

# APTSIS 15

Step 2 (FY2013 - FY2015)

## **Presentation to Investors**

March 11, 2015

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#### THE KAITEKI COMPANY

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, and petrochemicals, and these business results are subjected to influences of world demands, exchange rates, price and procurement volume of crude oil and naphtha, trends in market prices, 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. LSII: Life Science Institute, Inc.

TNSC: Taiyo Nippon Sanso Corporation

APIC: API Corporation

BARDA: Biomedical Advanced Research and Development Authority

CRK: Chuo Rika Kogyo Corporation
HLC: Healthy Life Compass Corporation

LSIM: LSI Medience Corporation

NEDO: New Energy and Industrial Technology

**Development Organization** 

NIMS: National Institute for Materials Science

NSCI: The Nippon Synthetic Chemical Industry Co., Ltd.

QKK: Qualicaps Co., Ltd.

ALS: Amyotrophic lateral sclerosis

BPA: Bisphenol-A

CAE: Computer aided engineering

CD: Crohn's disease

CIDP: Chronic inflammatory demyelinating

polyradicaloneuropathy

DPC: Diphenyl carbonate

EO: Ethylene oxide EV: Electric vehicle

EVOH: Ethylene vinyl alcohol

FPD: Flat panel display GaN: Gallium nitride HEV: Electric vehicle

Hib: Haemophilus influenza type b

ICT: Information and communication technology

LiB: Lithium-ion battery MMA: Methyl methacrylate

MOCVD: Metal organic chemical vapor deposition

MOS: Management of Sustainability MOT: Management of Technology

MS: Multiple sclerosis

OLED: Organic light emitting diode

OPV: Organic photovoltaic

PC: Polycarbonate PE: Polyethylene

PCM: Prepreg compression molding PHEV: Plug-in hybrid electric vehicle

PHL: Phenol

PMMA: Polymethyl methacrylate

PP: Polypropylene PS: Psoriasis

PTA: Terephthalic acid
PVC: Polyvinyl chloride
PVOH: Polyvinyl alcohol
RTM: Resin transfer molding
SAP: Super absorbent polymer
SBU: Strategic business unit

SM: Styrene monomer

SMC: Sheet molding compound

**UTT: Utility** 

VLP: Virus-like particles ZEB: Zero energy building

FY2011: April 1, 2011 – March 31, 2012 FY2012: April 1, 2012 – March 31, 2013

FY2013: April 1, 2013 – March 31, 2014 FY2014: April 1, 2014 – March 31, 2015

FY2015: April 1, 2015 - March 31, 2016

#### lote:

Product names, brand names, service names, and technology names used in this presentation material are denoted in italics and are trademarks or registered trademarks of the MCHC Group in Japan and/or overseas. Other product names, brand names, and service names may also be protected.



## Today's Agenda

- 1. Group Overview and Performance Review
- 2. Progress in Principal Businesses (Comparison with Step 2)
  - 2-1. Performance Products
  - 2-2. Health Care
  - 2-3. Industrial Materials
  - 2-4. Summary
- 3. Challenges of Formulating the Next Medium-term Management Plan

## 1-1. Group Overview

### **MCHC\***

Oct. 2005 —

Net sales (consolidated): ¥3,498.8 billion\* Employees (consolidated): 56,031\*\*



Performance Products



**Health Care** 



**Industrial Materials** 

\*Listed company

\*\*Net sales, employees (as of March 31, 2014)

Net sales (consolidated): Approx. ¥4 trillion Overseas sales ratio: Approx. 40% Employees (consolidated): Approx. 70,000 Overseas employees: Approx. 23,000 (Figures for fiscal 2014 were calculated as the simple summation of TNSC results with those of the Group.)

| The KAITEKI Institut | te, Inc.                       | Apr. 2009 —           |
|----------------------|--------------------------------|-----------------------|
| Mitsubishi Chemica   | l Holdings America, Inc.       | Nov. 2010 —           |
| Mitsubishi Chemica   | l Holdings (Beijing) Co., Ltd. | Nov. 2011 —           |
| Mitsubishi Chemica   | l Holdings Europe GmbH         | Nov. 2012 —           |
| Mitsubishi Chemica   | I Holdings Corporate Staff, In | <b>c.</b> Apr. 2013 — |
| MCHC R&D Synergy     | Center, Inc.                   | Apr. 2014 —           |

Oct. 2013: Strengthening capital and business alliance (ownership ratio: 27%)

Sep. 30, 2014: Commenced TOB

Nov. 12, 2014: Completed payment

Thereafter, TNSC became a consolidated subsidiary (with 50.6% MCHC ownership)













100%

















MCC

Oct. 2005 -

Net sales (consolidated) ¥2.159.7 billion\*\*

**Business lines** Performance products, Industrial materials, etc.

#### MTPC\*

Oct. 2007 —

Net sales (consolidated) ¥412.7 billion\*\*

**Business lines** Pharmaceuticals, etc.

### **MPI**

Apr. 2008 -

Net sales (consolidated) ¥442.7 billion\*\*

**Business lines** Plastic products, etc.

#### **MRC**

Apr. 2010 -

Net sales (consolidated) ¥606.2 billion\*\*

#### **Business lines**

Chemical products, resins, fibers, carbon fiber and composite materials, membrane bioreactors, etc.

#### LSII

Apr. 2014 —

Net sales (consolidated) [¥118.7 billion]\*\*

#### **Business lines**

Healthcare and medical ICT. support for pharmaceutical development and advanced medication, etc.

#### **TNSC\***

Nov. 2014 —

Net sales (consolidated) ¥522.7 billion\*\*

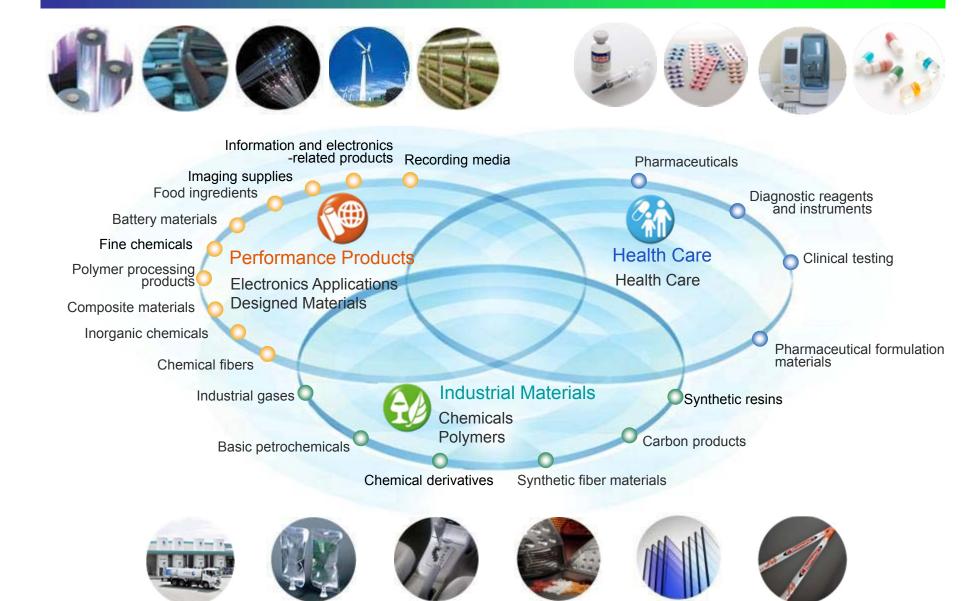
#### **Business lines**

Industrial gases, electronics. medical, etc.



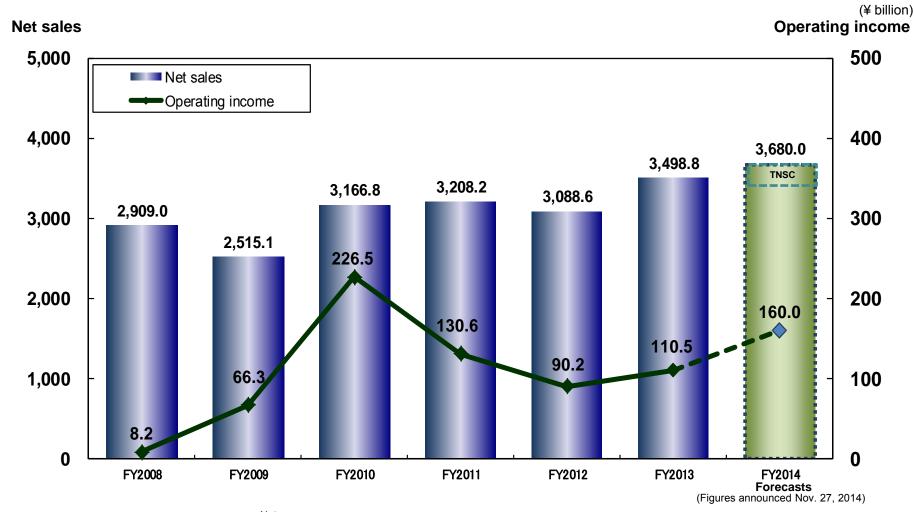
#### THE KAITEKI COMPANY

### 1-2. Business Domains



### 1-3. Financial Results and Fiscal 2014 Outlook

- Consolidated TNSC in 3Q fiscal 2014 through TOB
- Forecasting major increase in income in fiscal 2014 (+145% Y-o-Y) because of this and other factors





# 1-4. Operating Income by Segment HE KAITEKI COMPANY Fiscal 2013 Actual Results vs. Fiscal 2014 Forecasts

- **Designed Materials: Conditions firm**
- Health Care: Conditions firm for pharmaceuticals and healthcare solutions
- Polymers: Outlook for major increase in income in MMA/PMMA

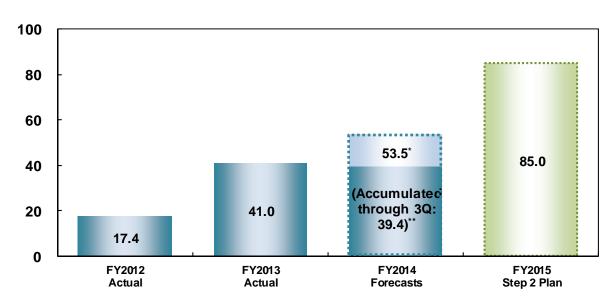
Operating income (¥ billion)

| Domains     | Segments                    | FY2013<br>actual<br>results | FY2014<br>forecasts* | Change | Accumulated through 3Q** | Target<br>attainment<br>ratio | Comments   |
|-------------|-----------------------------|-----------------------------|----------------------|--------|--------------------------|-------------------------------|--|
| Performance | Electronics<br>Applications | (5.5)                       | (2.0)                | +3.5   | (2.3)                    |                               | Consolidation of TNSC (Chemicals) [3Q fiscal 2014]   |
| Products    | Designed<br>Materials       | 46.5                        | 55.5                 | +9.0   | 41.7                     | 75.1%                         | Outlook for inventory valuation loss* for naphtha<br>and paraxylene in Chemicals and marginal gain*  for polyclofin in Dolymore. |
| Health Care | Health Care                 | 68.3                        | 70.0                 | +1.7   | 70.7                     | 101%                          | for polyolefin in Polymers [3Q and 4Q fiscal 2014]  Outlook for increase in income in Designed                                   |
| Industrial  | Chemicals                   | 0.7                         | 17.5                 | +16.8  | 2.2                      | 12.6%                         | Materials, Health Care, and Polymers  *Overall impact: (Approx. ¥18.0 billion)   |
| Materials   | Polymers                    | 2.3                         | 20.5                 | +18.2  | 13.7                     | 66.8%                         |  |
|             | Others                      | 5.7                         | 6.5                  | + 0.8  | 3.3                      | 50.8%                         |  |
|             | Corporate                   | (7.5)                       | (8.0)                | (0.5)  | (5.0)                    |                               |  |
|             | Total                       | 110.5                       | 160.0                | + 49.5 | 124.3                    | 77.7%                         |  |

## 2-1. Performance Products: Progress

### ■ Increase income by accelerating development of growth fields

#### Operating income (¥ billion)



### Growth fields

- Lithium-ion battery materials
- Organic synthesis (NSCI)
- Polyester film
- Engineering plastics
- Carbon fiber and composite materials, etc.

<sup>\*</sup>Figure announced Nov. 27, 2014

<sup>\*\*</sup>Figure announced Feb. 4, 2015

## 2-1-1. Electronics Applications: Principal Businesses

### Organic photovoltaics (OPVs)

- Developed film-type OPV. Currently undergoing verification tests at the Sendai City Science Museum. (From Jun. 2014)
- Developed external wall units with Taisei Construction for use in ZEB. Verification tests for practical use are under way. (From May 2014)
- Customers are evaluating OPV modules. (Market launch scheduled for the first half of fiscal 2015)
- → Verification tests are being implemented as "Guidance and Technical Development Project for the Practical Application of Organic Photovoltaics" supported by NEDO.



Sendai City Science Museum (Film-type OPVs)

### Organic photo-semiconductors (OLEDs)

- · Realizing improvements in color rendering properties and useful lifetimes
- Based on their excellence in reproducing skin colors and their thinness, were adopted, combined with mirrors, for use in makeup washstands.





#### Gallium nitride (GaN) substrates

- In the market for LED lamps using GaN substrates, expansion is taking place mainly in units for use in automobiles and units to replace halogen lamps.
- To help customers increase production efficiency, currently moving forward with large substrate sizes (from 2 inches to 4 inches)
- Research is currently under way under tie-up with Nobel laureate Prof. Shuji Nakamura of the University of California, Santa Barbara. (Since 2001)

\*SORAA, Inc.: Venture business established by Prof. Nakamura and other co-founders



LED lighting installed in automobiles



LED lighting developed to replace halogen lamps (SORAA, Inc.\*)

#### ■ LED materials

- •In South Korea, took measures against infringement of the legitimacy of our patent (co-owned with NIMS) for red phosphor, and the legitimacy of our patent was confirmed. In addition, a similar patent infringement litigation is also in progress in China.
- -Concluded a cross-licensing agreement for red phosphor with Nichia Corporation

## 2-1-2. Lithium-ion Battery Materials

### ■ Business expansion to the field that requires high quality, especially in automotive applications

Although the start-up of usage in automobiles has been slower than expected, annual growth of 50% on a volume basis is expected for lithium-ion battery materials.

MCC's lithium-ion battery materials provide a good balance of the special features required in automobile applications, and adoption is expanding in major EV and PHEV models.

Along with the expansion in demand, sales in volume terms are increasing. As a result of this and cost reductions, we are expecting operating losses to decline substantially, and reaching breakeven is expected at an early date.

#### **Electrolytes:**

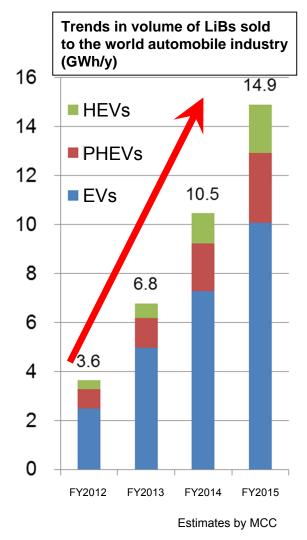
Have secured strong position through additive technology. Will maintain a high market share in applications for automobiles

#### **Anode materials:**

Beginning to be adopted by major automobile models, because of the strengths of natural graphite. Sales in volume terms are expanding gradually.

#### Separators:

Have completed the development stage of heat-resistant separators for automobile use, and will launch sales in fiscal 2015



## 2-1-3. Organic Synthesis (NSCI)

■ Aggressive expansion in core businesses. Continuing initiatives to accelerate development of third major business

#### ■ *OPL film,* Optical PVOH film

• A new production line for wide films (line No. 6) at the Kumamoto Plant went into commercial operation. (Nov. 2014)

#### ■ Soarnol, EVOH copolymer

• A new production line under construction at Noltex, LLC in U.S.A. (Scheduled operation in 1Q fiscal 2015)

#### ■ Hi-Selon, Water soluble PVOH film

• Expecting higher demand for individual packaging of liquid detergents, transfer printing, and other applications. Will build a new production facility at the Kumamoto Plant (Scheduled operation in 4Q fiscal 2015)

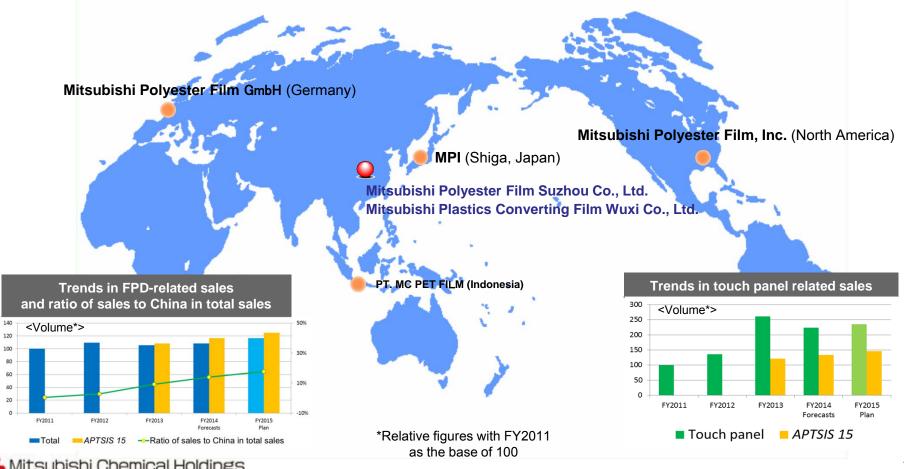
#### ■ Pressure sensitive adhesive and functional coating resin

COPONYL (acrylic copolymer):
 Expecting increases in demand for electronic and optical materials.
 Will add a new facility at the Ogaki Plant
 (Scheduled operation in 1Q fiscal 2016)

 Integrated emulsion manufacturing division into CRK.
 Relaunched as a new company, Japan Coating Resin Co., Ltd. (Oct. 2014)

## 2-1-4. Polyester Film

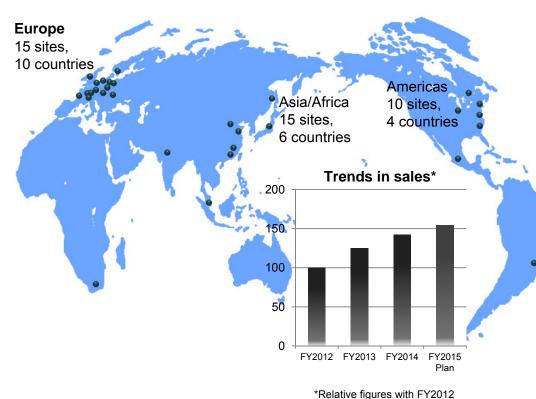
- Asia: Making sure to capture FPD demand in the Chinese market. The volume of films for touch panels decreased due to development of thinner films in fiscal 2014. Will expand sales in fiscal 2015
- North America: Conditions firm in industrial uses; Europe: Focusing on high-value-added medical applications



**Applications** 

## 2-1-5. Engineering Plastics (Quadrant Group)

- Sales for transportation equipment and in the life science fields are favorable.
- Going forward, aggressive development in Americas, Europe, and the rest of Asia



| Aleas            | 1 Toddot types                                   | Applications |                                  |  |
|------------------|--|--------------|----------------------------------|--|
|                  | Sheet material for lining                        |              | Lining<br>for pallets            |  |
| Transportation - | Glass mat<br>reinforced<br>thermoplastic         |              | Underbody<br>covers              |  |
|                  | Casting nylon                                    |              | Gears,<br>rollers                |  |
| Life science     | Ultrahigh<br>molecular<br>weight<br>polyethylene |              | Artificial<br>joints             |  |
|                  | Advanced engineering plastic                     |              | Components for medical equipment |  |
| Others           | Advanced<br>engineering<br>plastic               | 0            | Retainer<br>rings                |  |

**Product types** 

## 2-1-6. Carbon Fiber and Composite Materials

- Integration of the carbon fiber businesses in MPI and MRC: Targeting a ¥100 billion business in fiscal 2020
- Using our hybrid PAN-based and pitch-based carbon fibers together with our molding technologies (SMC, PCM, RTM, etc.), we are aiming to improve performance characteristics and lower weight. Will establish competitively superior position for industrial uses (automobiles, etc.)

### **Business integration into MRC**

(Apr. 1, 2015)

#### **MRC**

- Precursors
- PAN-based carbon fibers
- Molding technology for automotive components (prepreg, SMC, PCM, RTM, etc.)
- Intermediates

#### MPI

- Pitch-based carbon fibers
- Carbon fiber composite materials
- Molding technology for machine components (Sheet, winding)

#### MCC

- Polyolefins
- Epoxy resins, modified resins
- Non-destructive diagnostic technology
- Fundamental technology (CAE, recycling)

Automobiles
Wind power

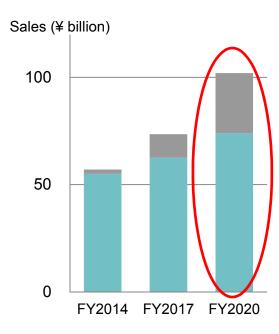
Pressure vessels

generation









- Intermediates and composites for automobiles (hybrid)
- PAN- and pitch-based carbon fibers

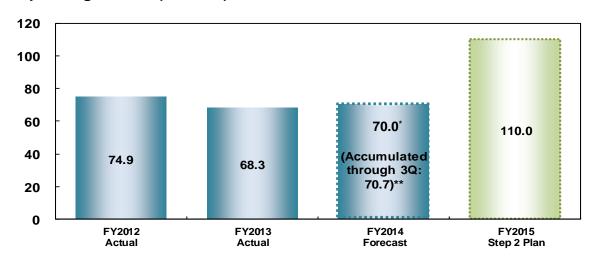
## 2-2. Health Care: Progress

■ Inroads of generics into our long-term listed pharmaceuticals for healthcare usage have been more than expected.

Will secure earnings expanding royalties from out-licensing of technology and implementation of structural reforms

■ In healthcare solutions, we will focus on creating new growth businesses.

#### **Operating income (¥ billion)**



<sup>\*</sup>Figure announced Nov. 27, 2014

#### **Businesses in Health Care**

- MTPC
- LSII Group
- -QKK

(Capsules,

pharmaceutical formulation materials, etc.)

-APIC

(Active pharmaceutical intermediates)

-LSIM

(Clinical testing,

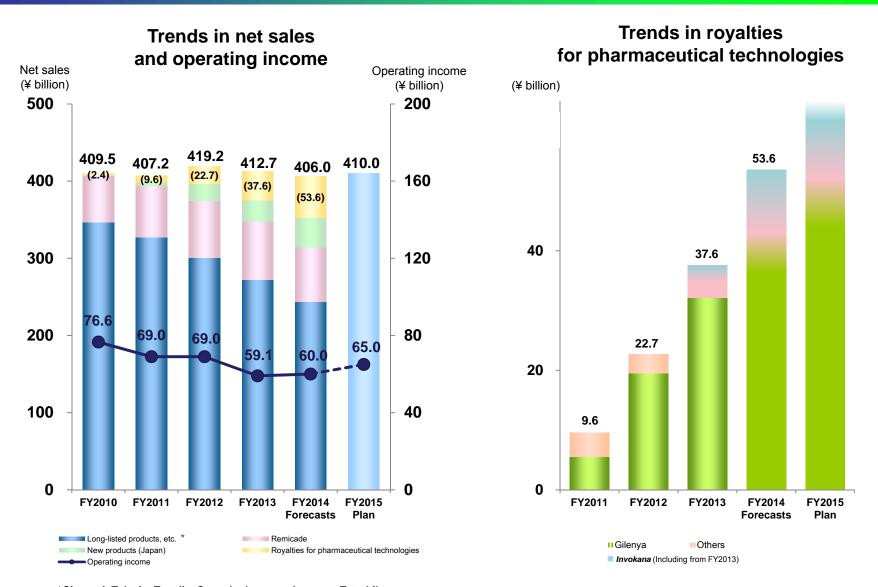
support for pharmaceutical development, etc.)

—HLC

(Health self-check services, etc.)

<sup>\*\*</sup>Figure announced Feb. 4, 2015

### 2-2-1. Pharmaceuticals



<sup>\*</sup>Simponi, Telavic, Tenelia, Canaglu, Lexapro, Imusera, Tetrabik



## 2-2-1. Pharmaceuticals

### ■Steady advances in development and marketing of pharmaceuticals in priority disease domains

• Scheduled product launches during APTSIS 15 and pipeline products (Phase 2—)

As of February 2, 2015

| Domains                           | Phase 2 Phase 3   |   | Filed  | Launched  |
|-----------------------------------|---|---|--|---|
| Auto-immune<br>disease            | MT-1303<br>(MS, PS, CD)                                       | FTY720<br>(CIDP)  | Remicade (Behcet's disease with special lesions)   | Simponi<br>(Rheumatoid arthritis)<br>Imusera<br>(Multiple sclerosis)                                |
| CNS disease                       | MP-2 <sup>-</sup><br>(Schizophi<br>MT-46<br>(Dementia of Alzh | renia)  | Radicut<br>(ALS)   | <b>Lexapro</b><br>(Depression)  |
| Diabetes<br>and<br>kidney disease | MT-3995<br>(Diabetic nephropathy)                             | MT-2412 (Combination drug for Tenelia and Canaglu)  TA-7284 (Diabetic nephropathy)  | In-house License-in  | Tenelia (Type 2 diabetes mellitus) Canaglu (Type 2 diabetes mellitus) BindRen (Hyperphosphatemia)   |
| Vaccine*                          | Plant-based VLP vaccine (Influenza)  MT-2301 (Hib vaccine**)  | *Medicago Inc., a subsidiary of agreement with the U.S. govern (BARDA) related to developme for producing antibodies to trea 2015). Medicago is a biopharm. | nment organization Int of an alternative method It Ebola virus infections (Feb. Indeed the second sec | Tetrabik (Combined vaccine for preventing four diseases: diphtheria, pertussis, Tetanus, and polio) |
| Others                            | MT-4580<br>(Secondary hyperparathyroidism)                    | MCC's fully artificial light-type p<br>and specializes in R&D related<br>with VLP technology.   |  | <b>Telavic</b> (Chronic hepatitis C)  |

<sup>\*\*</sup>Hib vaccine: Haemophilus influenza type b (Prevents meningitis due to Hib infection in infants)

### 2-2-2. Healthcare Solutions

■ Aiming for net sales of ¥300 billion and operating income of ¥30 billion in fiscal 2020, strengthen existing businesses, work in concert with other Group companies, and develop/promote new growth businesses through alliances and innovation (Sales forecast for fiscal 2014: Approx. ¥130 billion)

#### ■ Strengthen existing businesses

#### QKK

• Expand capsule business, new production lines under construction

#### **APIC**

Strengthen manufacturing of API for use in generics

#### **LSIM**

• Expand sales of new testing kits, restructure systems for developing PATHFAST diagnostic equipment in U.S.A.

#### **HLC**

- Expand number of drugstores providing services for the self-health check service *Jibun Karada Club* by eliminating the grey zone (Looking to reach 1,000 drugstores in fiscal 2015)
- Promote initiatives to make use of ICT for next-generation healthcare services\*
   \*Effective disease prevention, health maintenance, life support services related to diseases, etc., and diverse forms of evidence-based healthcare services

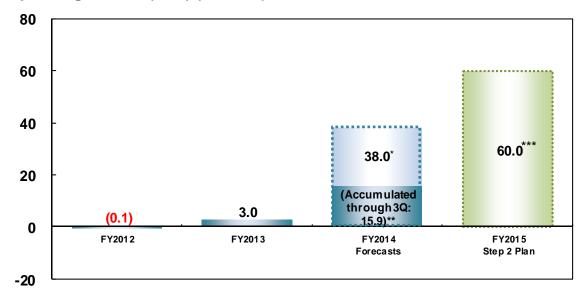
#### ■ Work in concert with other Group companies, conclude alliances, and innovate

- Realize synergies with the MCHC Group (development of new capsule materials, develop diagnostic reagents, etc.)
- Form alliances with academia (with Kyushu University and Tsinghua University (Beijing) in the clinical testing field)
- Form alliances with other companies (operating agreement with Nikon Corporation in the testing and diagnostic equipment fields)
- · Promote alliances in the regenerative medicine field

## 2-3. Industrial Materials: Progress

- Consolidated TNSC in 3Q fiscal 2014
- Will promote structural reforms in petrochemical businesses and aim to reach targets

#### Operating income (loss) (¥ billion)



#### Fiscal 2015 Outlook

- Performance of MMA, carbon, and performance polymers to remain firm
- TNSC will be fully consolidated and contribute to income (Fiscal 2015 plan in "Ortus Stage 1": operating income of ¥38 billion)
- Expecting to eliminate inventory valuation loss in the naphtha and paraxylene businesses in fiscal 2014

<sup>\*</sup>Figure announced Nov. 27, 2014. Includes effects of adopting uniform date for account closings in fiscal 2013: Net sales: ¥151.9 billion; Operating income: ¥3.9 billion.

<sup>\*\*</sup>Figure announced Feb. 4, 2015. Includes effects of consolidating TNSC in fiscal 2014: Net sales: ¥275.0 billion; Operating income: ¥17.5 billion.

<sup>\*\*\*</sup>Including Leaping ahead (M&A)

### 2-3-1. PHL/PC Chain

- Promote thorough-going cost-cutting and implement reforms aimed at creating a stable earnings structure
- Return to profitability at the operating income level in fiscal 2015

#### **Business Environment**

> Improve supply/demand balance for PHL, BPA, and PC

#### **Priority Measures**

#### Kashima

Achieve improvements in plant safety and cost reductions (in fiscal 2014) through introducing technology from ILLA International\*. Further cost cuts by lowering UTT and fixed costs, etc.

#### Kurosaki

Continuing pursuit of thoroughgoing cost reductions (energy conservation, UTT, etc.). Raise profitability by accelerating sales of high-performance PC making use of specialized bisphenol

#### ➤ China\*\*

Implement cost reductions similar to those at the Kurosaki Plant. Improve profitability through strengthening sales at MCC initiative and introducing high-value-added grades.

Considering production of non-phosgene DPC in house

\*ILLA International Ltd. (Russia): Licensing company for phenol technology \*\*Sinopec Mitsubishi Chemical Polycarbonate (Beijing) Co., Ltd.:

A 50-50 joint venture between MCC and Sinopec in China

Characteristics of high-performance PC



## 2-3-2. Terephthalic Acid

- Expected to show an operating profit in fiscal 2017 as a result of revisions in the price schedule at bases, improvement in the terms of trade for paraxylene, and implementation of cost reductions
- Implemented policies to reduce inventory valuation risk when prices of raw materials decline

#### **Business environment**

Market conditions continuing to stagnate because of large excess supply capacity in China

#### **Priority measures**

> India

Scheduled to reduce costs through electric power purchases from the grid (Mar. 2015) and converting to coal fuel (heavy oil → coal: end of 2015)

Aiming to return to profitability through changes in the domestic price schedules (including antidumping tax)

> Indonesia

Changes in domestic price schedules (maintaining PTA flooring)

> South Korea

Reduce losses substantially through optimizing production operations (including downsizing) Increase domestic share as Korean competitor withdraws from the business Linking domestic and overseas prices to paraxylene

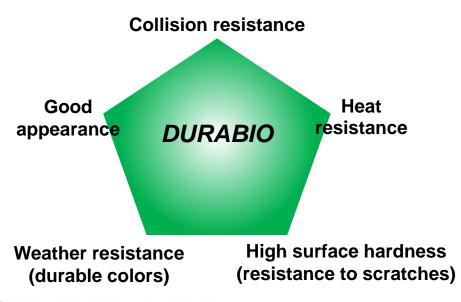
> China

Structural reform with a view also to inviting new partners
Alliances in the energy field with corporations in the vicinity, considering changing fuel to be used
Continue to link domestic prices to paraxylene

### 2-3-3. Sustainable Resources: *DURABIO*

- Making use of the special features of *DURABI*O and expanding number of automobile manufacturers adopting the material
- Together with Mazda Motor Corporation, MCC developed a new grade of *DURABIO* that can be used in automotive components without a coating step.
- Decision made to adopt for usage in an interior component for new model *MX-5* Scheduled to be used in exterior components for other Mazda production models (*DURABIO*: Bioengineering plastic, made principally from plant-derived isosorbide)

Balancing the range of properties necessary for automotive components at a high level





New model *MX-5* (Photo by Mazda Motor Corporation)



HUSTLER (Photo by Suzuki Motor Corporation)

### 2-3-4. MMA · PMMA

- Establishing global operations and optimizing production taking account of raw materials and supply/demand
- **■** Expansion strategy, increasing income ratios, and implementing rationalization

#### **Expansion strategy**

Thailand: New plant began MAA production (Feb. 2014)

U.S.A.: Began production at the Beaumont MAA plant (Jul. 2014)

China: Increased capacity and rationalized Shanghai MMA plant: 82,000 t/y (Jan. 2015)

#### Improving income ratios and rationalization

Singapore: Improvements in energy efficiency 15% (Scheduled for 4Q 2015)
Introduction of new catalyst (Beginning in 2015)

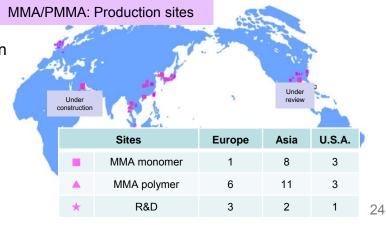
#### **MMA Project in the Middle East**

- Production capacity: MMA (250kty), PMMA (40kty)
- Create the world's largest MA production capacity using a new ethylene production technology (Alpha technology) using gas-based raw materials that offer an overwhelming cost advantage
- Create a strategic base for supplying growing emerging country markets in Eastern Europe, India, the Middle East, Africa, etc.
- Completion: Scheduled for Apr. 2017
- Commercial operation: Scheduled for Jul. 2017

Note: Planning to make public announcement on U.S.A. project as soon as decisions are made



#### MMA Monomer: Supply/demand balance LICC (Shanghai): Middle East Alpha project: Looking for a site for Alpha-3 plant Scheduled for operation Scheduled for operation (82 kt/y) (250 kt/v) in U.S.A. (kty) 5,000 4,000 3,000 Supply Demand (5%) 2,000 --- Demand (3%) 1,000 2013 2014 2015 2016 2017 2018 2019 2020



## 2-3-5. TNSC (1)

- Long-term vision to reach net sales of ¥1 trillion, operating income ratio of 10%, ROCE of 10% or more, and a ratio of overseas sales of 50% by fiscal 2022
- Going forward, will implement "Ortus Stage 1," looking to preparation of *APTSIS 20*

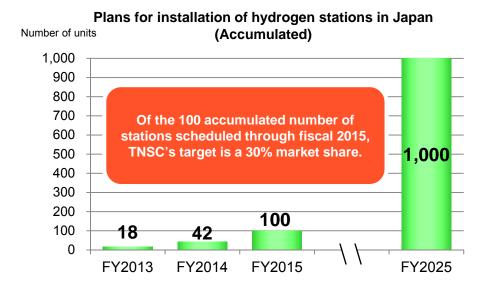
| Measures                            | Ortus Stage 1: Progress   |  |  |
|-------------------------------------|---|--|--|
| Structural reforms                  | • Optimization of personnel and organizations ⇒Implementation of early retirement program at TNSC (Apr. 2014)   |  |  |
| Innovation                          | Hydrogen refueling stations, Water- <sup>18</sup> O (stable isotope), etc.*next page  |  |  |
| Global                              | • On-site project initiatives abroad  ⇒Received major on-site project order from South African company Sasol, in Louisiana, U.S.A. (Jan. 2015)  Will supply gas via piping to ethane cracker project and to the surrounding region (Start-up: 2018)   |  |  |
| development                         | • Global development of subsidiaries ⇒Established company to manufacture thermos bottles in the Philippines (Sep. 2015)   |  |  |
| M&A                                 | <ul> <li>Acquired European thermos bottle manufacturer (Nov. 2014)</li> <li>Acquired gas distributor in southern California (Feb. 2015)</li> <li>Acquired gas business in Hawaii (Feb. 2015)</li> <li>⇒ (Deployment of business sites in 43 states out of the 50 states)</li> </ul>   |  |  |
| Synergies<br>with<br>the MCHC Group | <ul> <li>Industrial gases ⇒Acting in concert to supply UTT</li> <li>Electronics ⇒Joint activities in MOCVD devices and GaN substrates</li> <li>Healthcare ⇒Promote mutual use of the business network         <ul> <li>(artificial spa generators, medical-use gases, home medical care, etc.)</li> </ul> </li> <li>Concerted focus on R&amp;D within the MCHC Group</li> </ul> |  |  |

## 2-3-5. TNSC (2)

- Hydrogen refueling station business
  - As the hydrogen-based society comes closer to being a reality, TNSC strengthened its sales activities for *Hydro Shuttle*, which is a package-type hydrogen refueling station, originally launched in Aug. 2013.
  - As of Feb. 2015, orders for eight stations for commercial use have been placed. (fixed type: three; *Hydro Shuttle*: five)



Hydro Shuttle, package-type hydrogen refueling station



- Water–¹8O (stable isotope) business
  - Material for PET cancer diagnosis drug (5% to 10% annual growth);
     Expect applications to expand to brain and heart disease diagnosis
    - > Build No. 3 plant in Shunan district, Yamaguchi (First shipments: Fall 2015)

## 2-4-1. Summary: *APTSIS 15*

### ■ Transforming the business structure base on the four-quadrant model

#### Withdrawal

Impact on sales (¥310 billion)

Fertilizer (Dec. 2009)
Nylon chain (May 2010)
Domestic terephthalic
acid (Dec. 2010)
PVC chain (Mar. 2011)
SM chain (Mar. 2011)
Piping materials
(Mar. 2013)
SAP (Mar. 2013)

#### Restructuring

Optimized
polyolefin production
(Apr. 2014)
Shifted to one cracker
unit operations
at the Kashima Plant
(Jul. 2015)

## Next-generation growth businesses

- Organic photovoltaic modules and materials
- Organic photo-semiconductors
- Sustainable resources
- Agribusiness solutions
- Healthcare solutions and others

#### **Growth businesses**

- GaN
- White LED lighting and materials
- LiB battery materials
- Organic synthesis
- Specialty chemicals
- Performance polymers
- Polyester film
- Alumina fiber
- Engineering plastic products
- Pharmaceuticals
- MMA/PMMA
- Carbon fiber and composite materials
- Water treatment systems and services and others

## Cash-generating businesses

- Coke
- Diagnostics and support for new pharmaceutical development
- Food ingredients
- ◆ Electronic and industrial films
- Fibers and others

#### Leaping ahead

Impact on sales +¥1,350 billion

#### **MRC**

(Mar. 2010:

Management integration)

#### **NSCI**

(Dec. 2012:

Acquisition of majority shareholding)

#### QKK

(Mar. 2013: Acquisition)

#### **Quadrant AG**

(May 2013:

Made into a wholly

owned subsidiary)

#### **TNSC**

(Nov. 2014:

Made into a consolidated subsidiary)

## Businesses to be restructured

- Basic petrochemicals
- Terephthalic acid
- ◆ PHL/BPA/PC
- PE, PP and others

Naphtha cracker integration (Shifting to one cracker unit operations at the Mizushima Plant in 2016

**Polyolefins** 

Terephthalic acid

## 2-4-2. Summary: *APTSIS 15* Step 2

#### Implementing a portfolio transformation

- 1. TNSC became consolidated subsidiary (Closing: Nov. 12, 2014; Contribution in 3Q through 4Q fiscal 2014)
- 2. Establishment of LSII (Apr. 2014)
- 3. Delays in commercialization of next-generation growth businesses

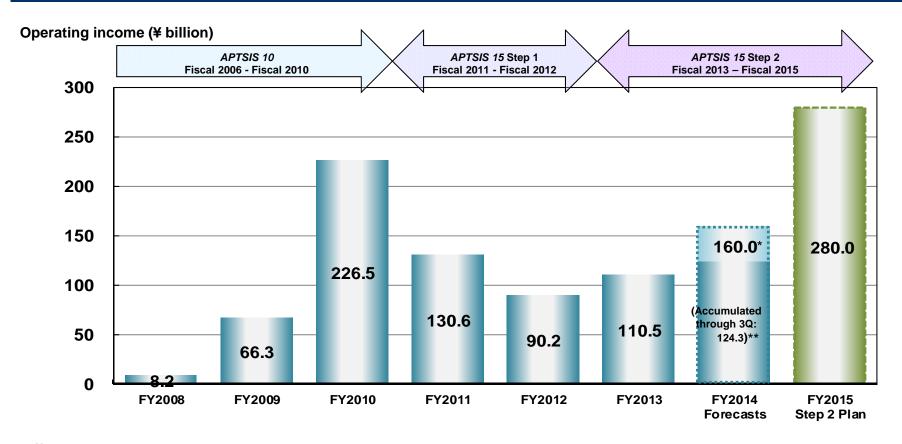
#### Promoting petrochemical structural reforms

- 1. Realign/restructure petrochemical-related businesses
  - ⇒Transition to single cracker operation at full capacity (Kashima) and full-capacity operation (Mizushima)
  - ⇒Shift to high-performance products and optimize production in derivatives (strengthen EO and PE, optimize PE and PP production)
  - ⇒Kashima complex alliances (Optimize power plant operations)
- 2. Implement drastic measures in the terephthalic acid, PHL/PC chain businesses

#### ■ Strengthening Profitability of Growth Businesses

- 1. Strengthening and expanding profit base of MMA business
  - ⇒Implementation of Middle East project and U.S. project
- 2. Accelerate development of performance products businesses ⇒ Integration of emulsion business, etc.
  - ⇒ Various high-performance films, alumina fiber, etc.
- 3. Generating synergies ⇒ Integrating the carbon fiber businesses of MRC and MPI (April 2015), etc.

- Conditions firm for Performance Products. Hurdle to clear in Health Care under *APTSIS 15* Step 2 is high. Industrial Materials is on a recovery trend.
- Steadily implementing measures to address major management issues and exerting utmost efforts to attain targets for fiscal 2015



#### Notes:

Includes effects of adopting uniform date for account closings in fiscal 2013: Net sales: ¥151.9 billion; Operating income: ¥3.9 billion Includes effects of consolidating TNSC in fiscal 2014: Net sales: ¥275.0 billion; Operating income: ¥17.5 billion Financial results forecasts for fiscal 2015 to be announced on May 13, 2015

\*Figure announced Nov. 27, 2014

\*\*Figure announced Feb. 4, 2015



## 3. Next Medium-term Management Plan

# MCHC Group vision Realizing KAITEKI

## What we aspire to be in 2020

By increasing profitability, pursuing innovation, and contributing to sustainability, MCHC will establish the base to be a global excellent company.

## Next medium-term management plan: APTSIS 20

Period: Fiscal 2016 – Fiscal 2020

**Announcement: Dec. 2015 (scheduled)** 

## 3. Basic Approach to Preparing APTSIS 20

- **■** Emphasis on increasing profitability and management speed
  - ROE: Considering assumption of 10% target
- Expansion in growth businesses: Aggressive allocation of resources to Performance Products and Health Care
  - Strategy formulation for growth businesses from perspective of concerted efforts transcending existing SBUs
  - Strategic reformation in the Group R&D
  - Innovating productivity in growth businesses
- Accelerate commercialization of businesses through reassessment of next-generation growth businesses and reviews of business strategies
- Further evolving holding company operating systems
  - Transitioning to a Company with Committees with the aim of substantially strengthening corporate governance (Transition scheduled to follow approval by the general meeting of shareholders in late Jun. 2015)
  - Strengthening global operating systems and infrastructures
- More use of MOS Indexes

## 3. KAITEKI Management

■ Increase *KAITEKI* value and work to expand shareholder value through putting MOE, MOT, and MOS into practice

