The Mitsubishi Chemical Holdings Group
Mid-term Management Plan

APTSIS 10

The Mid-term Management Plan 2010

May 13, 2008

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President
Mitsubishi Chemical Holdings Corporation

Good Chemistry for Tomorrow
Creating better relationships among people, society, and our planet.
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 petrochemicals, carbon and inorganic products, information and electronics, pharmaceuticals, polymers and processed products, 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.
Mitsubishi Chemical Holdings Group Motto

Apt: [Adjective] Appropriate
-sis:
 [Suffix] From Greek, indicates that something is a behavior, process, status, condition, etc.
Agenda


  “Growing, Innovating, and Leaping Ahead”
  1. What we aspire to be in 2025, and should be in 2015
  2. Basic strategies of *APTSIS 10*
  3. Increase shareholder value

- Increasing corporate value sustainably laying the foundation for the “Institute for KAITEKI Biosphere” (tentative)

FY2008-2010: April 1, 2008 – March 31, 2011
Review of the Former Mid-term Management Plan
KAKUSHIN Plan: Phase 2
(FY2005-2007)
KAKUSHIN Plan: Phase 2

Basic Strategies and Results

Steady achievement of management reforms

Core Strategies

- Portfolio Management with Emphasis on Sustainable Growth
  - Focus on selected businesses and allocate strategic resources for further growth
  - R&D investment to create new values and to develop proprietary technologies

- Integration of Group Strengths
  - Maximize group synergy
  - Prepare for further alliances

- Pursuit of Further Growth and Improvement of Financial Condition
  - Achieve both growth and balance sheet management
  - Improve financial condition

Strategic Initiatives

- Establish holding company structure (Mitsubishi Chemical Holdings Corporation) (Oct. 2005)
- Merger of Mitsubishi Pharma Corporation and Tanabe Seiyaku Co., Ltd. (Oct. 2007)
- Make Mitsubishi Plastics, Inc. a wholly-owned subsidiary and consolidation of functional products businesses (Apr. 2008)
- Identify R&D focus areas

Numerical Targets of Phase 2 FY2007 (Plan) vs. Actual Results

- Operating Income ¥140 billion
- ROA \( \geq 5.5\% \)
- D/E Ratio \( \leq 1.5\)  

**Operating income target was not achieved due to worsening in business conditions for the terephthalic acid, the Kashima fire, and delays in establishing and developing the performance products market.

※1 ROA = Net income before tax / Average of total assets at beginning and end of fiscal year

※2 D/E ratio = Total debt / Shareholders’ equity
**Major Investments**

Investments will bear fruit over the next three years

Investment (CAPEX and Investments & Loans): ¥ 430 billion/3 yrs.

<table>
<thead>
<tr>
<th>Segments (Tot. Inv.)</th>
<th>Major Investments</th>
<th>FY2010 Operating Income (Plan)</th>
</tr>
</thead>
</table>
| **Petrochemicals** [Including carbon-related products] ($190.0 billion) | Capacity expansion  
- PTMG (China)  
- Polycarbonate (Kurosaki/China)  
- Polypropylene (Kashima)  
- New PP compounds (China/Thailand/India)  
- Performance polymers facil. expansion (US) etc. (Terephthalic acid facil. Expansion (India *))  
Diversity of feedstocks  
- Ethylene, etc. (Mizushima) | ¥11.5 billion |
| **Performance and Functional Products** ($149.0 billion; including ¥34.5 billion for MPI TOB) | Business expansion  
- Smart Disk (US) acquisition  
Capacity expansion  
- Chemical toner (Yokkaichi)  
- New and additional OPC facil. (Singapore/Odawara)  
- Color resist (Kurosaki, Korea JV)  
- BPDA (Kurosaki)  
- Polyester film (Shiga)  
- Synthetic silica (Kurosaki), etc. | ¥7.0 billion |
| **Health Care** ($41.0 billion) | | |

**Earnings expected from major investments**

- ¥11.5 billion
- ¥7.0 billion

*Not including 2nd PTA investment in India.
Remaining Tasks

- **Overall**
  - Enhancement of frontline capabilities (accidents and compliance)
  - Overseas business expansion
  - Acceleration of new business development

- **Petrochemicals**
  - Stable profitability
  - Strategic restructuring of terephthalic acid business
  - Measures to address the 2008-2010 issue

- **Performance and Functional Products**
  - Product and business lifecycle management (growth strategy)
  - Creation of next generation’s growth businesses (innovation strategy)
  - Early realization of New Mitsubishi Plastics integration benefits

- **Health Care**
  - Early realization of Mitsubishi Tanabe Pharma merger benefits
  - Acceleration of overseas business development
  - Early resolution of the hepatitis C problem
Overview of the New Mid-term Management Plan

APTSIS 10

(FY2008-2010)
What We Aspire to Be in 2025, and Should Be in 2015
“Climate Change and Natural Resources”
- Global warming/climate change
- Depletion of metal and other resources
- Pollution and shortages of water resources

Companies that do not make positive contributions in terms of resource usage and environmental protection will not survive.

“Health Care”
- Declining birth rate (especially in Japan) & aging population
- Rising medical needs
- Pension funds crisis

The era of “mega pharma” is giving way to a new business model.

“Economy & Markets”
- Rapid Growth of BRICs (mainly China and India) and other economies
- Weakening of US hegemony and rise of coexistence of civilizations with differing values and ways of life
- Focus shifting from market economy principles to discipline, public benefit, and environmental consciousness

All business sectors are undergoing major restructurings on an international scale.
Aspiration for 2025

The Mitsubishi Chemical Holdings Group will be a global leading company based on “Good Chemistry*”

Three decision criteria for corporate activities

Sustainability
Health
Comfort

*“Good Chemistry for Tomorrow” expresses Mitsubishi Chemical Holdings Corporation’s approach which we will continue to correspond to the needs of industry and society, creating better relationships among people, society and our planet.
What We Should be in 2015

Five requirements for a global leading company

1. Operating income (FY2015) ≥ ¥400 billion
2. Provision of high quality through safe and stable production systems
3. Transparency in information disclosure
4. Greenhouse gas (CO₂ equiv.) reduction FY2015: ≥ 20%
5. Develop all 7 next-generation growth businesses into commercially viable operations

Frontline capabilities
- Global sensitivity
- Spirit of challenge

Innovation
Reliability
Environmental Consciousness
Profitability
Human Resources

Profitability

What We Should be in 2015
Shift to high-performance products and high value-added businesses

Profit Structure in 2015

Operating Income

- ¥125 billion
  - FY2007: ¥2.9 trillion
  - FY2010: ¥3.7 trillion
  - FY2015: ≥ ¥4 trillion

> ¥190 billion

- 26% M&A+
- 46%
- 22%
- 17%

≥ ¥400 billion

- Chemicals
- Performance Products
- Health Care
- Other
- M&A etc.
Basic Strategies and Measures
Management Benchmarks

Key numerical targets for FY2010

Operating Income \( \geq ¥190 \text{ billion} \)  
(Including ¥20 billion contingencies)

\( \frac{\text{Operating Income}}{\text{Total assets}} \) \( \geq 6\% \)

Contribution to reduce \( \text{CO}_2 \) emission \( 20\% \) reduction *  
* Unit energy consumption

Other targets

\( \text{ROE} \) \( \geq 8\% \)

\( \frac{\text{EBITDA}}{\text{Total assets}} \) \( \geq ¥350 \text{ billion} \)

Since emphasis is being placed on growth, the D/E ratio (financial stability measure) has not been established as a key indicator.
### Assumptions

<table>
<thead>
<tr>
<th>Variables</th>
<th>Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic conditions</td>
<td>World economic downturn</td>
</tr>
<tr>
<td>Naphtha price</td>
<td>¥68,000/kl</td>
</tr>
<tr>
<td>Forex</td>
<td>¥105/$</td>
</tr>
<tr>
<td>Intensifying competition in</td>
<td>Establishment of 7 next-generation growth businesses</td>
</tr>
<tr>
<td>advanced materials</td>
<td></td>
</tr>
<tr>
<td>Drug price revision in Japan</td>
<td>Every other year</td>
</tr>
<tr>
<td>2008-2010 petrochemical issue</td>
<td>Production increases, particularly in the Middle East, will cause excess supply</td>
</tr>
</tbody>
</table>
## Business Portfolio

**Categorized by profitability, market superiority, and market attractiveness**

<table>
<thead>
<tr>
<th>Performance Products</th>
<th>Health Care</th>
<th>Chemical Products</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Next-Generation Growth Businesses (Innovation Strategy)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Next-Generation Growth Businesses</td>
<td></td>
<td></td>
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<tr>
<td>◆ Solid-state lighting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>◆ Li-ion battery materials for HEVs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>◆ Next-generation displays</td>
<td></td>
<td></td>
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<tr>
<td>◆ Chemical components for automobiles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>◆ Bio-based polymers</td>
<td></td>
<td></td>
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<tr>
<td>◆ Organic photovoltaics modules</td>
<td></td>
<td></td>
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<tr>
<td>◆ Personalized medicine</td>
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</tbody>
</table>

| **Existing Growth Businesses (Growth Strategy)** |
|◆ Electronics Applications |
| Recording media, imaging, semiconductor-related materials and services, high performance polyester film, electronic device components |
|◆ Designed Materials |
| Food ingredients, carbon fiber composites, alumina fibers, performance packaging film |
|◆ Health Care Pharmaceuticals |
|◆ Chemicals |
| C4 chemicals, high performance graphite |
|◆ Polymers |
| Polycarbonate and bisphenol-A, polypropylene, performance polymers |

| **Businesses to be Restructured** |
|◆ Terephthalic acid and others |

| **Stable Businesses** |
|◆ Blast furnace coke |
|◆ Olefins and aromatics |
|◆ Performance chemicals, etc. |
Basic Strategy

Concept: “Growing, Innovating, and Leaping Ahead”

Growing

Growth Strategy
Shift to high-performance products and high value-added businesses
Efficient product/business life cycle management

Innovating

Innovation Strategy
Nature and accelerate 7 next-generation growth businesses

Leaping Ahead
Strategic investment for alliances and M&A
Achieving Growth Strategies

Shift to high-performance products and high value-added businesses
Efficient product and business lifecycle management

◆ Performance Products
  • Maintain and further expand existing global businesses
  • Expand in only 1 and/or No.1 niche businesses in growing markets

◆ Health Care
  • Early realization of MTPC* merger benefits
  • Steady progress in key development projects at MTPC*
  • Development of business infrastructure to be a global research-driven pharmaceutical company

◆ Chemicals
  • Shift to high performance products
  • Realizing results of investments executed in KAKUSHIN Plan: Phase 2

* Mitsubishi Tanabe Pharmaceutical Corporation
Active investment will be pursued to realize “Growth and Innovation”

CAPEX and investments & loans: ¥590 billion/3 yrs.
(R Compared to KAKUSHIN Plan: Phase 2: 1.4x)

R&D expenditures: ¥425 billion/3 yrs.
(R Compared to KAKUSHIN Plan: Phase 2: 1.4x)

Notes: Investment figures are based on decision based.
R&D expenditures for 7 next-generation growth businesses are included in each segment.
To strive for active business expansion, resources will be strategically invested in alliances and M&A. Available funds: ¥250 billion (FY2008-2010)

Allocation to:
- Existing growth businesses
- Performance products business (including devices)
- Global development
2015 and Beyond (Operating Income)

Growing, Innovating and Leaping Ahead

What we should achieve ≥ 400

Plan ≥ 190

Actual 125

FY2007

- Performance Products
- Health Care
- Chemical Products

FY2010

- Leaping Ahead M&A
- Innovating

FY2015

FY2020

Growing, Innovating and Leaping Ahead

(Billions of Yen)

Net Sales

- ¥2.9 trillion
- ¥3.7 trillion
- ≥ ¥4.0 trillion
Portfolio Earnings Structures

% of operating income accounted for Existing growth businesses and Next-generation growth businesses

Note: The figure for 2007 is adjusted by excluding the extraordinary loss of ¥8.2 billion related to the Kashima accident.

Existing growth businesses: Op. Inc. (vs. FY2007)
- FY2010: 1.6x
- FY2015: 2.1x
Performance Products
Performance Products

**Innovation Strategy:**
Create next-generation growth businesses, in part by expansion into device markets

**Growth Strategy 1:**
Maintain and expand businesses by efficient product-business lifecycle management

**Growth Strategy 2:**
Expand only 1 and/or No.1 niche businesses

**Profit maximization through strengthening of ties among technology clusters, and value chain management**
Maintain and further expand in existing global businesses

Electronics Applications

**Recording Media**
- Maintain and expand the optical disc business by leading the world markets for dye-based DVD’s and Blu-ray discs
- Accelerate entry into the market for non-optical recording media (Portable HDD and Flash Memory) by taking advantage of the “Verbatim” brand name (The World’s Top CD and DVD recordable brand)
- No.1 global market share in optical recording media

**Imaging**
- Develop business globally by introducing new product such as chemical toner and strengthening sales channels
- Maintain and expand competitive advantage in the area of digital printing
- No.1 global market Share for component Supplier

**High-Performance Polyester Film**
- Maintain and expand technical and quality superiority in the market for FPD film
- Expand business area by developing new applications (Photovoltaic components, high performance process film)
- No.1 global market share in optical PET film
### Growth Strategy (2)

**Performance Products**

#### Expand in only 1. and/or No.1 niche businesses in growing market

**Electronics Applications**

| Semiconductor-related materials and services | • Gain new markets by working closely with customers who have adopted new processes (electronic chemicals/wafer recycling)  
| | • Maintain No.1 global share. Steady production enhancement (synthetic silica)  
| Electronic device components | • Expand sales in the East Asian market  
| | • Expand housing and material applications for thin cell phones  

**Designed Materials**

| Alumina fibers  
| Pitch-based carbon fiber composites | • Maintain global No.1 share by complying to environmental regulations  
| | • Expand global No.1 share by broadening applications  
| Food ingredients | • Expand business by leveraging emulsifier know how and to develop business in China  
| High performance packaging films | • Expand high barrier film market share  
| | • Develop new applications (photovoltaic components, etc.)  

**Growth Strategy (2)**

- Maintain global No.1 share by complying to environmental regulations
- Expand global No.1 share by broadening applications
- Expand business by leveraging emulsifier know how and to develop business in China
- Expand high barrier film market share
- Develop new applications (photovoltaic components, etc.)
Innovation strategy

7 next-generation growth businesses

Toward growth markets

**Comfort**
Light & color and clean energy

**Sustainability**
From treating disease to preventative care

**Health**

Information & Electronics
Environment & Energy
Automobiles
Daily Necessities
Health Care

Solid-State Lighting
Next-Generation Displays
Bio-based Polymers
Personalized Medicine

Li-ion Battery Materials for HEVs
Chemical Components for Automobiles
Organic Photovoltaic Modules

Time line

2010

2015
## Innovation Strategy

**Generate next-generation growth businesses by delivering materials and devices for future global markets**

<table>
<thead>
<tr>
<th>Solid-state lighting Next-generation displays</th>
<th>• Apply strengths in materials know how to effect rapid entry into device markets and expand profitability (also consider alliances)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium-ion battery materials for HEVs</td>
<td>• Accelerate all four major component businesses by working closely with customers and assuring safety and fuel efficiency</td>
</tr>
<tr>
<td>Chemical components* for automobiles</td>
<td>• Business and technology development for light weight automobiles by CFRP composites, plastic glazing and exterior sheet</td>
</tr>
<tr>
<td>Organic photovoltaic modules</td>
<td>• Expand the existing non-organic photovoltaic material business.</td>
</tr>
<tr>
<td>Bio-based polymers*</td>
<td>• Establish business infrastructure and enter the market with organic photovoltaic prototype beginning in 2010</td>
</tr>
<tr>
<td></td>
<td>• Commercialization of “GS Pla” with plant-derived monomer</td>
</tr>
</tbody>
</table>

* Part of Chemicals business domain’s Innovation Strategy as well, see P 43
Focused Investments for Innovation Strategy

R&D expenditure: ¥40 billion/3yr
CAPEX and investments & loans: ¥90 billion/3yr

Performance Products

- Organic photovoltaic modules
- Inorganic photovoltaic components
- Plant-derived bio-based polymers
- Petroleum-based biodegradable polymers
- CFRP composites for automobiles
- Glazing, Exterior sheet, etc.
- Anodes, Cathodes, Electrolytes, Separators
- White LED chips → Lamps
- GaN substrates, Phosphors, Sealants
- Organic LED modules
- Materials for LCD

Net Sales (¥100 billion)
Operating Income and Resource Allocations

2015 Operating Income Expansion Objectives
- Materials, Processing, Devices -

Resource Allocation Plan

Phase 2
- Investments ¥149 billion
- R&D Expend. ¥77 billion

APTSIS 10 3-Yr. Plan
- Investments ¥210 billion
- R&D Expend. ¥97 billion

Operating Income

+ α (M&A)

Other

Next-Generation Growth Businesses

Existing Growth Businesses

(Billions of Yen)

FY2007 FY2008 FY2010 FY2015
APTSIS

Health Care
Health Care

Strengthen business foundation for a global research-driven pharmaceutical company as a core of our health care business

Growth strategy
• Early realization of MTPC* merger benefits
• Steady progress in key development projects at MTPC*
• Development of business infrastructure to be a global research-driven pharmaceutical company

Innovation strategy
Progress in our roadmap toward personalized medicine through synergies of the MCHC Group.

*Mitsubishi Tanabe Pharma Corporation
Steady progress in key development projects at MTPC*

**U.S. and Europe**
- MI-196 (Hyperphosphatemia)
- MP-146 (Chronic kidney disease)

**Domestic**
- MP-424 (Chronic hepatitis C)
- MP-513 (Type 2 diabetes)
- TA-7284 (Diabetes)

**LCM**
- Remicade
- Psoriasis
- Ankylosing Spondylitis
- Ulcerative Colitis
- Radicut
- ALS

**Medium-Term Management Plan**

- **Targeting NDA by fiscal 2010**
- **Steady progress in phase III**
- **Steady progress**
- **Alliances anticipated in U.S. and Europe**
- **Licensed out U.S. and Europe**

*Mitsubishi Tanabe Pharma Corporation*
Health Care

Growth Strategy (2)

Development of business infrastructure to be a global research-driven pharmaceutical company

Prepare in-house sales system in the U.S. and Europe for MCI-196 and MP-146

- Targeting initial in-house sales in the U.S., start to establish sales foundation
- Start pre-marketing activities for nephrologists and dialysis specialists, which will be the target of promotions
- Targeting concurrent sales in Europe as well, establish sales foundation (Use existing Agatroban sales foundation)
Drug discovery utilizing biomarkers

Mitsubishi Tanabe Pharma Corporation

Lifecycle management utilizing biomarkers

Mitsubishi Chemical Medience Corporation
Diagnostic reagents & instruments

Moleculence Corporation: Biomarker discovery
Mitsubishi Chemical Group Science and Technology Research Center, Inc. Analytical technologies

Realizing Targeted Medicine
Increase satisfaction with medical care through the realization of personalized medicine

Progress in our roadmap toward personalized medicine through synergies of the MCHC Group

Drug discovery utilizing biomarkers

Biomarker Discovery
Operating Income and Resource Allocation

2015 Operating Income Expansion Objectives
- Acceleration of New Drug Development and Overseas Business Development -

Operating Income

Resource Allocation Plan

- **Phase 2**
  - Investments ¥41 billion
  - R&D Expend. ¥165 billion

**APTSIS 10** 3-Yr. Plan
- Investments ¥75 billion
- R&D Expend. ¥249 billion

Health Care
Chemicals
Chemicals

**Shift to high-performance products**
(Corresponding to 2008・2010 issue)

**Growth Strategy 1:**
- Shift to high-performance products
  - High performance graphite, C4 chemicals,
  - Polycarbonate・Bisphenol-A, Polypropylene,
  - High performance polymer

**Growth Strategy 2:**
- Realizing results of investments executed in *KAKUSHIN Plan: Phase 2*

**Innovation Strategy**
- Create new environmentally-friendly material

**Stable Businesses**

**Businesses to be Restructured**
Shift to high-performance products

High performance graphite, C4 chemicals, Polycarbonate, Bisphenol-A, Polypropylene, High performance resins

**High performance graphite**
Expand sales in graphite electrodes and melting pot

**Polycarbonate (incl. compounds)**
Expand automobile, electric/electronic and other high performance area

<table>
<thead>
<tr>
<th>FY2007</th>
<th>FY2010</th>
<th>FY2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>High-performance</td>
<td>27%</td>
<td>30%</td>
</tr>
<tr>
<td>Product ratio</td>
<td></td>
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</tbody>
</table>

**Polypropylene**
Expand automobile, food, medical and other high-performance area

<table>
<thead>
<tr>
<th>FY2007</th>
<th>FY2010</th>
<th>FY2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>High-performance</td>
<td>36%</td>
<td>50%</td>
</tr>
<tr>
<td>Product ratio</td>
<td></td>
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</tbody>
</table>
Realizing results of investments executed in KAKUSHIN Plan: Phase 2

- Mizushima Plant streamlining, etc.
- PTMG capacity expansion in China
- Performance polymer capacity expansion in the US
- PP capacity expansion and new olefin conversion unit at the Kashima Plant
- New PC capacity in China and PC capacity expansion at the Kurosaki Plant

(Billions of Yen)
## Innovation strategy

### Create new environmentally-friendly materials

<table>
<thead>
<tr>
<th>Chemical components for automobile</th>
<th>Business and technology development for light weight automobiles by CFRP composites, plastic glazing, and plastic exterior body panels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bio-based polymers</td>
<td>Commercialization of “GS Pla” with plant-derived monomer</td>
</tr>
<tr>
<td></td>
<td>Process technology and business development of isosorbide polymers</td>
</tr>
</tbody>
</table>
Stable Businesses and Business to be Restructured

Stable Businesses

Blast furnace coke
Maintain stable profit by investing and meeting environmental requirements and stable production

Petrochemicals-related
Shift polyethylene to a higher profitable applications (e.g. HDPE)
Select and focus chemical derivatives (asset-light)
Reform chemical complex by alliances and collaboration, to strengthen its competitiveness by focusing on core derivatives

Businesses to be Restructured
Business restructuring of terephthalic acid by alliances, collaboration, and reorganization
Operating Income and Resource Allocation

Shift to high-performance products

**Operating Income**

(Billions of Yen)

- **Existing Growth businesses**
- **Growth businesses**

**Resource Allocation Plan**

**Phase 2**
- Investments ¥190 billion
- R&D Expend. ¥39 billion

APTSIS 10 3-Yr. Plan
- Investments ¥155 billion
- R&D Expend. ¥64 billion

Good Chemistry for Tomorrow

Creating better relationships among people, society, and our planet.
## Operating Income by Segments

<table>
<thead>
<tr>
<th>Business Domains</th>
<th>FY2007 Actual</th>
<th>FY2008 Forecast</th>
<th>FY2010 Plan</th>
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</thead>
<tbody>
<tr>
<td><strong>Performance Products</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>41.9</td>
<td>47.0</td>
<td>61.0</td>
</tr>
<tr>
<td>Electronics Applications</td>
<td>31.9</td>
<td>33.0</td>
<td>39.0</td>
</tr>
<tr>
<td>Designed Materials</td>
<td>10.0</td>
<td>14.0</td>
<td>22.0</td>
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<tr>
<td><strong>Health Care</strong></td>
<td>57.2</td>
<td>81.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Health Care (MTPC)</td>
<td>-</td>
<td>75.0</td>
<td>95.0</td>
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<tr>
<td>Health Care (Other)</td>
<td>-</td>
<td>6.0</td>
<td>5.0</td>
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<td><strong>Chemicals</strong></td>
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<td>50.0</td>
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<tr>
<td>Chemicals</td>
<td>10.5</td>
<td>24.0</td>
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<tr>
<td>Polymers</td>
<td>11.7</td>
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<td>21.0</td>
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<tr>
<td><strong>Others</strong></td>
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<tr>
<td>Corporate</td>
<td>▲ 9.9</td>
<td>▲ 16.0</td>
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<td><strong>Subtotal</strong></td>
<td>125.0</td>
<td>158.0</td>
<td>210.0</td>
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<td><strong>Contingencies</strong></td>
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<td>-</td>
<td>▲ 20.0</td>
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<tr>
<td><strong>Total</strong></td>
<td>125.0</td>
<td>158.0</td>
<td>190.0</td>
</tr>
</tbody>
</table>

| Net Sales                | 2,929.8       | 3,340.0         | 3,660.0     |

(Billions of Yen)
Overseas Businesses
Overseas Business Expansion

Overseas Sales Proportion:
from 27% (FY2007), to 30% (FY2010 target)

Strengthen Global Sales Channels
• Optical disc, OPC & toner sales expansion
• Construction of global drug sales and pharmacovigilance system

Utilize Global Manufacturing Sites
• Expand sales of high-performance film using existing polyester film marketing channels
• 3 regional production site for polymer components

Grasp Growing Asian Market
• Active grip of market trend and needs, using China and Indian as an information hubs
• C4 chemicals and polycarbonate sales expansion

Expand Overseas Businesses with Customers
• Electronic chemicals, display materials, and alumina fiber, “MAFTEC”
Increase Shareholder Value and Increasing Corporate Value Sustainably
Increase Shareholder Value

Increase shareholder value by increasing corporate value

Shareholder Returns

Dividends

- Dividends will be paid to the extent possible based on the need for internal reserves and a consideration of consolidated results.
- The dividend payout ratio is intended, but not fixed at 30% or more of profits, but stability (maintenance or increase in dividends per share) of dividends will also be emphasized.

Treasury Stock Purchases

- Treasury stock purchases will be flexibly implemented based on overall considerations of factors like capital usage and share price.

[Graph showing Per Share Dividends in Yen from Mar. '03 to Mar. '08]

[Image 43x664 to 61x743]
[Image 535x602 to 559x744]
[Image 99x82 to 105x760]
Strengthen Corporate Foundation

Philosophy

Criteria

Fundamentals

RC Activities (Environmental and safety)

Social Contributions

Protection of Human Rights

Compliance

Risk Management

Internal Controls

Establishing uniformity and improving the level of Group Internal Controls

Sustainability, Health, and Comfort

Practice

Responsible Conduct

Secure and Nurture

People Power
Strengthening of Frontline Manufacturing Capabilities

- Strengthening of production capabilities facility and process SA/SR
- Fabrication and assembly technology/processing technology

Secure and Nurture People Power

Reaffirmation of Safety as the No.1 Priority

Each person is an irreplaceable individual
MCHC Group Efforts

Absolute Reduction
- Process efficiency maximization
- Cooperation among manufacturers
- Creation of innovative processes

Contribute to society together with customers

Greater reductions through social contributions
Widen perspective to include product life cycles, and maximize contributions to society
- Organic photovoltaic modules
- High-efficiency lighting
- Weight-reduced vehicles
- Bio-based polymers, etc.

The MCHC Group is uniquely well-positioned to harmonize the ordinarily incompatible goals of delivering comfort and reducing global warming.
Resolve global environmental issues

Establishment targeted for April 2009

“Institute of KAITEKI Biosphere” (tentative)

Solutions

Know ledge, information

- Science
- Chemistry

Improve quality of life

- Society
- People
- Nature
- Technology

- Science
- Chemistry

Resolve global environmental issues

Conversion of CO2 into a carbon resource

e.g.
Summary

**What we aspire to be in 2025**

**What we should be in 2015**

**FY2008-2010 strategy**

Global Leading Company Working to Achieve Sustainability Health Comfort

“Institute of KAITEKI Biosphere” (tentative)
Reference
# Positioning of KAKUSHIN Plan: Phases 1 & 2

## Fundamental financial strengthening and growth measures

### Phase 1
- **Betting Survival**
  - Transfer of agricultural chemical business
  - Transfer of HD business
  - Early retirement program
  - Retirement allowance reserve

### Phase 2
- **Recovering Strength**
  - Interest-bearing debt reduction
  - Restructuring of loss-generating businesses

- **Building a Foundation for Growth**
  - Active capital and R&D investment
  - Pharmaceutical business merger
  - Mitsubishi Plastics TOB
  - Integration of performance materials business

## Phase 2 Targets
- Strengthening Businesses
- Strengthening Resource Investments

## Earnings (¥100 mil.)

<table>
<thead>
<tr>
<th>Mar ’02</th>
<th>Mar ’03</th>
<th>Mar ’04</th>
<th>Mar ’05</th>
<th>Mar ’06</th>
<th>Mar ’07</th>
<th>Mar ’08</th>
</tr>
</thead>
<tbody>
<tr>
<td>71</td>
<td>345</td>
<td>826</td>
<td>554</td>
<td>854</td>
<td>1,053</td>
<td>1,531</td>
</tr>
</tbody>
</table>

## Sales (¥100 mil.)

<table>
<thead>
<tr>
<th>Mar ’02</th>
<th>Mar ’03</th>
<th>Mar ’04</th>
<th>Mar ’05</th>
<th>Mar ’06</th>
<th>Mar ’07</th>
<th>Mar ’08</th>
</tr>
</thead>
<tbody>
<tr>
<td>17,803</td>
<td>18,875</td>
<td>19,253</td>
<td>21,895</td>
<td>24,089</td>
<td>26,228</td>
<td>30,000</td>
</tr>
</tbody>
</table>

## Financial Ratios

- **Op. Inc. (¥100 mil.)**
  - Phase 1: 348, 920, 982, 1,486, 1,336, 1,286, 1,254

- **D/E ratio**
  - Phase 1: 3.07, 2.75, 2.19, 1.59, 0.98, 1.04, 0.99

- **ROA(%)**
  - Phase 1: -2.6, 2.0, 3.4, 5.3, 5.6, 6.2, 8.6
## KAKUSHIN Plan : Phase 2 Business portfolio

(Launch/Decision in FY2005-7)

<table>
<thead>
<tr>
<th>Major matters</th>
<th>Petrochemicals</th>
<th>Performance Products</th>
<th>Health Care</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic</td>
<td>PP (Kashima plant), PC (Kurosaki plant), Ethylene (Mizushima plant), Polyethylene (Oita)</td>
<td>BD (Mizushima), Chemical toner (Yokkaichi), Materials &amp; components for LCDs (Polyester films, carbon fibers, color resists, phosphors), Alumina fibers for automobile, Li-ion battery material for automobile (Electrolytes: Yokkaichi, Anodes: Mizushima)</td>
<td>ULSO® approved additional indication, OMEPRAZON® approved additional indication, Medway® approval, REMICADE® approved additional indication, Hebsbulin® -IH for intravenous, PATHFAST® launch, Tanabe Seiyaku Hanbai Co., Ltd. (ets.)</td>
</tr>
<tr>
<td>Over Seas</td>
<td>PTA (India), PC, BPA (China), Performance polymer (US), PP compound (China, India and Thai), PTMG (China)</td>
<td>MCC India, Verbatim MKT India Pvt Ltd, DVD DL (Singapore), OPC (US &amp; Singapore)</td>
<td>Mitsubishi Pharma Deutschland GmbH, Launch ARGATRA®, Mitsubishi Pharma (Guangzhou) Co., Ltd establishment, Mitsubishi Pharma Research and Development (Beijing) Co., Ltd establishment, PATHFAST® launch in US and Europe</td>
</tr>
<tr>
<td>Acquisition Integration</td>
<td>PP compounds MYTEX, Japan Polyethylene consolidated subsidiary, Japan Ethanol Co., Ltd</td>
<td>Japan Epoxy Resin Co., Ltd: 100%, Food ingredients business, SmartDisk portable HDD (US), Near UV LED (technology / equipment)</td>
<td></td>
</tr>
<tr>
<td>Transfer</td>
<td>Dia-Nitrix Co., Ltd: Minor affiliate of MCC, HMT Polyethylene Co., Ltd</td>
<td></td>
<td>IC-Vec Ltd, Danaform, Inc.</td>
</tr>
<tr>
<td>Withdrawal</td>
<td>Soft Alkybenzene, Yuka Seraya PVT Ltd (SM), Melamine, Sasol Dia Acrylates (AA/AE)</td>
<td></td>
<td>Japan Genome Solutions, Inc.</td>
</tr>
</tbody>
</table>
# New Information Disclosure Scheme

## New segmentation as of FY2008

**Key Segment Change:** Moved carbon products business from Performance Chemicals to Chemicals

<table>
<thead>
<tr>
<th>Former Segmentation</th>
<th>New Segmentation as of April 1, 2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business domains</td>
<td>FY2007 Actual</td>
</tr>
<tr>
<td>Petrochemicals</td>
<td>Performance Products</td>
</tr>
<tr>
<td>Performance and Functional Products</td>
<td>Performance Products</td>
</tr>
<tr>
<td>Health Care</td>
<td>Health Care</td>
</tr>
<tr>
<td>Others</td>
<td>Others</td>
</tr>
<tr>
<td>Corporate</td>
<td>Corporate</td>
</tr>
<tr>
<td>Total</td>
<td>Total</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>¥100 mil.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Petrochemicals</td>
<td>92</td>
</tr>
<tr>
<td>Performance Products</td>
<td>361</td>
</tr>
<tr>
<td>Performance Products</td>
<td>192</td>
</tr>
<tr>
<td>Functional Products</td>
<td>572</td>
</tr>
<tr>
<td>Health Care</td>
<td>132</td>
</tr>
<tr>
<td>Others</td>
<td>136</td>
</tr>
<tr>
<td>Corporate</td>
<td>-99</td>
</tr>
<tr>
<td>Total</td>
<td>1,250</td>
</tr>
</tbody>
</table>
### Change of Segmentation

<table>
<thead>
<tr>
<th>Former segmentation</th>
<th>New segmentation as of April 1, 2008</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Business domains</strong></td>
<td><strong>Major products</strong></td>
</tr>
<tr>
<td>Petrochemicals</td>
<td>Basic petrochemicals</td>
</tr>
<tr>
<td></td>
<td>Chemical derivatives</td>
</tr>
<tr>
<td></td>
<td>Synthetic fiber materials</td>
</tr>
<tr>
<td></td>
<td>Neat resins and compounds</td>
</tr>
<tr>
<td>Performance and Functional Products</td>
<td>Carbon products</td>
</tr>
<tr>
<td></td>
<td>Fertilizers</td>
</tr>
<tr>
<td></td>
<td>Recording media information and electronics-related materials</td>
</tr>
<tr>
<td></td>
<td>Fine chemicals</td>
</tr>
<tr>
<td></td>
<td>Organic intermediates</td>
</tr>
<tr>
<td></td>
<td>Performance resins</td>
</tr>
<tr>
<td></td>
<td>Polymer processing products and composites</td>
</tr>
<tr>
<td>Health Care</td>
<td>Neat resins and compounds</td>
</tr>
<tr>
<td></td>
<td>Pharmaceutical diagnostics and testing</td>
</tr>
<tr>
<td>Others</td>
<td>Performance and Functional Products</td>
</tr>
<tr>
<td>Corporate</td>
<td></td>
</tr>
</tbody>
</table>

**Reference**
Operating Income (FY2007 vs. FY2010)

(100 Millions of Yen)

- Trading Difference
- Chemical Products: ▲570 220
- Performance Products: 530
- Health Care: 340 ▲350 100
- Fixed Expenses: 80
- Terephthalic Acid: 240
- Kashima Accident Impact: 60 ▲200
- Other
- Contingencies: Health care merger synergy
- Health Care timing difference (Tanabe 2007 1st half)
- Other
- Contingencies: 1,900

Reference
## APTSIS 10 Major Capital Expenditures Candidates

<table>
<thead>
<tr>
<th>Business Domains</th>
<th>Segments</th>
<th>Major Capital Expenditures</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Performance Products</strong></td>
<td>Electronics</td>
<td>Capacity expansion for GaN substrates for solid-state lighting</td>
</tr>
<tr>
<td></td>
<td>Applications</td>
<td>Next-generation displays (OLED) production facility</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Capacity expansion for precision cleaning/wafer recycling, and capacity expansion for synthetic silica production</td>
</tr>
<tr>
<td></td>
<td>Designed Materials</td>
<td>Capacity expansion for HEV Li-ion battery electrolytes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Capacity expansion for alumina fibers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Capacity expansion for carbon fiber composites</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Testing facility for organic photovoltaic modules</td>
</tr>
<tr>
<td><strong>Health Care</strong></td>
<td></td>
<td>Production facilities for active pharmaceutical ingredients and intermediates</td>
</tr>
<tr>
<td><strong>Chemicals</strong></td>
<td></td>
<td>1,4-BG-PTMG chain enhancement</td>
</tr>
<tr>
<td></td>
<td>Polymers</td>
<td>Four production site for PP polymers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Capacity expansion for performance polymers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Prototype facility for non-phosgene process DPC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Prototype facility for bio-based polymers</td>
</tr>
<tr>
<td><strong>Corporate and others</strong></td>
<td></td>
<td>New research facilities</td>
</tr>
</tbody>
</table>
Greenhouse Gas (CO₂ equivalency) Reduction Targets

Units energy consumption:

- 20% improvement by 2025
- 25% improvement by 2025

Graph showing the reduction in greenhouse emissions from 1990 to 2025, with targets set for 2000, 2010, 2015, and 2025.
## Recording Media DVDR

<table>
<thead>
<tr>
<th>Global Demand</th>
<th>450 Million Units (Yr. 2007)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market Share</td>
<td>24% (Global No.1)</td>
</tr>
<tr>
<td>Advantage</td>
<td>Global brand: VERBATIM R&amp;D + Sales + Marketing Dye and Double Layer technology</td>
</tr>
<tr>
<td>Growth Attributes</td>
<td>1st in the Market High quality with stable global product supply</td>
</tr>
<tr>
<td>Technology</td>
<td>High speed recording with excellent hardware compatibility Main materials are made in-house</td>
</tr>
<tr>
<td>Features</td>
<td>Global network sales channel</td>
</tr>
</tbody>
</table>
# Imaging: Organic Photo Conductor (OPC)

<table>
<thead>
<tr>
<th>Applications</th>
<th>Organic photo conductor for laser printers and copiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global Demand</td>
<td>Annual growth rate of 5%</td>
</tr>
<tr>
<td>Share</td>
<td>Approx. 20 % (Component supplier No.1)</td>
</tr>
<tr>
<td>Advantage</td>
<td>Cutting edge technology enabled (High image quality, high speed, miniaturization)</td>
</tr>
<tr>
<td></td>
<td>Technological development that meets market demand</td>
</tr>
<tr>
<td></td>
<td>High cost performance</td>
</tr>
<tr>
<td>Growth Attributes</td>
<td>Increasing demand by introducing color OPC</td>
</tr>
<tr>
<td></td>
<td>Strong sales channels</td>
</tr>
<tr>
<td>Technology</td>
<td>Wide range of I/P with main materials are made in-house</td>
</tr>
<tr>
<td>Features</td>
<td>Pioneer in OPC with technical expertise</td>
</tr>
<tr>
<td></td>
<td>Wide product range and steady product supply</td>
</tr>
</tbody>
</table>
### Precision Cleaning

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic demand</td>
<td>¥10 Billion (Yearly growth rate of 5 - 10%)</td>
</tr>
<tr>
<td>Share</td>
<td>Approx. 60% (JP, TW and KR) Global No.1</td>
</tr>
<tr>
<td>Advantage</td>
<td>Detergency which surpass competitors, Certified by semiconductor and equipment manufacturer</td>
</tr>
<tr>
<td>Growth Attributes</td>
<td>Increasing 300mm wafer market</td>
</tr>
<tr>
<td>Technology</td>
<td>Precision cleaning technology which meets customer needs and technological innovation</td>
</tr>
<tr>
<td>Features</td>
<td>Original cleaning technology of semiconductor process facilities</td>
</tr>
</tbody>
</table>
Optical Polyester Film

Applications
- Polarizing Film
- Viewing Angle Compensation Film
- Protecting Film
- PSA
- Release film

Global Demand
Approx. 150K tons (Yr. 2007)

Share
Approx. 30% (Global No.1)

Advantage
Providing solution to customer which enhance strong customer relationship
World class release technology for optical film

Growth Attributes
Expanding large FPD market for PC and TV

Technology
- Technological development from material to film
- Custom based film specifications
- Strong R&D backbone

Features
- Clean film
- High quality film which meets customer needs

Reference
Food Ingredients: Sugar Ester

Applications
Food and Beverage ingredients

Global Demand
Approx. ¥10 billion

Share
Approx. 70% (Global No.1)

Advantage
Various HLB products
Only 1 emulsifier for beverages and supplements

Growth Attributes
Industrial breakthrough in food processing technology
East Asia’s high demand in processed food and beverages

Technology
Applied technology development based on interface science
Corresponding to customer needs
Accumulation of safety test data

Features
Edible emulsifiers that are made by sucrose and vegetable oil
Carbon Fiber, “DIALEAD”

**Applications**
- Robot Arm
- Industrial roll, wind energy blade
- CC brake

**Production capacity**
1,000 tons / (2008)

**Share**
Global share 70 - 80% (Pitch-based carbon fiber Global No.1)

**Advantage**
- Overwhelming capacity
- Global Marketing

**Growth Attributes**
- Segregation of PAN base CF & Pitch base CF
- Rapid increase in demand for FPD & Semiconductors
- Composite roll for Printing & Film
- Usage of Carbon fiber composite in automobile

**Advantage**
- Mass production, Composite, Analysis

**Features**
- Light weight, High stiffness, High thermal conductivity,
  Zero thermal expansion
Alumina Fiber-support Mat, “MAFTEC”

**Mounted section**

**Global Demand**
Approx. 6,000 tons / 2007

**Share**
50% + (Alumina fiber-support mat: global No.1)

**Advantage**
Global marketing
20 yrs of expertise • Proposal of superior safety fiber

**Growth Attributes**
Reinforcement of emission control
Catalytic oxidation of thin-wall carrier
Regulation to mount DPF* 100%

**Technology**
Unique needle punching methods

**Features**
Excellent thermal stability, resiliency and strength

* DPF: Diesel Particulate Filter

---

Reference
## SiOx Vacuum Coated Plastic Film, “TECHBARRIER”

<table>
<thead>
<tr>
<th>Applications</th>
<th>Electronics component, Medical / Industrial packaging material</th>
</tr>
</thead>
<tbody>
<tr>
<td>WW Demand</td>
<td>12,000 tons (Yr. 2007)</td>
</tr>
<tr>
<td>Share</td>
<td>Global share 40% (SiOx vacuum coated plastic film No.1)</td>
</tr>
<tr>
<td>Advantage</td>
<td>High Gas Barrier property, Global Marketing</td>
</tr>
<tr>
<td>Growth Attributes</td>
<td>- 2005 : Food packaging = CAN, BOTTLE → flexible</td>
</tr>
<tr>
<td></td>
<td>2006 - : Medical / Industrial = Alternative for Aluminum foil</td>
</tr>
<tr>
<td></td>
<td>Future: Electronics component = High water vapor barrier</td>
</tr>
<tr>
<td></td>
<td>2010 WW demand forecast: 13,200 tons</td>
</tr>
<tr>
<td>Technology</td>
<td>Densification and uniformity of SiOx vacuum coating</td>
</tr>
<tr>
<td>Features</td>
<td>Keeping high gas barrier property under high temperature and humidity</td>
</tr>
</tbody>
</table>

Alternative for Metal and Glass ↓ Light & Thin
Increasing demand on recycling steel from scrap metal
Special carbon products (Pitch coke) for melting pot to produce Si single crystal ingot

Increasing demand on melting pot according to silicon wafer market growth

Stable supply of world top class quality, and further improvement
Strong partnership with world class customers

Break through technology which yielded consistence process from tar to high performance graphite

Thermal expansion coefficient of electrode by using our company’s needle coke is world’s smallest
## C4 Chemicals for Elastic Fibers and Engineering Plastics

### Applications
- PTMG: Elastic fiber (Spandex)
- 1,4-BG: Plastic (PBT), Urethane fields, Solvent /raw material for medical

### Share
- Commanding lead in Domestic market
- Asia MKT share: PTMG approx. 15%  1,4-BG approx. 25%
- Plant to take 20 to 30% market share in ever-growing Asia MKT
- New plant under construction in China (Up and running from Sep. 2009)

### Advantage
- High cost performance (1,4-BG, PTMG)
- Solution provider with organized technical service

### Growth Attributes
- PTMG: Comfort cloths • High performance needs
- 1,4-BG: Shifting toward high end plastic such as automobile and electronics materials

### Technology
- PTMG: Manufacturing process that yields waste less and low environmental impact
- 1,4-BG: Sole manufacturer using Butadiene base
  - '07: Green sustainable chemistry award
  - '05: Japan Petroleum Institute Award for Technological Progress

### Features
- C4 chemicals final applications are cloths, automobile, medical and IT
- High hope on market development
### Polycarbonate (PC)

| Applications | Optical film, Automobile application, E&E and Bottle  
|             | (Impact resistance, electrical characteristic, dimensional stability, high transparency rate) |
| Domestic Demand | Approx. 300K tons/Yr (Global demand: Approx 3 million tons/Yr) |
| Share | Approx. 45% (Global: 12%) |
| Advantage | Wide product range which meets market demand  
|             | (Proprietary process technology, Polymer designed technology and compounding technology)  
|             | Cost competitive |
| Technology | Advance proprietary technology (Product chain: Phenol → BPA → PC)  
|             | Mitsubishi Engineering Plastic Corporation’s knowledge on material and compounding technological development |
| Attributes | Environmental friendly melting method process  
|             | Moldability, Cost efficient extrusion, Bottle grade |
### Polypropylene (PP)

<table>
<thead>
<tr>
<th>Applications</th>
<th>Automobile, Food and Medical (High quality and performance PP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic Demand</td>
<td>Approx. 2.9 million tons/ Yr.</td>
</tr>
<tr>
<td>Share</td>
<td>Approx. 35%</td>
</tr>
<tr>
<td>Advantage</td>
<td>Competitive advantage on technical and marketing ability</td>
</tr>
<tr>
<td></td>
<td>Global expansion on PP for automobile</td>
</tr>
<tr>
<td>Technology</td>
<td>Proprietary catalyst technology, Proprietary process technology, High Polymer design technology, Compounding technology</td>
</tr>
<tr>
<td>Features</td>
<td>Can meet customers high expectations</td>
</tr>
<tr>
<td></td>
<td>Early adoption of metallocene catalyst design have yielded new functional PP</td>
</tr>
</tbody>
</table>
# Performance Polymers

| Applications | High functional automobile (Interior・Airbag)  
               | Medical and Food packaging (Multilayer film) |
|--------------|---------------------------------------------|
| Sales        | Total 100K tons/Yr. Oversea subsidiary TPE: USA  
               | PVC compound: Thai/China/Singapore |
| Advantage    | Optimum compound design which satisfies required specifications  
               | Product customization with customer (Customer Grade)  
               | Over 40 years of experience with customers (PVC) |
| Technology   | Polymer compound technology  
               | Polymer (Graft) technology  
               | PVC compound technology |
| Features     | MARKET IN approach are used for product development  
               | Wide product range (Proposal of Mix and Match)  
               | TPE: Olefin, Styrene, Polyester, PVC  
               | Functionalized Polyolefin (Graphite)  
               | Soft and hard PVC compound |