of structural reforms

DTP: Dominant technology for propylene
BTcB: Butene to crude butadiene
1. Overview of Structural Reforms

Operating Climates for Domestic Ethylene Production

Spread between ethylene and naphtha (ETY - 1.4 × MOPJ:$/t)

- 2007
- 2008
- 2009
- 2010
- 2011
- 2012

Oil producing countries, Asian countries, shale gas, butadiene

Domestic ethylene production (KTA)

- 2007
- 2008
- 2009
- 2010
- 2011
- 2012

Declining export competitiveness
⇒ Shift to high-performance products is inevitable
### Progress in Structural Reforms

**1. Overview of Structural Reforms**

<table>
<thead>
<tr>
<th>Year</th>
<th>Cracker</th>
<th>Derivatives</th>
<th>Sustainable resources</th>
<th>New technologies</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>Establish Cracker downsizing</td>
<td>Shut down BZ production facility</td>
<td>Complete EO center</td>
<td>Butadiene</td>
</tr>
<tr>
<td>2009</td>
<td>Establishment of NNE Cracker</td>
<td>Two consecutive year operation</td>
<td></td>
<td>Non-phosgene PC</td>
</tr>
<tr>
<td>2010</td>
<td>Shut down No.2 line</td>
<td>New line</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td></td>
<td>Complete EO center</td>
<td>Commercialization (5KTA)</td>
<td>Establish BTcb technology</td>
</tr>
<tr>
<td>2012</td>
<td></td>
<td></td>
<td>Expand to 20KTA</td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>Aromatic alliances</td>
<td>Facilities integration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td></td>
<td></td>
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<tr>
<td>2016</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

**Derivatives Business**

- Shift commodities (shrink and/or withdraw) to high-performance products (reinforce and/or accelerate)

- Optimize production

- Commercialization

- Expand to 20KTA

- Commercialization
1. Overview of Structural Reforms

**Structural Reform in Ethylene Capacity**

(KTA) 2000s 2010s (1st half) 2010s (2nd half)

- **Load down**
- **Transformation with derivatives**

### Demand
- 2000s: SM, VCM, PE, EO, EG
- 2010s (1st half): PE, EO, EC, EG, PVOH
- 2010s (2nd half): PE, EO, EC, EG, PVOH

### Current capacity
- **Kashima No.1:** SM, VCM, PE
- **Kashima No.2:** SM, VCM, PE

### APTSIS15
- **Kashima restructuring:** High-performance PE, PP

### Future
- **Mizushima integration:** High-performance PE, PP

### Sales
- 2000s: Mizushima
- 2010s (1st half): Mizushima
- 2010s (2nd half): Mizushima (1/2)

**APTSIS**

Good Chemistry for Tomorrow
Mitsubishi Chemical Holdings Group
Structural Reform of the Kashima Plant

Reform structure by combining further advanced derivatives with efficient up-stream structure

1. Reinforce basic petrochemicals
   Steam cracker: Decommission No.1 cracker and expansion & fully operate No.2 cracker
   Refinery partnership: Continue assessing potential for integrated application of both high resolution FCC (JXE) and BTcB (MCC)

2. Shift to high-performance products
   Ethylene (EO): Complete EO center and boost EC production
   (PE): Metallocene catalyst and high-performance PE
   Propylene (PP): Shift to high-performance PP by new line using proprietary state-of-the-art technology
   Butadiene: Produce butadiene as targeted production by using proprietary technology

3. Restructure the Kashima complex
   Restructure VCM/PVC sector
   Operate power plant optimally
1. Reinforce basic petrochemicals business
   - Cracker downsizing (June 2011)
   - Aromatics alliances with AKC (April 2012)
   - Refinery partnership
     Continue assessing potential for integrated application of both high resolution FCC (JXE) and BTcB (MCC)

2. Optimize facilities through Nishi Nippon Ethylene LLP
   Preparing for facility integration (MCC in 2013 / AKC in 2014)

3. Develop new technology
   - Hexene-1, DTP, BTcB
   - GaN substrate, Organic photovoltaic
Mitsubishi Tanabe Pharma Corporation

Healthcare Solutions and MTPC Topics

1. Healthcare Solutions
   1-1: Targets for Healthcare Solutions in the MCHC Group
   1-2: Mission of the Healthcare Solutions Office
   1-3: Artificial Carbon Dioxide Bath Unit, MIMAMORI-Gait, and New Vaccine

2. MTPC Topics

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<th>Next-generation Growth Business (6)</th>
<th>Growth Business (11)</th>
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<td>PHL/BPA/PC</td>
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1-1: Targets for Healthcare Solutions in the MCHC Group

Deliver full package “healthcare solutions”

Orchestrate Group strengths to provide a variety of solutions for unmet medical needs at every stage of the medical value chain

Contribute to the realization of KAITEKI society

Managing, maintaining and promoting health
Aiding treatment
Aiding rehabilitation

In good health  Not in good health  Diseased  In recovery

Prophylaxes  Early detection  Protection of Recurrence
1-2: Mission of the Healthcare Solutions Office

Orchestrate Group strengths to deliver full packaged “healthcare solutions”

- Deliver new healthcare solutions businesses
  - accelerate orchestrating Group strengths
  - pursue collaboration with other industries, governments, and academia
  - combine internal and external assets to create the optimum solutions
1. Healthcare Solutions

1-3: Artificial Carbon Dioxide Bath Unit
Medical doctors in Germany have used CO2 spas for medical use from the 16th century.

CO2 enriched water for medical use: CO2 concentration should be above 1000 ppm.

Many scientific journals report that CO2 enriched water increases blood flow. It is considered that CO2 enriched water increases the tissue concentration of CO2 and induces vasodilation.
Advantage of using GPH* membrane

No complicated structure used in mixing methods

Small, light, simple devices are possible by using GPH membrane

Challenge for various areas

Rehabilitation
Promotion of health
Nursing homes
Cosmetic/beauty

Effect of artificial CO2 bathing in healthy volunteers

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<th>CO2 Water (n=9)</th>
<th>Pure-Water (n=9)</th>
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<tr>
<td>Change in blood flow</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P&lt;0.001</td>
<td></td>
<td></td>
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<tr>
<td>6.00</td>
<td>4.00</td>
<td>4.00</td>
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<td>5.00</td>
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<th>CO2 Water (n=9)</th>
<th>Pure-Water (n=9)</th>
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</thead>
<tbody>
<tr>
<td>P&lt;0.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-0.05</td>
<td>-0.05</td>
<td>-0.05</td>
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<td>-0.15</td>
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<td>-0.55</td>
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<td>-0.55</td>
</tr>
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</table>

T. Toriyama et. al. International Angiology 21(4) 2002

*Gas-permeable hollow-fiber
1. Healthcare Solutions

1-3: MIMAMORI-Gait
1. Healthcare Solutions

**MIMAMORI-Gait (1)**

High-quality gait profiling using long term measurement and unique analysis technology

**Medical Devices**

**Gait Analysis System**

- Natural walking in daily life

- Motion Recorder with 3-Dimensional Acceleration sensor

**Gait Profiling**

- Cadence
- Floor reaction (gait intensity)
- Amount of activity

- Recording intervals: 10 m sec
- Recording period: Up to 24 hours

**Motion Recorder with 3-Dimensional Acceleration sensor**

- Acceleration Waveforms
  - Right-Left
  - Up-Down
  - Front-Back

May 2011: Filed as medical device in Japan
Medical treatment fee: Posturography (250pt)
Develop a new evaluation index of disease state
Focus on diseases with failure of gait function
- e.g. Parkinson’s disease, knee osteoarthritis, rheumatoid arthritis
  and other disorders

Apply to evaluation of drug efficacy

Pursue other applications
New evaluation indices for physical functions
- e.g. Efficacy of rehabilitation, prevention of falls, etc.
1-3: New Vaccine
New Vaccine (1)

Strengthen MTPC’s vaccine business with new vaccine

- Strengthen vaccine business in Japan through collaboration with BIKEN*
  *: The Research Foundation for Microbial Diseases of Osaka University

- Licensing-in of new vaccine and new technology
  - Licensing agreement for the new vaccine with Neuron Biotech, Inc. (January 2012)
  - Research collaboration agreement for new vaccines with Medicago Inc (March 2012) (Production of new vaccine in plants)

Share of MTPC in total Japanese vaccine market sales in FY2011

- MTPC 17.3%
- Others 82.7%
- ¥226.9B
1. Healthcare Solutions

New Vaccine (2)

Production of new vaccine in plants by Medicago

Greenhouse cultivation of Nicotiana Benthamiana

Introduction of viral gene to tobacco leaves

Production of new vaccine
High quality control in closed plant factory system enables:
- Shorter growing period
- Stable production
- High productivity

- **LED**
  - Power savings
  - Acceleration of photo-synthesis with effective wave-length

- **Hydroponics system**
  - Clean and effective growth of plants

- **PV cell**
  - Secondary battery
    - Use of green energy

- **Water treatment system**
  - Water circulation and reuse
  - Reduce total water consumption

- **Thermal insulation**
  - High level of insulation reduces energy needed for air-conditioning

Potential to apply agribusiness solutions to pharmaceutical manufacturing
Mitsubishi Tanabe Pharma Corporation

Healthcare Solutions and MTPC Topics

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2. MTPC Topics
# Progress in Domestic Operations Centering on New Products

<table>
<thead>
<tr>
<th>New Products</th>
<th>FY2011</th>
<th>FY2012-</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Simponi</strong></td>
<td>Rheumatoid Arthritis, launch (Sep)</td>
<td>Ulcerative colitis developed by Janssen Pharmaceutical</td>
</tr>
<tr>
<td><strong>Imsera</strong></td>
<td>Multiple Sclerosis, launch (Nov)</td>
<td></td>
</tr>
<tr>
<td><strong>Telavic</strong></td>
<td>Chronic hepatitis C, launch (Nov)</td>
<td>Expansion of combination therapy</td>
</tr>
<tr>
<td><strong>Lexapro</strong></td>
<td>Depression, launch (Aug)</td>
<td></td>
</tr>
<tr>
<td><strong>MP-513</strong></td>
<td>Type2 diabetes mellitus, filed (Aug)</td>
<td>Approved</td>
</tr>
<tr>
<td><strong>TA-7284</strong></td>
<td>Type2 diabetes mellitus, P3 (May)</td>
<td></td>
</tr>
<tr>
<td><strong>MP-214</strong></td>
<td>Schizophrenia, P2</td>
<td>P2b/3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LCM</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Remicade</strong></td>
<td>Crohn's disease, dose escalation (Aug)</td>
<td>Subtype Behcet's disease, P3 (Jan)</td>
</tr>
<tr>
<td><strong>Talion</strong></td>
<td>Pediatric allergic rhinitis, P3 (Sep)</td>
<td></td>
</tr>
<tr>
<td><strong>Radicut</strong></td>
<td>Amyotrophic lateral sclerosis, P3</td>
<td></td>
</tr>
<tr>
<td><strong>Maintate</strong></td>
<td>Heart failure (May)</td>
<td>Chronic atrial fibrillation, P3 (Aug)</td>
</tr>
</tbody>
</table>
Key Products: Anti-diabetic Drugs

MP-513 & TA-7284

- Strategic alliance with Daiichi Sankyo Co., Ltd.
  - Promoting usages through new style of joint sales activity at unprecedented speed
  - Contributing to total care management of metabolism and CV diseases through the launch of anti-diabetic drugs

MP-513

- Teneligliptin
- DPP4 inhibitor
- To be approved in June 2012
- To be launched in September 2012

TA-7284

- Canagliflozin
- SGLT2 inhibitor
- To be filed in 2013
Becoming a “Company that Can Continue to Create New Value”

- Priority Products: Remicade etc.
- New Products: Simponi, Imusera, Telavic, Lexapro
- Anti Diabetes: MP-513 (DPP4 inhibitor), TA-7284 (SGLT2 inhibitor)

Royalties (Gilenya, TA-7284)

Sustained Growth

Medium-Term Management Plan 11-15

New Value Creation
Mitsubishi Plastics, Inc.

Polyester Film Business, MAFTEC Business, and Agribusiness Solutions

1. Polyester Film Business
   - Strengthen global business development with establishment of business bases in China

2. MAFTEC Alumina Fiber Business
   - Expand capacity to meet robust demand

3. Agribusiness Solutions
   - Accelerate marketing in China
Situation in FY2011

- Sales volumes have deteriorated due to EU financial crisis, stagnant sales in LCD TV, inventory adjustment, etc., since 2Q
- Domestic business showing recovery trend since 4Q
- Overseas business generally robust, driven by Europe and the US

Future Measures

- Pursue business opportunities in China (Plant in operation from 2Q FY2013)
- Expand sales for non-FPD applications (touch panels, PV cells, etc.)
- Improve product mix
China Investment Plans by Panel Makers

SAMSUNG and LG announced to start operations in China

- **TCL** (Hohho) 8.5G In planning
- **BOE** (Beijing) 8.5G In operation
- **BOE** (Hehei) 8.5G Approved
- **Kunshan** (Kunshan) 8.5G Approved
- **Suzho** (Shenzhen) 8.5G In operation
- **Xiongmao-TPV (Nanjing)** 10G In planning
- **(Guangzhou)** 8.5G To be completed in 2014
- **(Chengdu)** In planning
- **(Hebei)** 8.5G In operation
- **(Suzho)** 8G To be completed in 2013

1. Polyester Film Business

SAMSUNG and LG announced to start operations in China.
1. Polyester Film Business

**Polyester Film Strategy in China**

**FPD Market**

FPD market expansion will be led by China after FY2012

**Polyester Film Strategy in China**

Secure a leading FPD polyester film position in a market showing great potential

**MPI Advantages**

- Quality and performance
- Agility to quickly meet customers’ needs
- Cutting-edge machinery and production technology

Outlook for polyester film production volumes by region

Source: MPI assumption

2010 2011 2012 2013 2014 2015 fiscal year
1. Polyester Film Business

Global Network for Polyester Film

Develop production and sales in China to strengthen global business platforms

- Mitsubishi Polyester Film (Germany) - 55,000 t/y
- Mitsubishi Polyester Film Suzhou Co., Ltd (Suzhou, China) - Expected to launch in 2013, 23,000 t/y
- Mitsubishi Polyester Film (USA) - 65,000 t/y
- MPI (Shiga, Japan) - 80,000 t/y
- PT. MC PET FILM (Indonesia) - 20,000 t/y
- Mitsubishi Polyester Film (Indonesia) - 20,000 t/y

Good Chemistry for Tomorrow | Mitsubishi Chemical Holdings Group
2. **MAFTEC Alumina Fiber Business**

### Situation in FY2011

- Strong demand for MAFTEC due to tightened emission controls and higher energy efficiency (diesel car & direct-injection engines), in addition to an increasing automobiles production driven by the emerging economies.
- Capacity increased in line with the increasing demand:
  - added 1 line at the Sakaide Plant, following expansion at the Naoetsu Plant
- Achieved record-high production volume and sales volume

### Future Measures

- Expand capacity as the internal combustion engine retains market dominance
- Add two lines in FY2012, starting in June and December
- Add further new lines or expand existing lines as necessary

<table>
<thead>
<tr>
<th>Location</th>
<th>Capacity expansion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apr. 2011</td>
<td>Naoetsu 300t/y</td>
</tr>
<tr>
<td>Feb. 2012</td>
<td>Sakaide 400t/y</td>
</tr>
<tr>
<td>May 2012</td>
<td>Sakaide 400t/y</td>
</tr>
<tr>
<td>Dec. 2012</td>
<td>Sakaide 400t/y (plan)</td>
</tr>
<tr>
<td>After FY2012</td>
<td>TBD Under consideration</td>
</tr>
</tbody>
</table>
Unique Characteristics of MAFTEC

**Unique technology controls fiber diameter**

- Carcinogenic risk range
  - Asbestos
  - Ceramic fiber
  - Alumina fiber

- **MAFTEC** provides higher functionality in support mat

**Safeness**

Outperforms conventional alumina fibers and ceramics

**Resiliency**

Excellent resiliency under high temperatures

- Glass wool
- Rock wool
- Calcium silicate
- Perlite
- Ceramic fiber

- **MAFTEC**

**Heat-resistance**

Size changed

Resiliency declined

Comparison of heat-resistance for light-weight insulator

- Temperature (°C)
  - Middle Temp. range
  - High Temp. range

- Elasticity Drops
- Measure Change

- Calcium Silicate Heat Insulation (JIS-2)
- Perlite Heat Insulation (JIS-2)
- MAFTEC
Emission Control and Demand Increase for MAFTEC

Promote advantages of MAFTEC to grow sales volumes

Outlook of global market for support mat fiber

Sales forecast in FY2015
Increase to 140% vs. FY2011

Tighter emission control
Progress in Catalyst performance
Need for shorter warm-up period of catalytic converter
Catalytic converter is placed nearer to the engine
Higher support mat temperature
High heat resistance required for support mat

Need for increased surface area of ceramic honeycomb of the catalytic converter
Thinner honeycomb
Strength of honeycomb declines in ISO test
High resiliency and size stability required for support mat

MAFTEC demand increase

Good Chemistry for Tomorrow  Mitsubishi Chemical Holdings Group
3. Agribusiness Solutions

Situation in FY2011

- Progress in plant factory
  - practical trial*
    - Seedling production system in a closed environment under artificial light
    - Tomato production system in greenhouse
  *Participation in a project of the Ministry of Agriculture, Forestry and Fisheries at Chiba University

- Acceleration of marketing in China
  - Decision to establish a local office for manufacture & sales of high performance film
  - Practical trial of plant factory with CHINA-CO-OP
  - Evaluation of biodegradable multi film testing with Chinese Academy of Agricultural Sciences, MCC, and MPI

Future Measures

- Set-up a local office in Chiangsu, China
  (Operation will start from July 2013)

- Sell of plant factories and materials in China

- Increase field trials for biodegradable multi film in China as premarketing

- Commercialize medicinal plants

Seedling production system, Nae Terrace
Tomato production system, Tomatorina
3. Agribusiness Solutions

Business Expansion in China

Expand Plant Factory-related Business in China

▼ Field trial of plant factory
Partnership with CHINA-CO-OP (Nov. 2011)
Step 1: (1) Wuxi
Step 2: (2) Nanjing
   (3) Beijing
   (4) Jilin

▼ Manufacture and sales of materials for agricultural use
(1) Establish local office in Chiangsu (Operation will start in July 2013)
   (Manufacture and sale of high performance film for plant factories)
Mitsubishi Rayon Co., Ltd.

MMA/PMMA, Carbon Fibers, and Aqua

1. MMA/PMMA
   - Update

2. Carbon Fibers and Carbon Fiber Composite Materials
   - Expansion of carbon fibers for automotive applications

3. Aqua Business
   - Business expansion in China

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1. MMA Monomer: Global Demand Balance

Respond globally to growth drivers and fulfill responsibility as market leader through innovation

- Daesan MMA (Korea) 98 kt/y to start operations (plan)
- Middle East Project 250 kt/y to start operations (target)

### 1. MMA/PMMA

(Estimation by MRC)
## Project Plans for the MMA Chain

**All projects are on schedule**

**Decision made to construct new methacrylic acid/esters plants**

<table>
<thead>
<tr>
<th>Name of project</th>
<th>Capacity</th>
<th>Progress status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daesan-2 Project</td>
<td>MMA: 98,000t/y PMMA: 60,000t/y</td>
<td>Under construction for planned start in Q1 2013. Under construction for planned start at the end of 2012.</td>
</tr>
<tr>
<td>New methacrylic acid plant in Beaumont</td>
<td>Methacrylic acid: 23,000t/y</td>
<td>Under construction for planned start of operations in 2013.</td>
</tr>
<tr>
<td>MMA restart in Beaumont</td>
<td>MMA: 156,000t/y</td>
<td>75,000 tons operation in 2011. Preparing for full operations.</td>
</tr>
<tr>
<td>Middle East α project</td>
<td>MMA: 250,000t/y PMMA: 40,000t/y</td>
<td>In detailed design stage.</td>
</tr>
<tr>
<td>New HEMA plant in Daesan MMA</td>
<td>HEMA: 11,000t/y (2-Hydroxyethyl methacrylate)</td>
<td>Planned operational start in April 2013.</td>
</tr>
<tr>
<td>Sustainable MMA</td>
<td></td>
<td>Under co-development between the UK and Japan</td>
</tr>
</tbody>
</table>
Mitsubishi Rayon Co., Ltd.

MMA/PMMA, Carbon Fibers, and Aqua

1. MMA/PMMA
   - Update

2. Carbon Fibers and Carbon Fiber Composite Materials
   - Expansion of carbon fibers for automotive applications

3. Aqua Business
   - Business expansion in China
2. Carbon fibers and Carbon Fiber Composite Materials

Carbon Fiber Demand Forecasts up to 2020

Large industrial applications, mainly in wind energy, will expand
- Rapid growth for automotive applications after 2015 -

<table>
<thead>
<tr>
<th>Year</th>
<th>Aerospace</th>
<th>Leisure &amp; Sports</th>
<th>Other industrial</th>
<th>Compound</th>
<th>Cable</th>
<th>Pressure vessel</th>
<th>Civil engineering</th>
<th>Wind energy</th>
<th>Civil engineering</th>
<th>Wind energy</th>
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<td>8,000</td>
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<td>12,000</td>
<td>4,600</td>
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</tr>
</tbody>
</table>

(Estimation by MRC)
2. Carbon fibers and Carbon Fiber Composite Materials

Expected Carbon Fiber Applications in Automobiles

Using carbon fibers and carbon fiber composite materials to realize KAITEKI society

- Significant weight-saving effects
  - Contribution to CO₂ reduction
    - Reduction of total CO₂ emission in Japan by 1.5% according to JCMA’s LCA Model
  - Higher degree of freedom in automobile design
  - Reduction in number of automobile parts

Boost penetration of electric/fuel cell vehicles

Source: The Japan Carbon Fiber Manufacturers Association (JCMA)
2. Carbon fibers and Carbon Fiber Composite Materials

Molding Technologies of Carbon Fiber Composite Materials for Automobiles

Establishment of CFRP technologies for commercial scale production vehicles

<table>
<thead>
<tr>
<th>Small scale production car</th>
<th>Commercial scale high-grade car</th>
<th>Commercial scale production car</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autoclave</td>
<td>PCM</td>
<td>Next generation carbon fiber composite materials for automobiles</td>
</tr>
<tr>
<td>Oven molding</td>
<td>RTM/VaRTM</td>
<td></td>
</tr>
<tr>
<td>Pressure molding</td>
<td></td>
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</tbody>
</table>

Standard molding technologies for CFRP

Development by 2015
- Target production rate: 3,000 to 5,000 cars/month
- Commence exterior panels e.g. trunk-lid, engine-food

Development after 2105
- Growth of hybrid and electrical vehicles
- Target production rate: 30,000 to 50,000 cars/month

CFRTP: Carbon Fiber Reinforced Thermoplastics
RTM: Resin Transfer Molding
VaRTM: Vacuum Assisted Resin Transfer Molding
PCM: Prepreg Compression Molding
SMC: Sheet Molding Compound
D-LFT: Direct Long Fiber Reinforced Thermoplastics
LFP: Long Fiber Pellet
Provide Optimized CFRTP Technologies using the Group Synergy

1) Basic material design
2) Development of effective impregnation process
3) Optimization of fiber length, content and dispersion
4) Improvement of molding properties
5) Proposal of component design

Material development

- CF
- Treatment by sizing agent
- CF tow
- UD tape
- Thermoplastic resin (PP)

Impregnation

Process development

- UD tape
- CF sheet

Heat setting

Proposal of component design technologies (bonding technology and simulation)

Molding
2. Carbon fibers and Carbon Fiber Composite Materials

Automobile Market Development Roadmap

Target adoption in mass production vehicles by around 2015

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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Vehicle trend</td>
<td>Gas engine vehicles</td>
<td>EU: 139g/km</td>
<td>EU: 185g/km (1995)</td>
<td>EU: 130g/km</td>
<td>Hybrid vehicles</td>
<td>California: 131g/km</td>
<td>Japan: 138g/km</td>
<td>Electrical vehicles</td>
<td>CAFE (US): 155g/km</td>
</tr>
<tr>
<td>Emission regulations</td>
<td>Thermosetting resins</td>
<td>(Development of PCM)</td>
<td>Established basic and mass production technologies for PCM</td>
<td>Molding cycle time: 5min (cure time: 3min)</td>
<td>Improvement of structural members</td>
<td>Investigation for commercial scale expansion</td>
<td>Equipment investment</td>
<td>Expansion of CFRTP business</td>
<td></td>
</tr>
<tr>
<td>Thermoplastics</td>
<td>Improvement of basic molding technologies for CFRTP</td>
<td>Equipment investment</td>
<td>Preparing for pre-launch</td>
<td>Sample work</td>
<td>Equipment investment</td>
<td>Apply for complex and large structural members</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Improvement of stampable sheet, LFP, D-LFT)</td>
<td>National project</td>
<td>Development and commercialization of applications</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

- National project: Development of sustainable hyper composites, Development of molding and connecting technologies.
Mitsubishi Rayon Co., Ltd.

MMA/PMMA, Carbon Fibers, and Aqua

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3. Aqua Business
   - Business expansion in China
Expansion of Cleansui into Overseas Markets

- Expansion of Cleansui (home-use water purifier) into overseas markets
  - Sales promotion in overseas markets in collaboration with Mitsubishi Kagaku Media/Verbatim (Australia/New Zealand, Europe, and Asia)
  - Sales promotion in the huge and increasingly health-conscious Chinese market
- Promote Cleansui (using hollow fiber membranes) worldwide and achieve KAITEKI by providing “clean & safe water”

Global Water Purifier Market (estimated by MRC)

Changes in Overseas Sales

Steady increase toward 2015
3. Aqua Business

Business Expansion in China (1)

Accelerate MBR installation in large-scale public projects and food industry

China: Number of instances where MRC’s MBR systems were used (up to FY2011)

- General industrial wastewater treatment: 83
- Sewage/wastewater treatment: 28
- Chemical/coal plant wastewater treatment: 15
- Others: 37

Total: 163

- Focus on large-scale public project orders
- Expand into the food industry wastewater treatment market

[Shanxi & Shandong Provinces]

- Major uses
  - Food/beverage plant wastewater treatment (Shandong)
  - Coal chemicals plant wastewater treatment (Shanxi)
  - etc.

[North & North East China]

- Major uses
  - Large-scale public sewage recycling
  - Agricultural wastewater treatment
  - etc.

[South China]

- Major uses
  - Wastewater treatment in electronics industry and food (starch) plants

[East China]

- Major uses
  - Wastewater/sewage treatment to comply with regulations concerning industrial wastewater discharge in the Taihu Lake area
3. Aqua Business

Business Expansion in China (2)

Established hollow fiber membrane production facilities in partnership with a leading local player

- Enhanced capabilities to stably manufacture and supply high-quality hollow fiber membranes based on our proprietary technologies
- Using local partner’s capabilities to receive MBR orders and sell hollow fiber membranes
- Improved cost competitiveness of hollow fiber membrane products; gaining the advantages of local production for local consumption

Further strengthening competitiveness in the Chinese wastewater treatment market

[Company Overview]
Company name: Wuxi MRC Origin Water Membrane Tech. Co., Ltd.
Location: Wuxi City, Jiangsu Province
Foundation: July 2001
Total investment: RMB 142 million
Capital composition: MRC 51%
Beijing Origin Water Technology Co., Ltd. 49%
Business lines: Manufacturing and sale of hollow fiber membranes for sewage/wastewater treatment; processing and sale of membrane elements
Business Expansion in China (3)

Expansion of the water treatment facility O&M (operation & maintenance) business in China

- Launch O&M business in China with a local partner who has rich experience in MBR installation (June 2012)
- O&M is expected to become the fastest growing segment in the global water treatment market. We plan to meet this demand by promoting our industrial wastewater treatment business (incl. recycling) and businesses that use affiliates' networks.

2025 Market Size Projection (86.5 trillion yen)

- Design/Construction: 48.5 trillion yen (56%)
- Equipment installation: 38 trillion yen (44%)

[Company Overview]
- Company name: Fengxin JDL Environment Protection Ltd.
- Location: Fengxin Industrial Park, Fengxin County, Yichun City, Jiangxi Province
- Foundation: December 2010
- Capital composition: MRC 51%, Jiangxi JDL 40%, Toyota Tsusho 9% (expected in June 2012)
- Business lines: Construction and operation of water supply/wastewater treatment facilities and provision of related services; recycling of water resources; sale of water treatment facilities; and provision of water treatment technology consulting services
3. Aqua Business

Accelerate Wastewater System Development through Maximizing Group Strengths in Aqua Business

Started super water-saving PTA plant in China Contributing to PTA competitiveness and globalization of Aqua business

Planned PTA manufacturing plant of MCC (approximate 10% share of the international market)

- High volume of COD waste-water is produced from large quantities of industrial water used in the PTA process
- MCC has started the world’s best water-saving PTA plant, with potential for further improvement

<table>
<thead>
<tr>
<th></th>
<th>general</th>
<th>MCC China</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>industrial water</td>
<td>8</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>m3/t-TPA</td>
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<td></td>
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</tr>
<tr>
<td>Effluent load</td>
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<td>0.2</td>
</tr>
<tr>
<td>kg/t-TPA</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

- Contributes to environmental protection while also strengthening competitiveness and globalization of our Aqua business
APTSIS

Mitsubishi Chemical Holdings Group Member will,
Under a mission to contribute to our Group,
Strive to provide safety and comfort, be environmentally
conscious, and improve human health
To win further trust worldwide.

Agility
Be alert, act quickly

Principle
Sharing theories, principles
and ideals

Transparency
Transparency, accountability and
compliance

Sense of Survival
A sense of being on the verge, a sense of crisis

Internationalization
Enhancing our performance within the global market

Safety, Security & Sustainability
Ensuring safety in manufacturing, trust in quality,
information security and environmental consciousness