

Business Strategy Presentation

- **Mobility Solutions Business**
- **ICT Solutions Business**

0→1 MAKE IT HAPPEN



Mitsui Chemicals
Group

Business Strategy Presentation

Mobility Solutions

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Business Sector President, Mobility Solutions Business Sector

Dec. 10, 2024

- ▶ **Mobility Solutions Business Strategy for VISION 2030**
- ▶ **Mobility Solutions Business Earnings and Targets**
- ▶ **Growth Strategy for the Materials Business**
 - Elastomers
 - Composite materials
- ▶ **Growth Strategy for the Solutions Business**



Mobility Solutions Business Strategy for VISION 2030

Ideal vision Providing unique materials, features and services to solve social challenges and let us achieve sustainable business growth

Helping solve social challenges through materials

Materials business

Elastomers

Composite materials



Offering solutions that combine materials with services

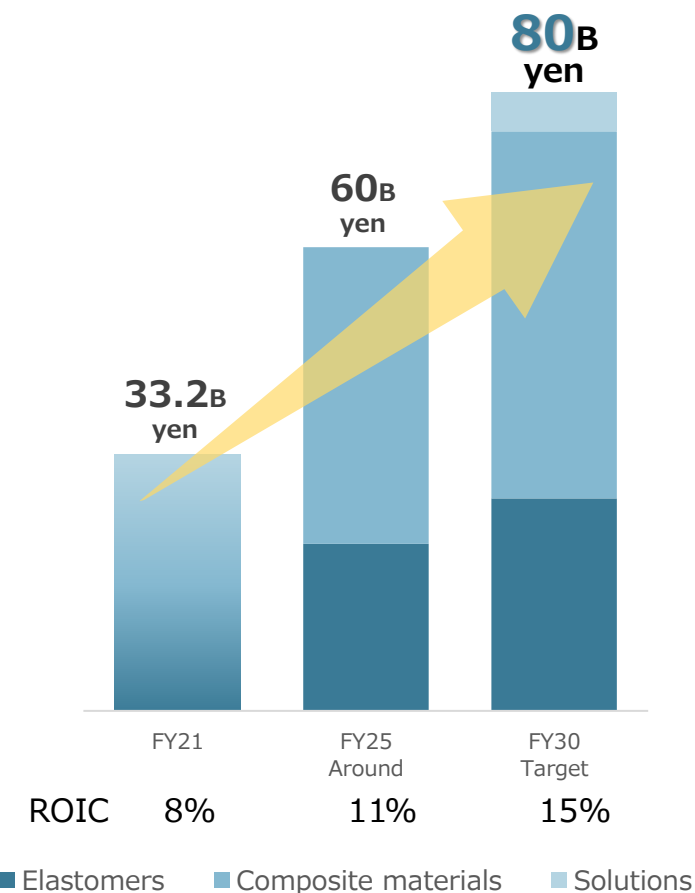
Solutions business

providing services

Future Mobility



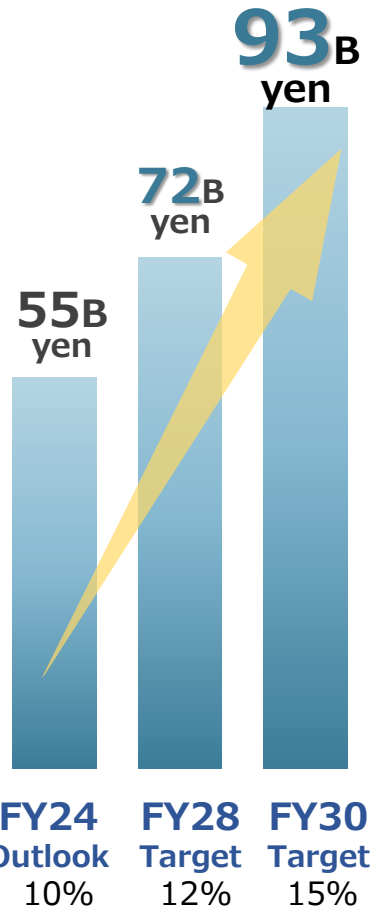
<VISION2030 Targets>





Strategy for achieving our FY28 targets

- Materials business:** Continue the transition to sales focused on growth markets and differentiation
Speed up the rollout of diverse applications for elastomers
- Solutions business:** Accelerate ARRK transformation and enhance cultivation of new business model



Materials

Further accelerate the transition to sales focused on growth markets* and differentiation

*Automotive sustainability, high-performance packaging materials, renewable energy, etc.

Elastomers

Leverage polymers with unique strengths to capture demand & application in growth markets

Composite materials

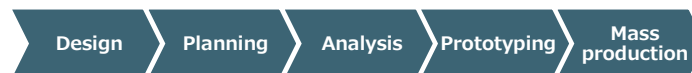
Continually launch differentiated products to a wide range of growth markets and capture new markets

Solutions

Speed up transformation and implement growth policies at ARRK

Continue transformation aimed at improving earnings

Focus on providing a service for high-mix, low-volume production spanning everything from development through to prototyping and mass production



Enhance cultivation of new business model

Deepen the solutions capabilities we've acquired and strengthened, as well as our ties with other companies



MDC: Mobility Development Center

Business partners
Rollout of new transportation system



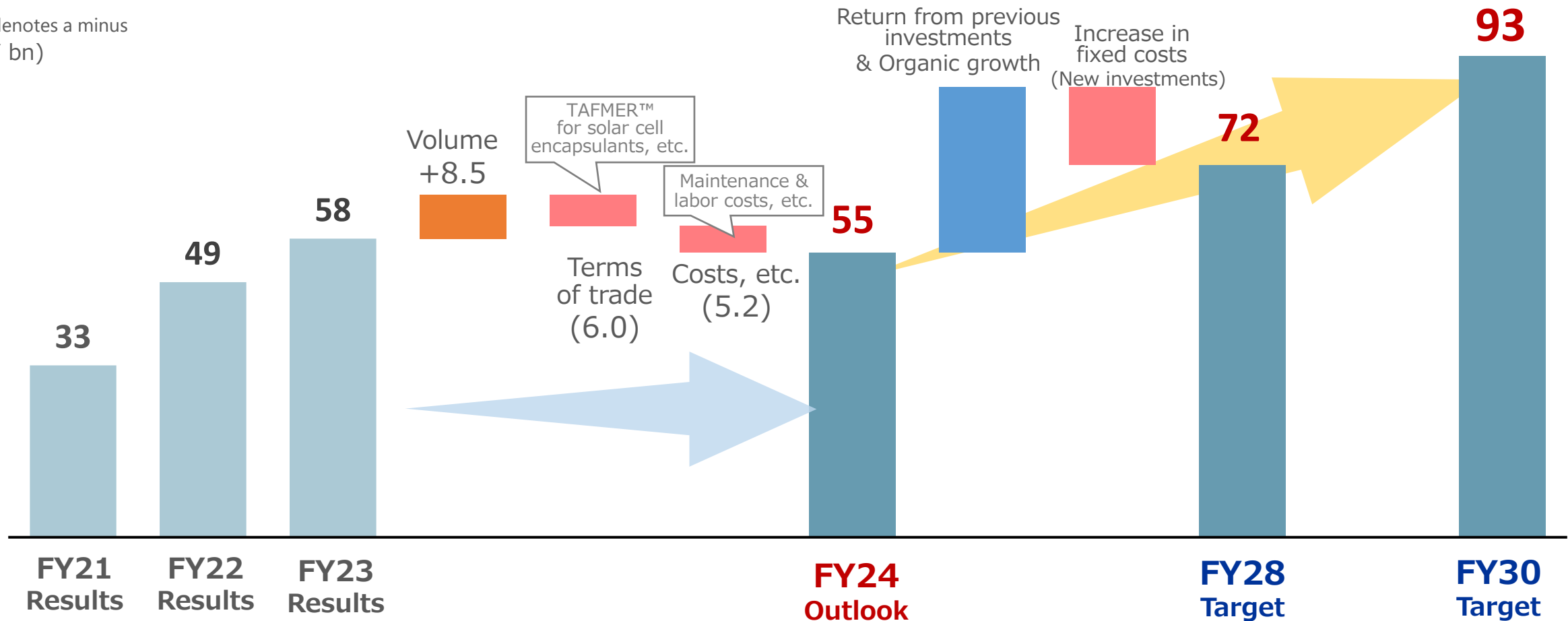
Commercialization of innovative carbon fiber production technology using microwaves



Mobility Solutions Business Earnings and Targets

Driving further growth with efforts focused on the shift to growth markets and differentiation

() denotes a minus
(JPY bn)



- Increased earnings generated by the transition to focusing on growth markets and differentiation as per the Basic Strategy
- Despite the current downturn in China's encapsulant markets causing TAFMER™ growth to slow, the fiscal 2030 target has been raised from our initial plan by continually pursuing our Basic Strategy



Growth Strategy for the Materials Business

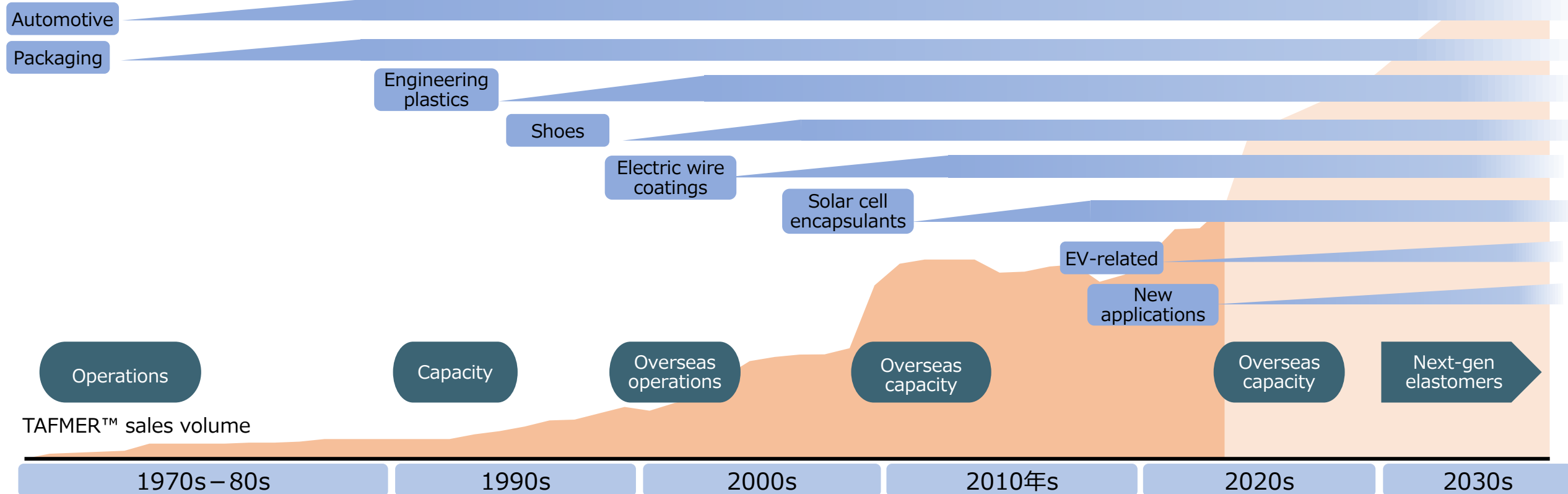
Cultivating markets and pursuing differentiation by leveraging polymers with unique strengths via the combination of raw materials, catalysts and production technologies

TAFMER™
Alpha-olefin copolymer

MITSUI EPT™
Ethylene-Propylene
Terpolymer

LUCANT™
Ethylene-alpha-olefin
co-oligomer

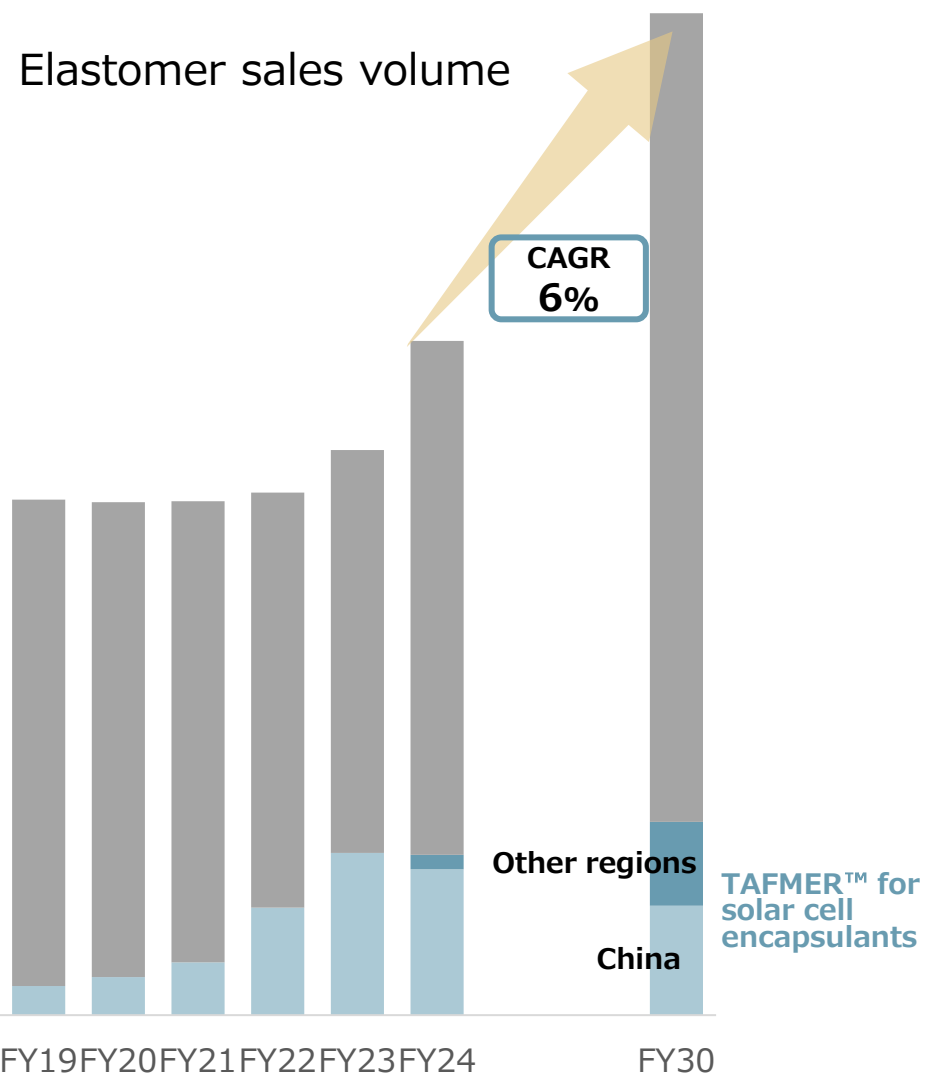
History of the TAFMER™ business



- Cultivating markets and pursuing portfolio transformation
- Achieving further growth and leaping forward by investing appropriate resources and introducing new products in the market as the leader in the field

Leveraging polymers with unique strengths to capture demand & application in growth markets

Elastomer sales volume



Deploying polymers with unique strengths in growth markets with diversifying needs

Automotive sustainability

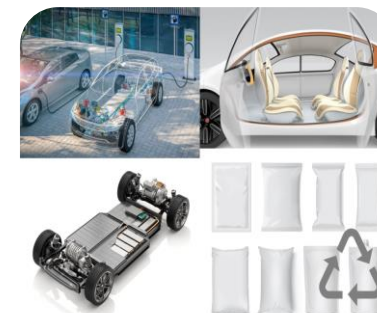
Lightweighting: Longer cruising range
Eco-friendly: Improved recycled materials

High-performance packaging materials

Food packaging: Easy-open packaging & low-temperature sealing performance
Eco-friendly: Monomaterial designs

Emerging economies & new growth markets

Market development through the development of unique differentiated polymers that make use of our expertise



Considering next-gen elastomer plants

Renewable energy

Solar cells: Improved generation efficiency & long-term reliability

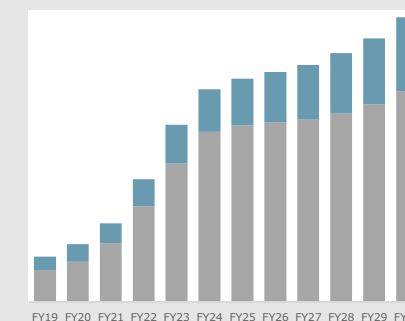
TAFMER™ for solar cell encapsulants

Pursuing a strategy of local production for local consumption to boost sales in regions where demand is expected to rise

Boosting sales to customers who prioritize quality and performance

Launching improved brands
 Providing generation efficiency data via demonstration testing
 Using IP to secure rights for Mitsui Chemicals

Solar power module energy generation volume by production region



FY24-30 CAGR

Other regions
10%

China
4%

Source: RTS Corporation

Forecast as of December 2023

Agile exploration and rollout of new applications by leveraging diverse product lines and global sites

PP compounds

ADMER™
Adhesive polyolefin

MILASTOMER™
Olefin-based
thermoplastic
elastomer

ARLEN™
Polyamide 6T

AURUM™
Thermoplastic
polyimide

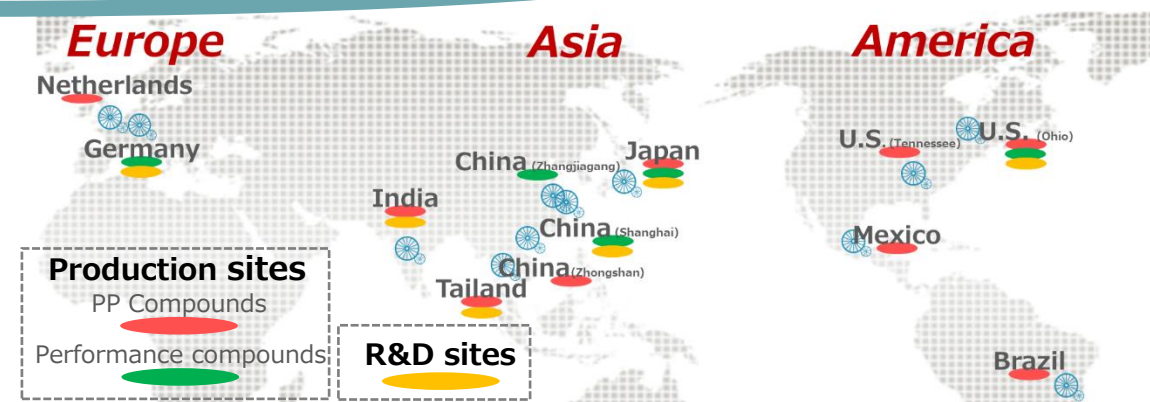
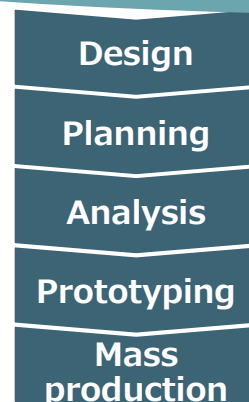
New composite
materials

Focus on growth markets & differentiation

- Automotive sustainability, high-performance packaging materials, renewable energy, etc.
- Cultivating emerging markets

Enhance ability to offer concepts
(Solution capabilities)

Global network



- Bolstering the ability to offer solutions that leverage the entire Group's capabilities, from design and planning through to mass production

- Strengthening the system of local production for local consumption and securing demand on a regional basis by linking up development activities at sites within each region

Pursuing agile product and application development across product and organizational boundaries

Achieve growth higher than market growth by making full use of global sites

Japan / N. America / ASEAN: Full lineup strategy leveraging the solid customer base
 India / Brazil: Growth strategy centered on differentiated products
 China / Europe: Niche strategy tailored to market environments (based on offering concepts)



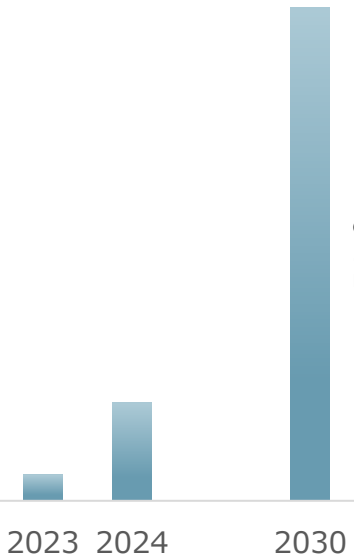
Bolstering sales and development by way of tie-ups with performance compound sites

Expansion of recycled PP compounds

Pursuit of new paintless materials

Fiber-reinforced PP compounds

Recycled PP compound sales volume



PP compounds containing 20-50% recycled material

Waste plastic



Compound production using proprietary expertise

Automotive materials (interior & exterior)



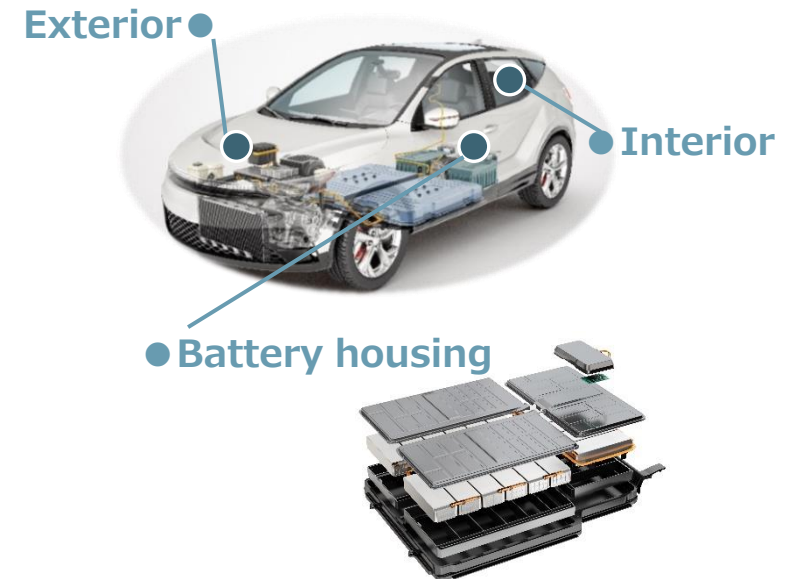
Developing materials that omit painting processes and meet demand to reduce environmental impacts



Optimizing coloring and colorant dispersal technologies

Addressing need for thinner and lighter or more rigid materials

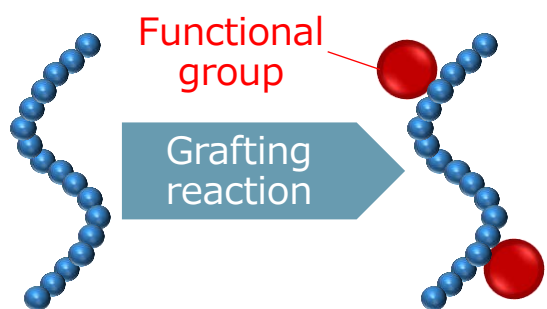
Switching from metal to plastic automotive components to make vehicles lighter and more fuel-efficient



Achieving global growth by increasing adoption in food packaging, automotives and various other applications

What is ADMER™?

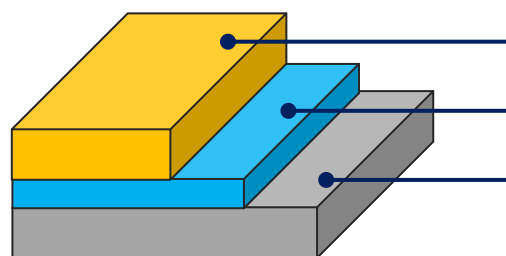
Polyolefin



- ADMER™ sees a functional group introduced to a polyolefin to create a modified polyolefin with adhesive properties
- With a lineup including PE-, PP- and special PO-based materials, usage options can be chosen to suit the adhesion substrate

(Example of use)
Multilayer food packaging

Extends expiry dates by providing barrier properties



Gas barrier layer: PA, EVOH

Adhesive resin layer: ADMER™

Moisture barrier layer: PE, PP



Films



Tubes



Bottles



EV-related

Rollout to monomaterial packaging applications

Achieving global demand growth (particularly in Europe and ASEAN) by meeting the needs of brand owners and others seeking to address recycling

Demand for a shift to monomaterial packaging

2023

2030





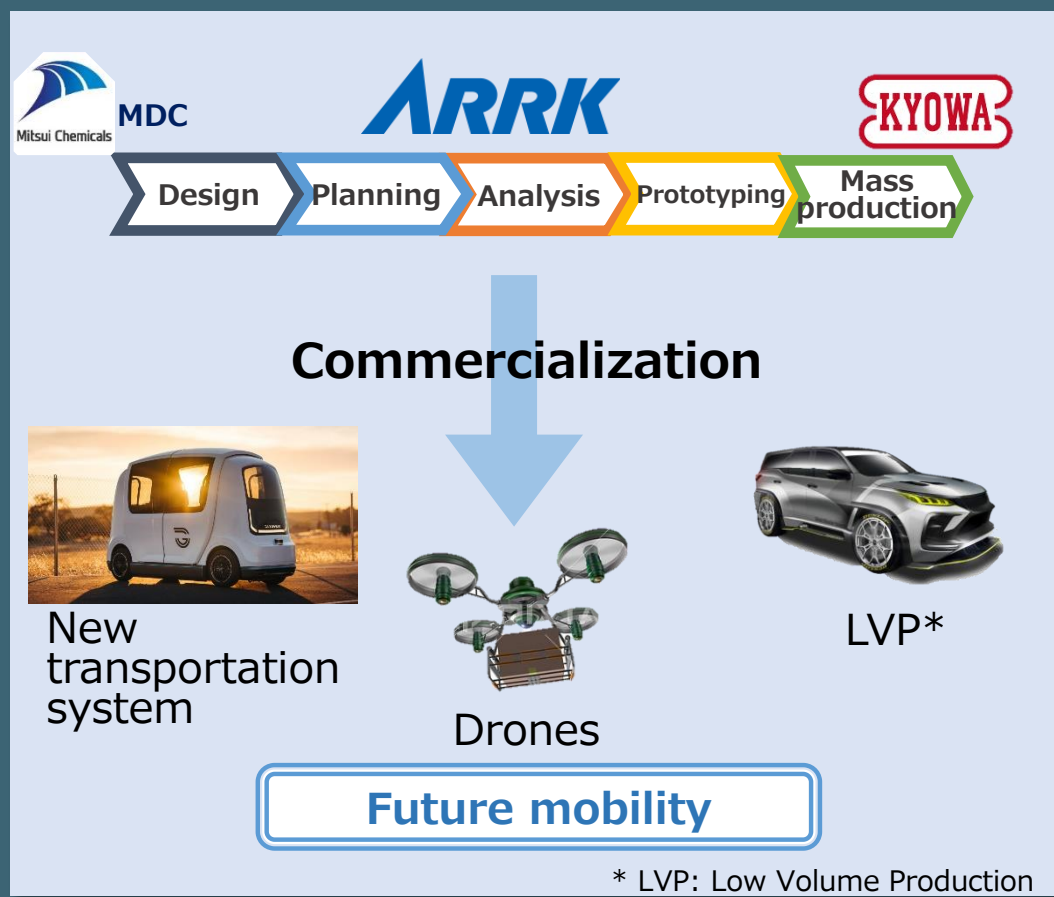
Growth Strategy for the Solutions Business

Establishing new business models by deepening the solutions capabilities we've acquired and strengthened, as well as our ties with other companies

Materials
business

Solution
capabilities
(Concept development
and proposal)

Solutions business (New business)



Innovative materials

Carbon fiber
production technology
using microwaves



Tie-ups

Business
partners

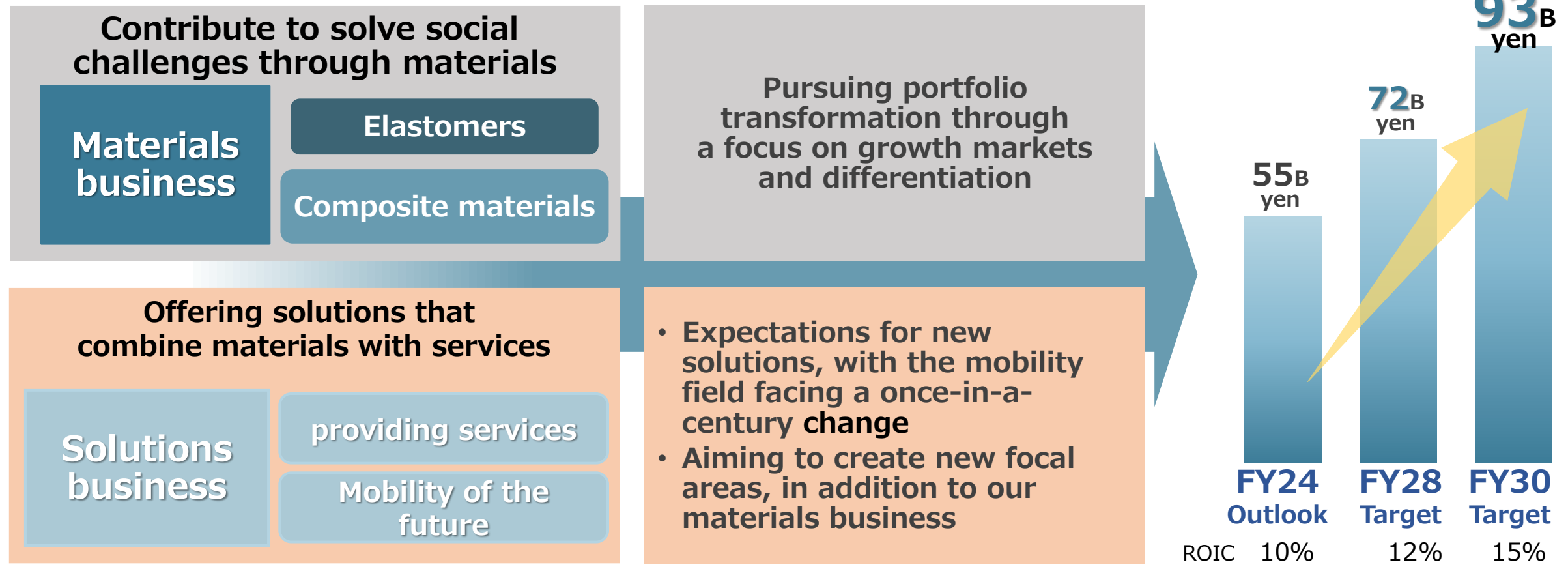
Pursuing new business development that leverages solution capabilities, while also contributing to the growth of the materials business by offering concepts



(Summary)
Mobility Solutions Business Strategy

Ideal vision

Providing unique materials, features and services to solve social challenges and let us achieve sustainable business growth



Materials: Achieving sustainable growth by focusing on growth markets and differentiation
Solutions: Striving to solve social challenges while also creating high value-added businesses

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Mitsui Chemicals
Group

Business Strategy Presentation

ICT Solutions

HIRAHARA Akio

平原 彰男

Senior Managing Executive Officer

Business Sector President, ICT Solutions Business Sector

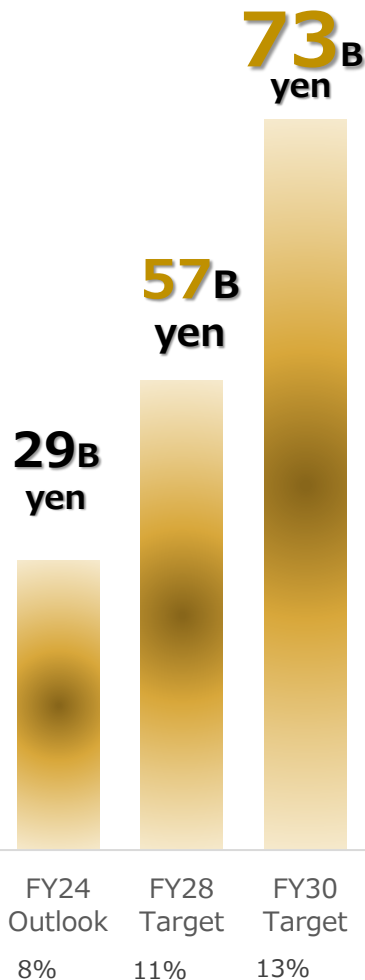
Dec. 10, 2024



Strategy for achieving our FY28 targets

Focus resources on key businesses

Semiconductor & assembly (ICROS™ Tape, pellicles, next-gen materials), coating & engineering materials, lithium-ion batteries



Semiconductor & assembly

Contributing to the advancement of semiconductors via a wide-ranging rollout of products for cutting-edge fields

ICROS™ Tape

Increasing production capacity in line with market growth
Expanding business by introducing new products into related fields

MITSUI PELLICLE™

Continuing & reinforcing our strategy to be the top player in cutting-edge EUV/DUV sector
Early commercialization of CNT pellicles

Next-gen materials

Getting ahead of the competition in commercializing materials for the packaging process

Utilizing the process compatibility evaluation capabilities of SHINKO ELECTRIC INDUSTRIES, the Creative Integration Lab.™, etc.

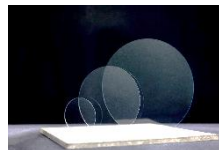


Imaging

Sales growth & use diversification for AR/VR

Accelerating development of AR materials

Diffrar™



Coating

Speeding up global rollouts as well as the launch of differentiated products in key markets for coating & engineering materials

Bolstering our production network
Accelerating our advance into new applications suited to local needs

Battery materials

Accelerating the development of next-gen materials to help improve lithium-ion battery (LiB) performance





Contributing to the advancement of the cutting-edge semiconductor field by rolling out a wide range of products throughout the Group

Continuing & reinforcing our strategy to be the top player in cutting-edge (EUV/DUV) sector
Early commercialization of CNT pellicles

Introducing new products into related fields and increasing production capacity

Front-end

Disilane
Higher silane



Trimethyl-aluminum
Raw material for semiconductor doping
Nippon Aluminum Alkyls



MITSUI PELLICLE™



Raw material for photoresists
MILEX™
Phenols
Honshu Chemical Industry

NF₃



Equipment cleaning, dry etching

Anthraquinone



Catalyst for hydrogen peroxide production
Yamamoto Chemicals

Back-end / packaging

PIVAR™



ICROS™ Tape



Mitsui Chemicals ICT Materia

Bonding materials



MintRow™



Mitsui Chemicals ICT Materia



Substrate



Resin substrate

Drilling → Plating → Exposure → Etching → Stack-up

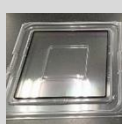


Package substrate

Gigafreq™



MITSUI PELLICLE™



For flexible PCBs

Flexible PCB release film
Opulent™
Mitsui Chemicals ICT Materia

For the entire process

Protective film for electronic parts
Mitsui Masking Tape™
Mitsui Chemicals ICT Materia

Getting ahead of the competition in commercializing next-gen materials for substrates and the packaging process
Utilizing the process compatibility evaluation capabilities of SHINKO ELECTRIC INDUSTRIES, the Creative Integration Lab.™, etc.

Red border: Key business
Blue text: Existing products
Green text: Newly developed products

Assembly



Capacitor

SP-PET™
Release film for MLCCs
Mitsui Chemicals ICT Materia



Module

3

Semiconductor & Assembly Solutions

Mitsui Pellicle™

Mitsui Chemicals
Dec 10, 2024

Growing the business in the EUV/DUV sector by responding to technological innovation and diverse customer needs

■ DUV pellicles

Mitsui Chemicals EMS (from July 2023) (Integrating Asahi Kasei's pellicle business)

- Top supply capability worldwide
- World's most advanced product technology & process development capability
- Industry No. 1 for sales, purchasing and logistics networks

Developing technology and Increasing supply capacity in the 3D packaging sector

DUV pellicle sales volume

Year	Sales Volume
2021	Low
2022	Low
2023	High
2024	Very High

3D packaging pellicle sales volume

Year	Sales Volume
2023	Low
2024	High

2023 Integration of Asahi Kasei's business

2023 Acquisition of Asahi Kasei's business

■ EUV pellicles

Yield Improvement Process:

- FY21:** > 88% yield using **Conventional materials** (ASML).
- FY22:** > 90% yield achieved through **Process optimization**.
- FY25:** > 92% yield achieved through **Materials innovation** and **Materials optimization**.
- FY26:** > 94% yield achieved through **Materials optimization**.

ASML: Production begins in 2021 under license agreement.

imec (imec): Strategic partnership. Development of next-gen CNT membrane. CNT facilities to be completed December 2025.

CNT membrane: Image of a membrane being held.

EUV pellicle sales volume

Year	Sales Volume
2021	Low
2022	Medium
2023	High
2024	Very High

2021 Production begins under license from ASML

2023 CNT development with imec

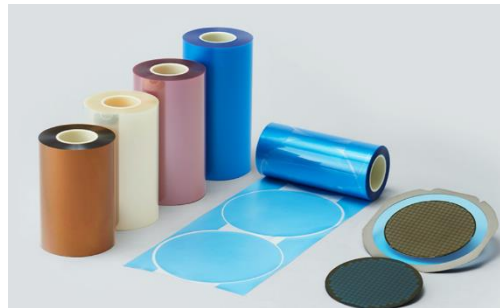
2025 CNT facilities to be completed December 2025



Expanding the scope of business by leveraging our product development capabilities and technical support for customers to

Expanding the scope of business for ICROS™ TAPE

- No. 1 by market share in protective tape for the wafer backgrinding process
- Leveraging its strengths of low contamination for wafer surfaces and precise control over tape thickness to expand applications into the dicing process



Dicing

Back grinding

Molding

Expanding production capacity for ICROS™ Tape

- Production capacity in Taiwan has more than doubled



Taiwan phase 1
(entered operation 2020)



Taiwan phase 2
(entered operation 2024)

Newly developed product: MintRow™



- Highly heat-resistant release film
- Alternative to fluorinated chemicals
- Silicon- and halogen-free



Getting ahead of the competition in commercializing next-gen materials for substrate and packaging processes

Development of new bonding materials for 3D stacks

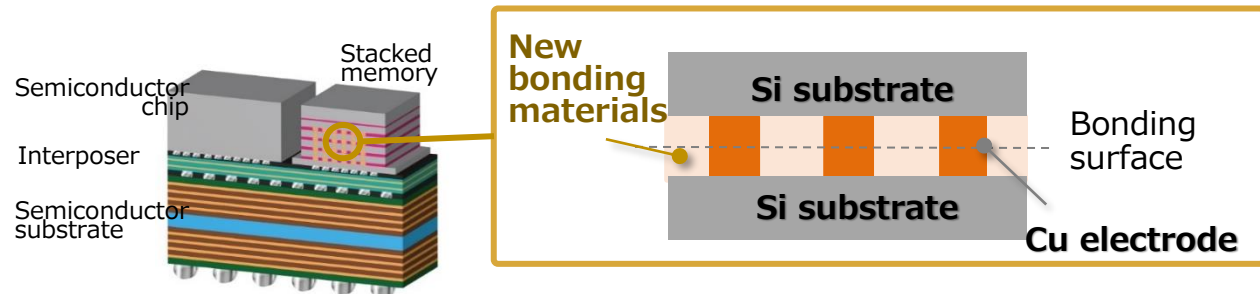
Conventional

- Semiconductor chips are mounted individually on a package substrate
- Information is transmitted via the motherboard

Next-gen

- Multiple semiconductor chips are mounted on an interposer
- Information is transmitted via the interposer
- **Capable of temporary bonding at room temperature and permanent bonding at the low temperature of 150°C**
- **No misalignment after wafer bonding**

Examples of structures for next-gen semiconductor packages



Using chip-on-wafer bonding to bond copper electrodes

Acquisition of process compatibility evaluation capabilities

Investment in & collaboration with SHINKO ELECTRIC INDUSTRIES

- Helping to achieve higher speeds and lower power consumption by accelerating development of materials for next-gen semiconductor packages

Strengthening of our ability to offer solutions

Opening of Creative Integration Lab.™ R&D site

- ICT test field (DELA): A place for prototyping and evaluation with customers
 - Equipped with wafer backgrinding equipment and other evaluation facilities of the kind used by customers
 - Undertakes process, performance and reliability evaluations
- Co-creation building (ATTA): A place for communication between customers and researchers



Exterior view of the Creative Integration Lab.™



Expanding the portfolio into growth fields through new product development, starting with rollout of smartphone-centered applications

APEL™

- Increased sales due to smartphone market recovery
- Speeding up multipurpose application development based on low birefringence properties

Smartphone



VR/AR



HUD*1



Automotive camera



• Development of special grades of APEL™

Quickly moving from prototyping to mass production of developed products

Shifting to an agile development setup tailored to customer needs

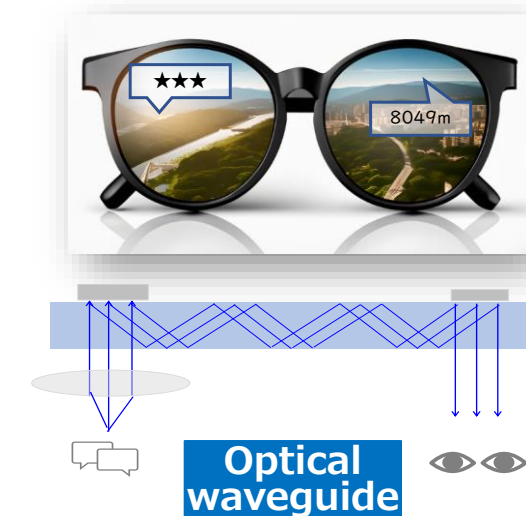
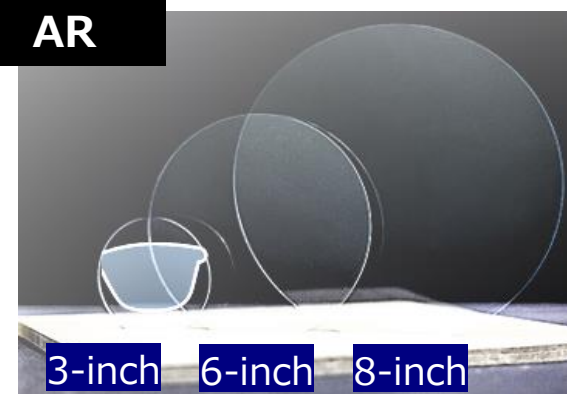
Target applications: Meeting next-gen smartphone needs with wide-angle/telephoto lenses and periscope lens prisms

*1 Heads-up displays

Diffrar™

- Development of 8-inch optical polymer wafer for AR glasses

AR



Aiming to secure the wafer's adoption by leading tech companies and have it fitted as standard in AR glasses

Next-gen material development

- Development of materials for next-gen lens design
- Development with an eye to models set to be launched by leading tech companies 3–5 years hence



Speeding up business expansion by rolling out differentiated products to core markets

Differentiated products

Coating and engineering materials such as PUD*¹ (TAKELAC™), POD*² (CHEMIPEARL™) and XDI*³ derivatives

- Developing products that offer us a competitive advantage, by combining our derivatization techniques and applying them to special raw materials that other companies do not have

Key markets:

Packaging materials

Environmental needs, high-performance packaging materials

ICT

Semiconductor-related goods, LiB materials, smartphones



High-performance packaging materials



Polishing pads



LiB pouches



Screen inks (smartphones)

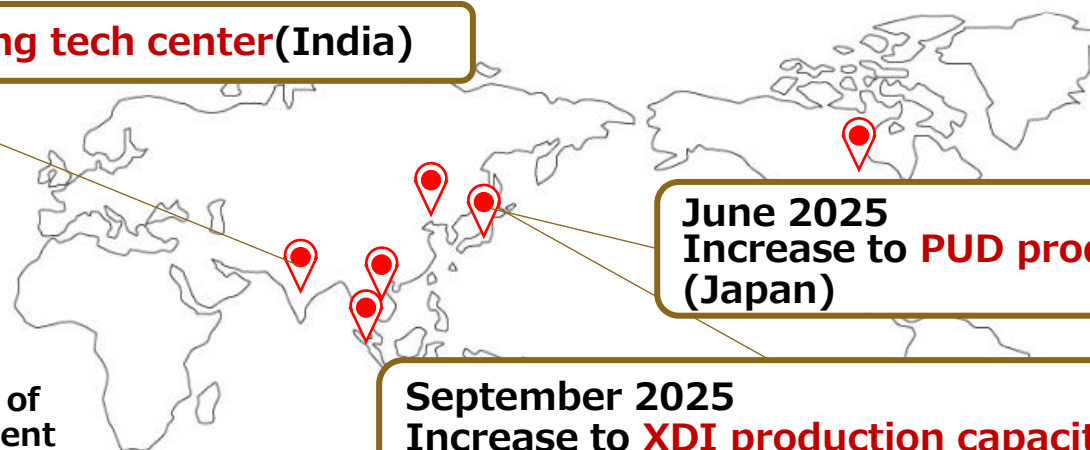
Bolstering our technical support & production network to increase sales

Strengthening development capabilities to speed up our rollout of new applications suited to local needs

FY24 Establishment of **Coating tech center**(India)

- Medium-scale prototyping and sample production
- Technical support
- Development of brands suited to local needs

→ Aiming to speed up cultivation of new applications via development in locations close to markets



June 2025
Increase to **PUD production capacity** (Japan)

September 2025
Increase to **XDI production capacity** (Japan)

→ Increasing our supply capabilities promptly in response to demand growth

- Around double the current production capacity

- 20% increase to current production capacity

*1 Polyurethane dispersions *2 Polyolefin dispersions
*3 Meta-xylylene diisocyanate



Speeding up global business rollout to meet growing environmental needs

Environmental needs

- Shift to monomaterial barrier packaging
- Shift from plastic packaging to coated paper packaging
- Shift to water-based coating materials

- Expanding sales regions
- Establishing production sites and increasing capacity in response to global demand

Eco-friendly products

- PUD (TAKELAC™)
- POD (CHEMIPEARL™)
- Water-based acrylic (BONRON™)

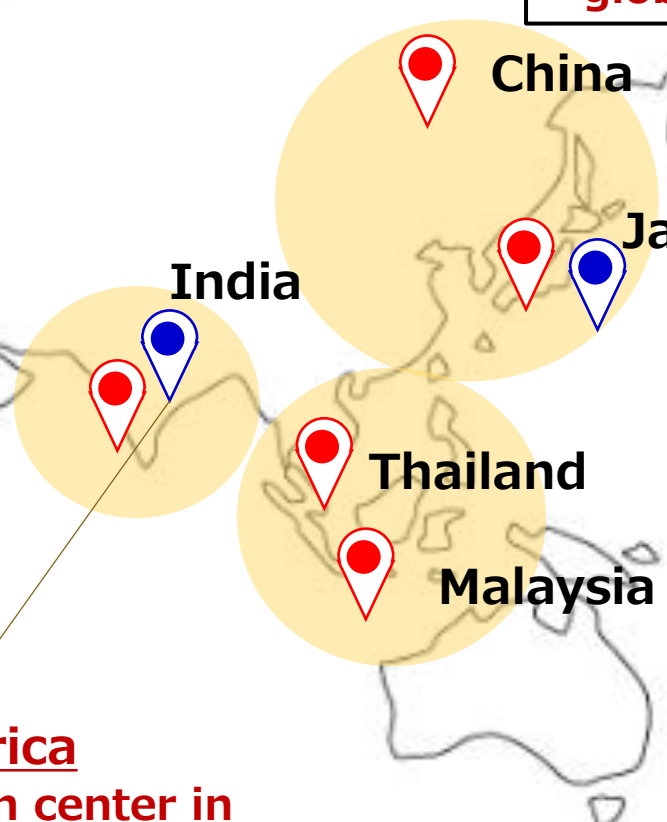
Europe

Cultivating markets with an eye to shifting to local mass production



Middle East and Africa

Using the coating tech center in India to provide technical support and cultivate markets



India

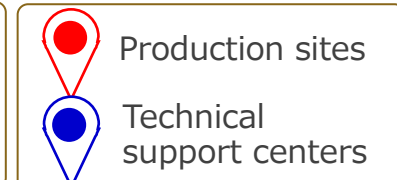
China

Japan

Thailand

Malaysia

U.S.





Using our technologies to help improve LiB performance

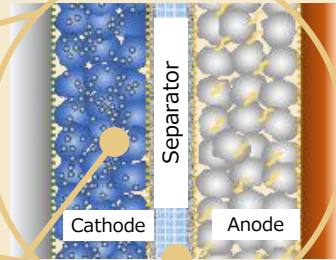
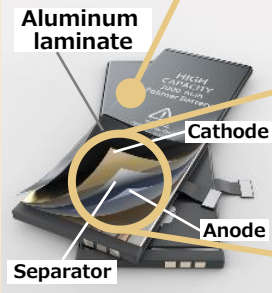
LiB material design/ battery evaluation technology

Existing products

Pouch film adhesives

UNISTOLE™ TAKELAC™ TAKENATE™

Thinner adhesive layer helps enable size reduction, freedom of form



LiB electrolyte

MILLET™

Proprietary additive helps improve lifespan, input/output, etc.

Adhesive for ceramic separators

BONRON™

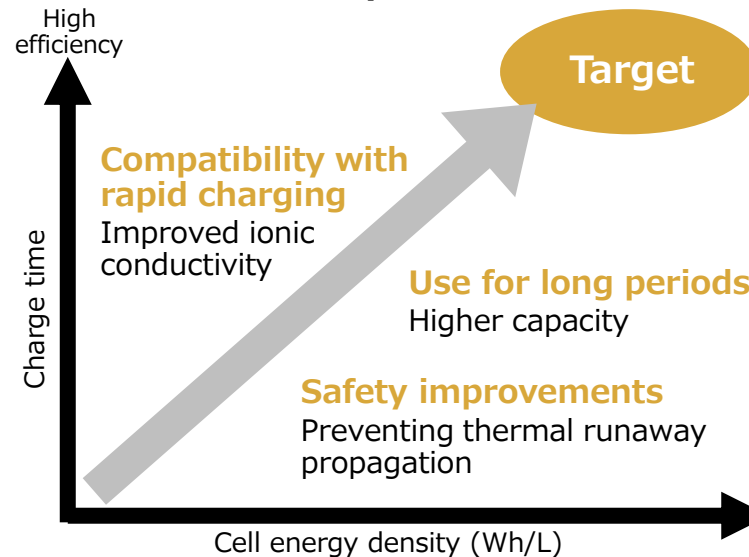
Thinner ceramic layer leads to improved ionic conductivity and higher energy density



Molecular design, adhesives, coatings

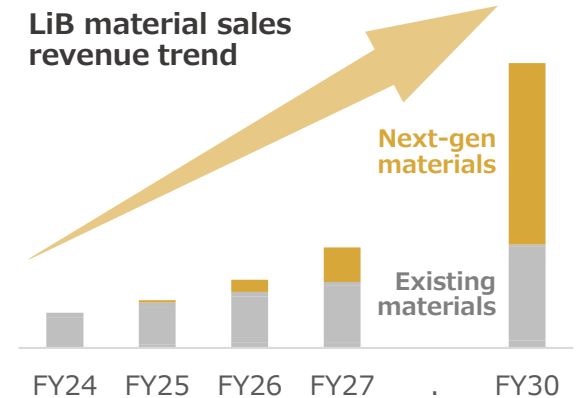
Customers' development status & needs

LiB Development trends



Accelerating development of next-gen materials Additives, adhesives, etc.

LiB material sales revenue trend



Example of newly developed product Functional additive

Added to the inside of batteries to improve their capacity, safety and more

A blue sky with white clouds and a sunburst effect, with a large blue arrow pointing right.

A global solutions company that
leads change and contributes to a sustainable future

0→1 MAKE IT HAPPEN

Chemistry for Sustainable World



Mitsui Chemicals

Challenge Diversity One Team

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