

# IR-Day 2025 Briefing on Advanced Materials Business

January 14, 2026

Advanced Materials Div.



MINING THE FUTURE

## **Briefed by**

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# Today's agenda

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## The Advanced Materials Business:

- uses, as the core technologies, the powder synthesis / surface treatment technology and crystal growth/processing technology, which were developed from the smelting and refining process
- centers on a group of products that contribute to developing the field of advanced telecommunications and achieving carbon neutrality
- advances sales digital transformation (DX) and focuses on the development of new products and new businesses

# History, core facilities, and number of employees

## History

1960	Entered the electronic materials business
1967	Established the Electronic Metal Div. Ome Plant (currently Ome District Div.)
1974	Established the Kunitomi District Div. (currently Sumiko Kunitomi Electronics Co., Ltd.)
1981	Established Ohkuchi Electronics Co., Ltd.
1987	Established Isoura Plant in the Besshi district
After the 1990s	Established manufacturing bases overseas
2005	Established GRANOPT CO., LTD. (Jointly established with MITSUBISHI GAS CHEMICAL COMPANY, INC. Current equity ratio: The Company 51%)
2017	Acquired capital in SICOXS Co., Ltd.
2020	Launched X-MINING, a website for information dissemination
2023	Implemented the branding of the near-infrared absorbing material SOLAMENT®
2024	Completed the second plant of GRANOPT CO., LTD.
2025	Absorbed and merged SICOXS Co., Ltd.

[As of the end of December, 2025\*]

### Core facilities: 16 locations

The Company:	2 core facilities
Domestic affiliates:	7 companies
Overseas affiliates:	7 companies

### No. of employees: about 2,150

Japan:	About 2,000
Overseas:	About 150

\* The catalyst business is excluded

# Business strategy

- Grow profits by expanding existing products and strengthening strategic products
- Pursue growth in the fields that have the potential to grow and contribute to solving social issues

Field of advanced communication information		
<b>Faraday rotator</b> <ul style="list-style-type: none"><li>✓ optical isolator</li><li>✓ applications related to generative AI</li></ul>	<b>SiC (SiCkrest®)</b> <ul style="list-style-type: none"><li>✓ power semiconductor</li></ul>	<b>Near-infrared absorbing material (SOLAMENT®)</b> <ul style="list-style-type: none"><li>✓ shielding film</li></ul>
<b>Ni powder, Ni paste</b> <ul style="list-style-type: none"><li>✓ high-quality MLCC</li><li>✓ applications related to generative AI</li></ul>	<b>Oxidation-resistant nano copper powder</b> <ul style="list-style-type: none"><li>✓ power semiconductor</li></ul>	<b>Nickel oxide</b> <ul style="list-style-type: none"><li>✓ SOEC and SOFC for achieving a hydrogen society</li></ul>
Carbon neutrality		

# Organization chart (Materials segment)

## Advanced Materials Div.

### Powder Materials Business Dept.

Nickel powder, paste for MLCC/CR, near-infrared absorbing material (SOLAMENT®), nickel oxide, rare - earth magnet materials, etc.

### Device Materials Business Dept.

Optical communication device (Faraday rotator), LT/LN, flexible copper clad laminates, printed circuit board

### SICOX Project Dept.

Bonded SiC substrate (SiCkrest®)

### Innovation Strategy Dept.

Creation of new products and new businesses (Sales DX, digital marketing (X-MINING))

### Administration Dept., etc.

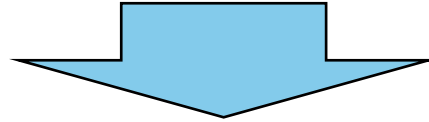
Business strategy, business management, etc.

## Battery Materials Div.

## Catalyst Business

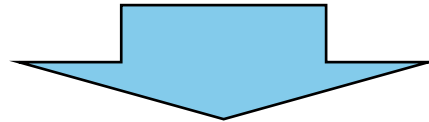
# Creation of Innovation Strategy Dept.

**[Challenge]** Delays in portfolio reform and new product/business creation that are required for sustainable growth



**The pressing need is to build a system for accelerating the creation of growth business with technology as its core**

- A system that enables innovation to be created through the fusion of marketing and technology
- A system that enables business models to be planned/proposed permanently
- A system that achieves the introduction and active use of IT tools for acquiring market information



Combine marketing and product development to reorganize them into an organization that specializes in business creation activities

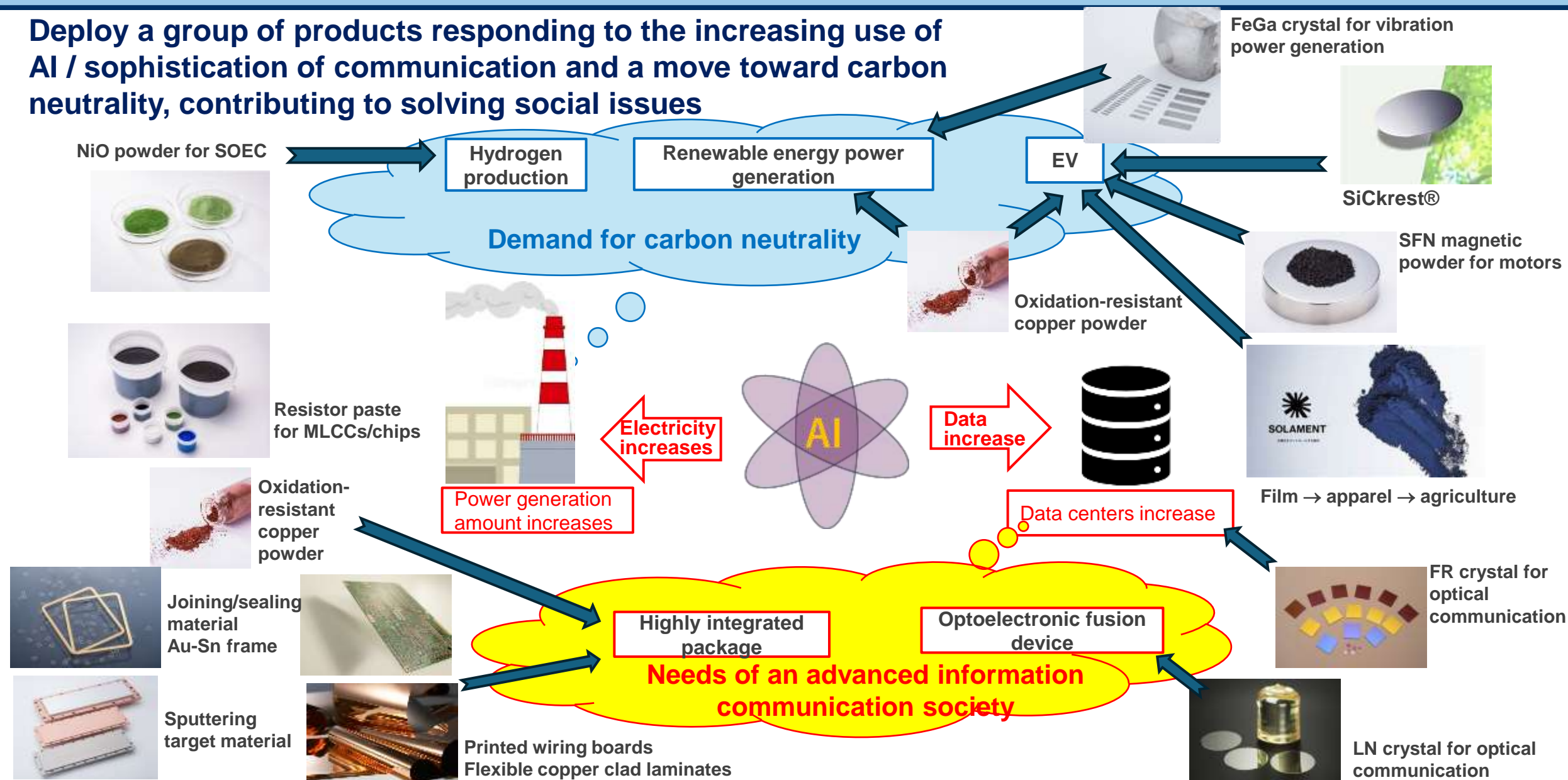
**Established “Innovation Strategy Dept.” (FY2025)**

IT solutions group, Global marketing group, Product Planning and Development Dept., Business promotion group



# Products of Advanced Materials Div.

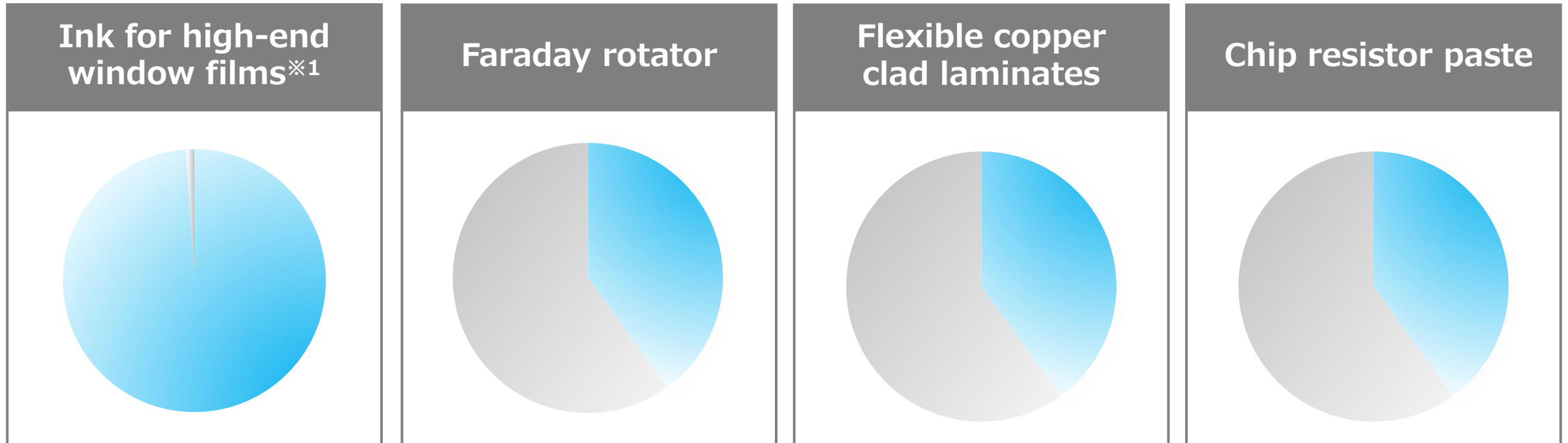
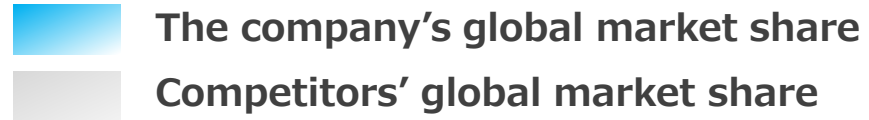
Deploy a group of products responding to the increasing use of AI / sophistication of communication and a move toward carbon neutrality, contributing to solving social issues





# Reference: Product Market share (company estimate)

We have many products with a high market share.



etc.

※1 SOLAMENT®  
(for high-end window films)

# Nickel powder, nickel paste (for MLCCs)

Powder synthesis / surface treatment



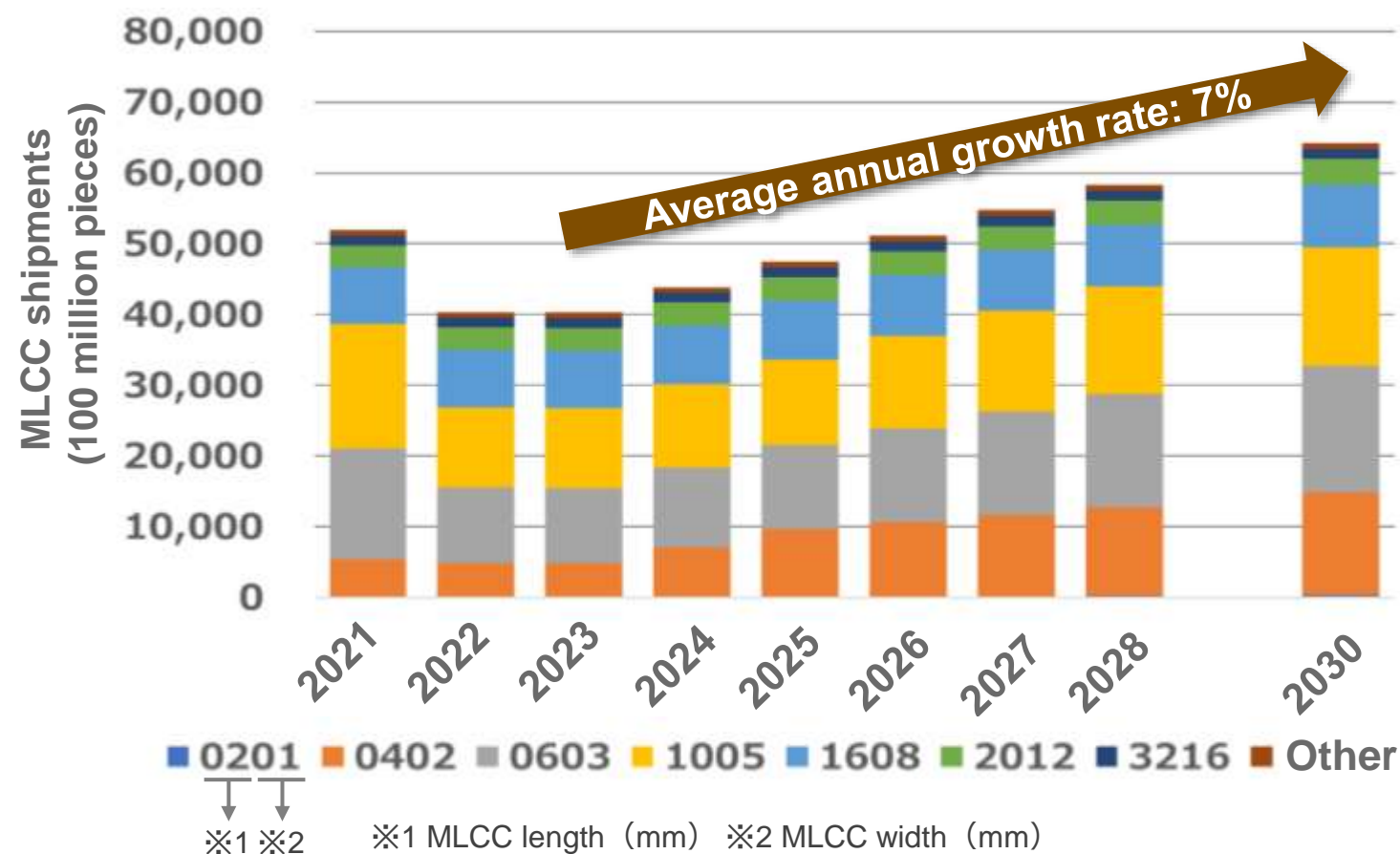
# Nickel powder, nickel paste (for MLCCs)

Powder synthesis / surface treatment

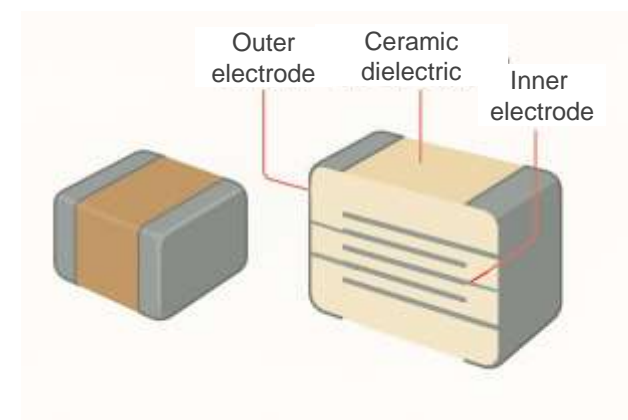
The MLCC market continues to grow.

The development of higher capacity (thinner layer) products is expected in particular

Market forecast by MLCC size (the Company's forecast)



- ✓ Automotive field (EV, ADAS, etc.)
- ✓ Development of communication technology (5G, etc.)
- ✓ Advancement in performance of electronic devices
- ✓ Further spread of AI and more

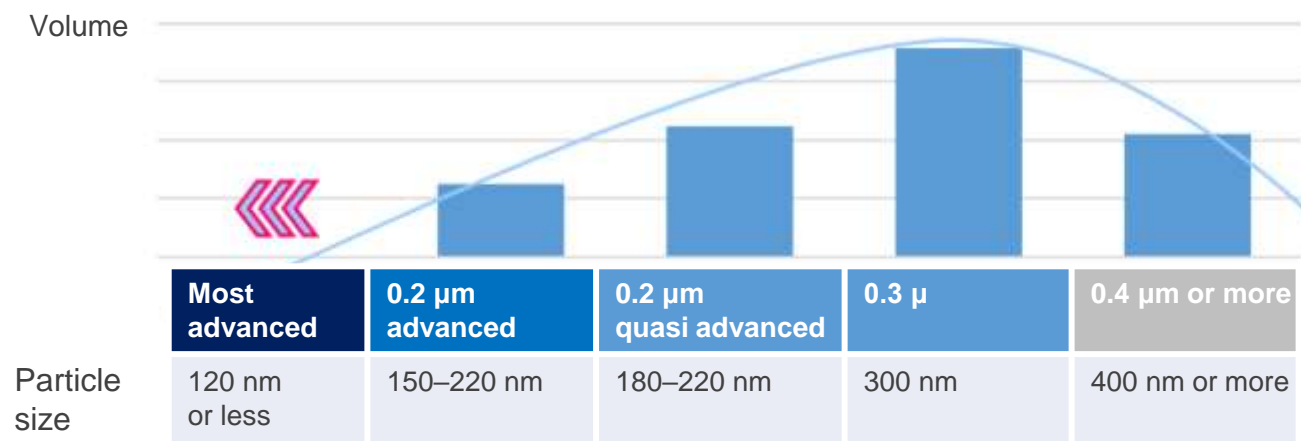


Used to form the inner electrode of an MLCC (multi-layer ceramic capacitor)

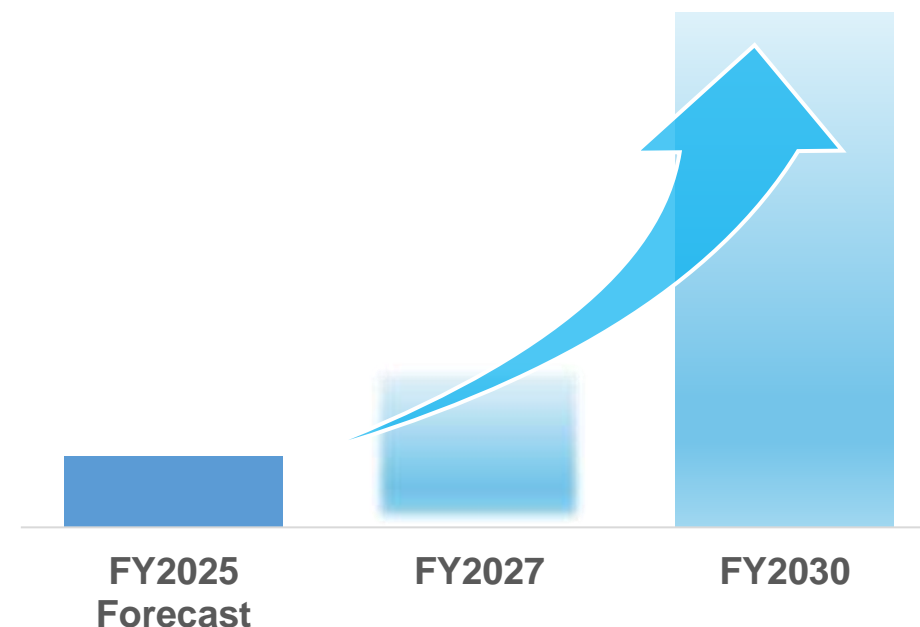
## Aim to increase sales volume by leveraging the manufacturing process suitable for fine powder production (wet process)

The development of higher capacity (= thinner layer) products increases demand for nickel powder with a smaller particle size. Fine powder of a particle size of 200 nm or less, which is currently advanced / most advanced, is expected to become most popular in 10 years (in the next generation).

Nickel powder market by particle size (the Company's forecast)



Fine nickel powder: the Company's sales volume (plan)



# Faraday rotator (FR)



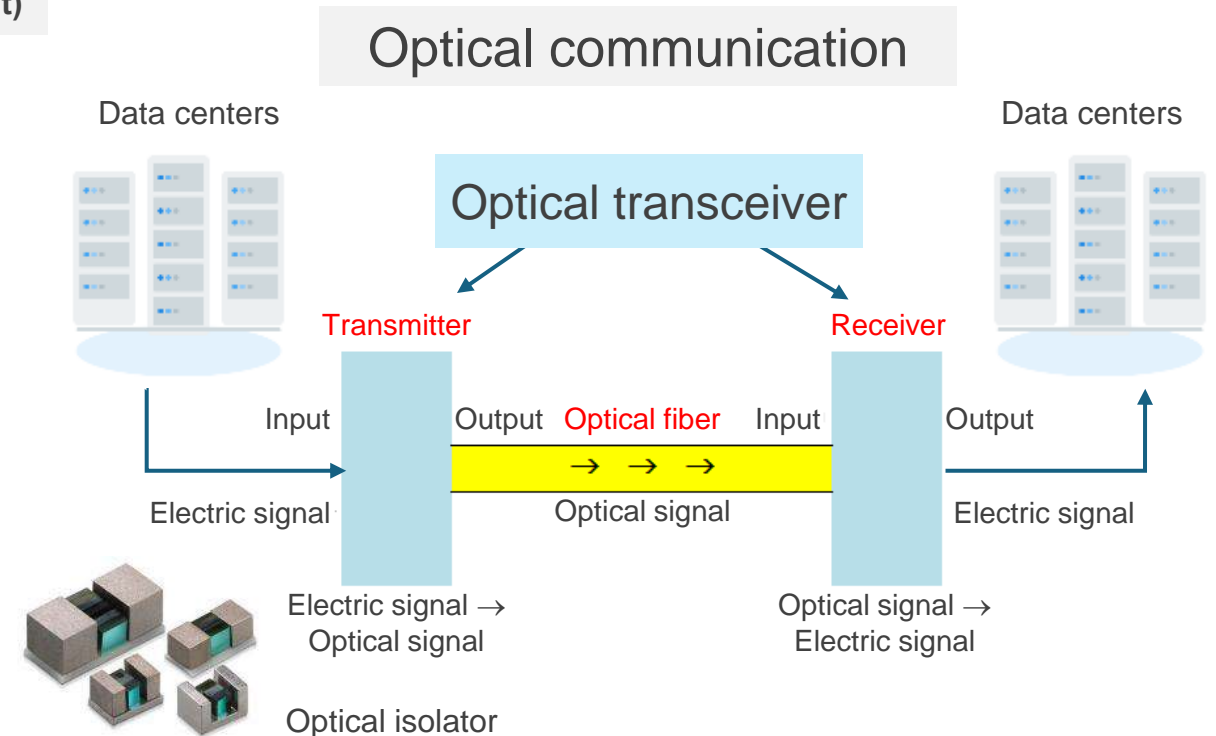
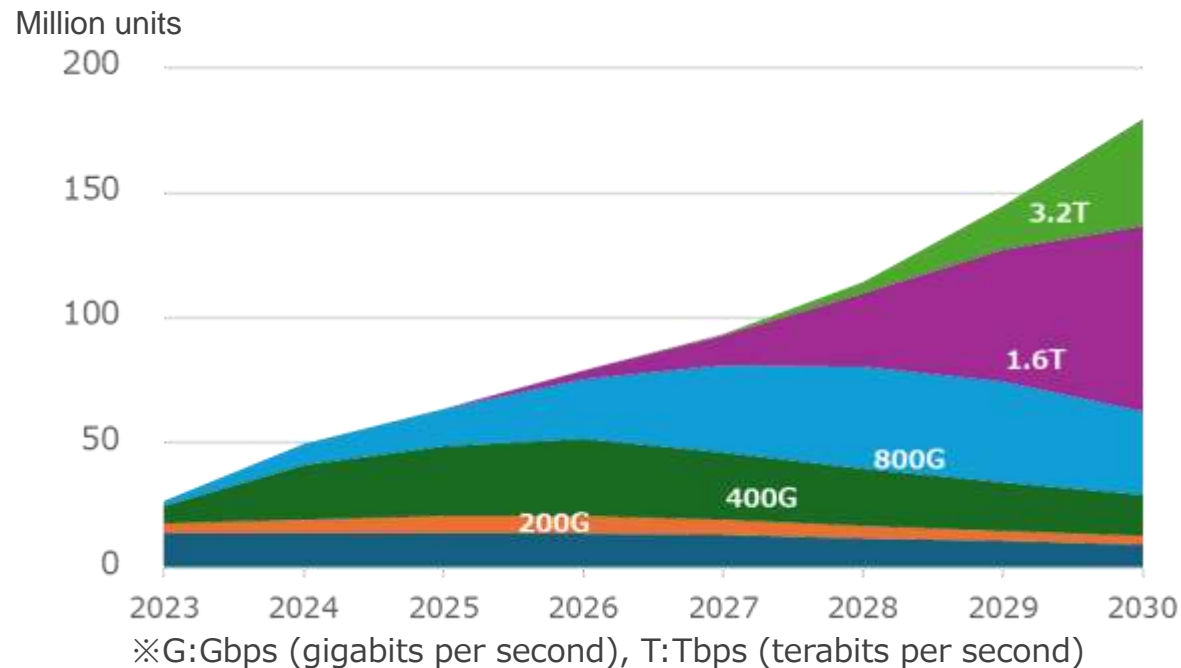
# Faraday rotator (FR)

Crystal growth/processing

An increase in data centers will rapidly expand demand for optical transceivers equipped with an optical isolator. FR is also expected to maintain high growth.

- ✓ FR is an optical element used for an optical isolator that passes light only in one direction. An optical isolator has the function of preventing laser damage and the influence of noise due to reflected light

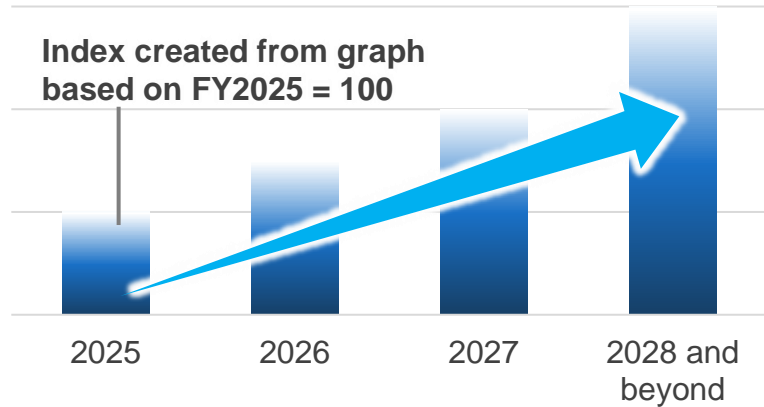
Datacom transceiver market forecast (the Company's forecast)



## Promote the enhancement of production capacity in response to market growth

- ✓ The enhancement of production capacity is underway at a new plant to meet customers' great needs
- ✓ A sales company (Granopt Optics Trading (Shenzhen) Co., Ltd.) was established in China (Shenzhen). Focus on the building of the position in the Chinese market that is growing significantly

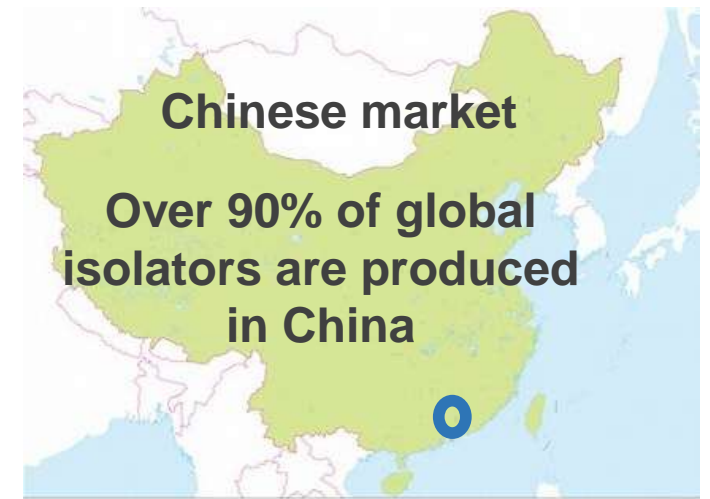
Faraday rotator production capacity enhancement (image)



New plant of GRANOPT CO., LTD. was completed in FY2024



Sales company Granopt Optics Trading





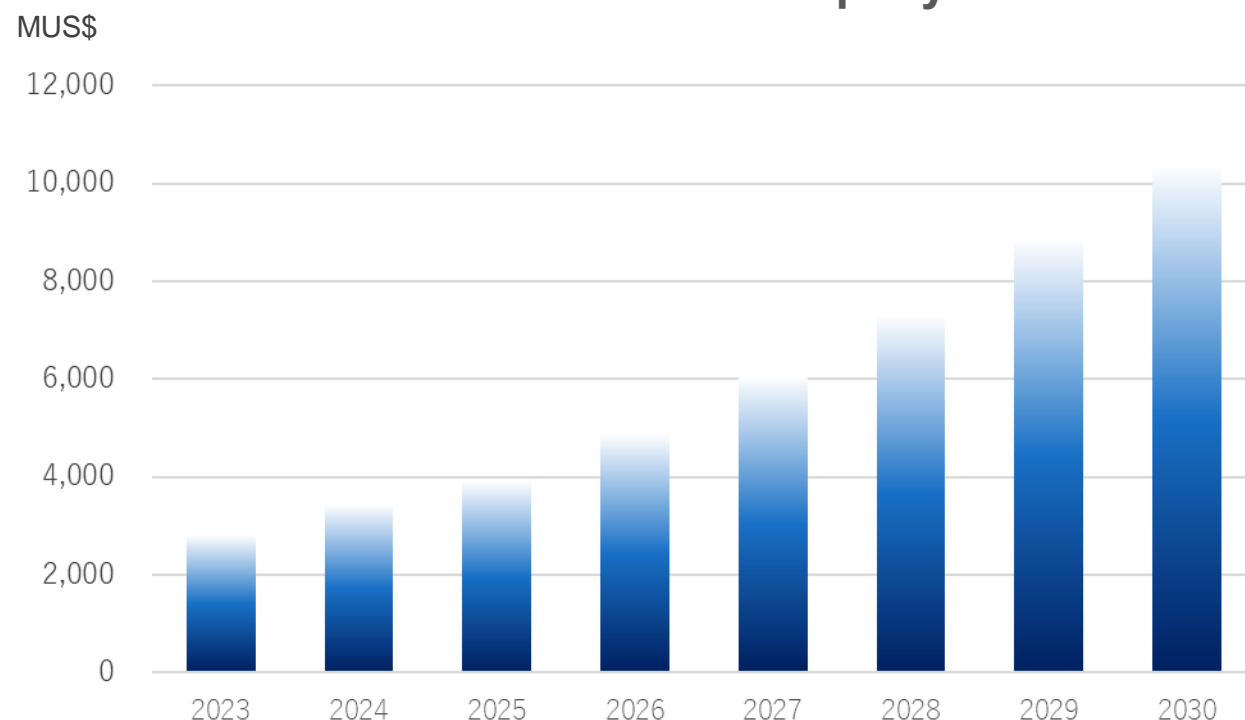
# SiCkrest® (Bonded SiC substrate)

Crystal growth/processing



**Sic substrates, which lose less energy and exhibit high durability even at high temperatures, are expected to grow significantly for the application of power semiconductors**

**SiC Device Market: the Company's forecast**



## **[Business environment]**

- ✓ High growth is expected to continue although growth has been slower than anticipated as European and US EV manufacturers lost momentum
- ✓ Device manufactures' recent demand for ultra-high quality Sic single-crystal substrates has exceeded supply capacity

# SiCkrest® (Bonded SiC substrate)

Crystal growth/processing

## [Features of SiCkrest®]

- (1) Manufactures bonded substrates, from a sheet to over 50 sheets of ultra-high quality SiC single-crystal substrates
- (2) Enables chip size reduction by reducing energy consumption through of low resistance\*
- (3) Improves reliability by suppressing deterioration
- (4) Increases the switching response speed

**\*Resistivity reduced by half**

Single-crystal :  $20\text{m}\Omega \cdot \text{cm}$

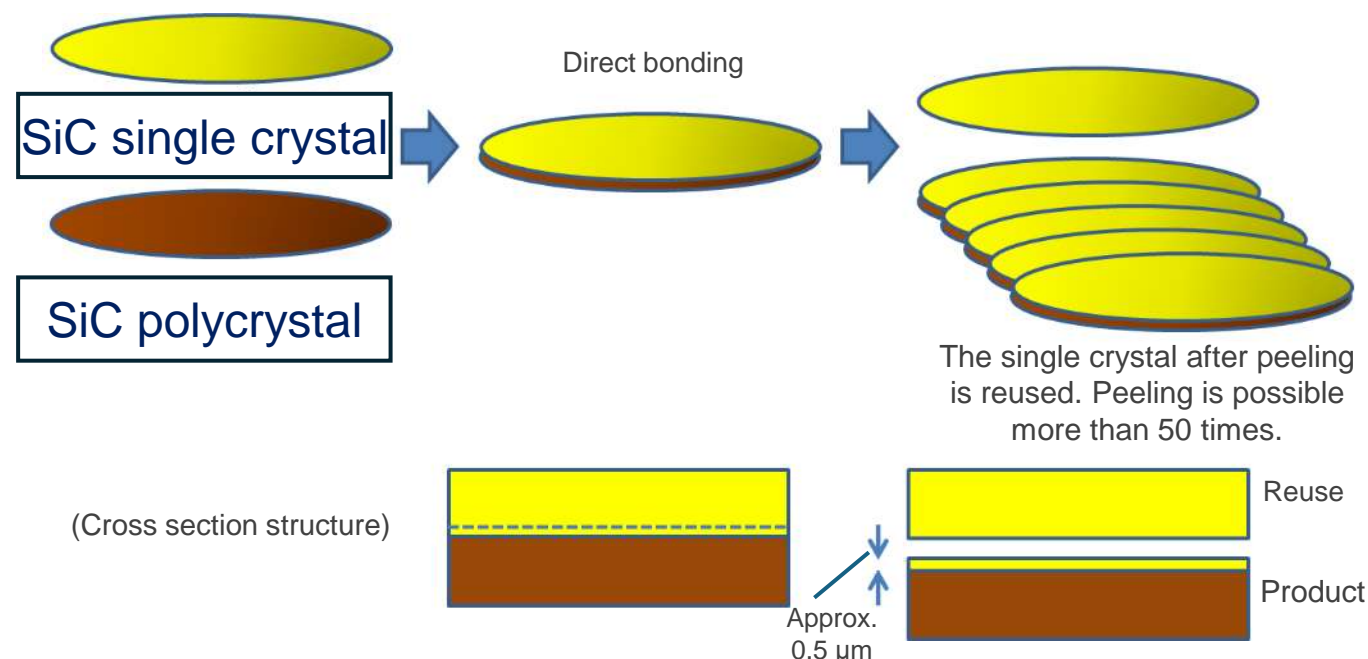
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SiCkrest® : less than  $10\text{m}\Omega \cdot \text{cm}$

The features (2) to (4) are achieved through direct bonding



## Overview of direct bonded substrates



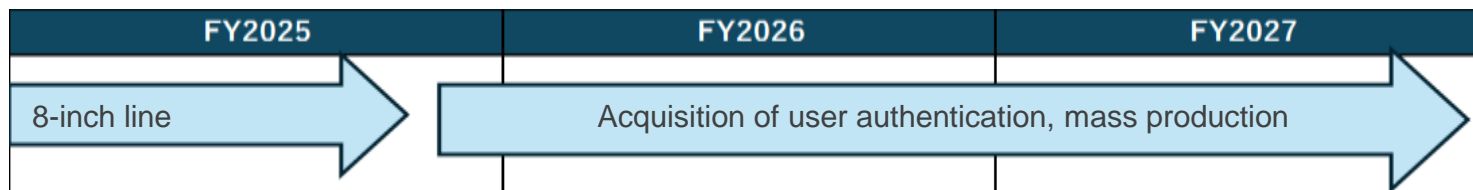
**Leverage the strength of crystal growth/processing technology in the promising field of power semiconductors**

## [The Company's key technologies]

- ✓ Polishing processing technology and joining technology that achieve high flatness on the interface (bonded section)
- ✓ Technology for manufacturing high-quality polycrystal substrates for bonding

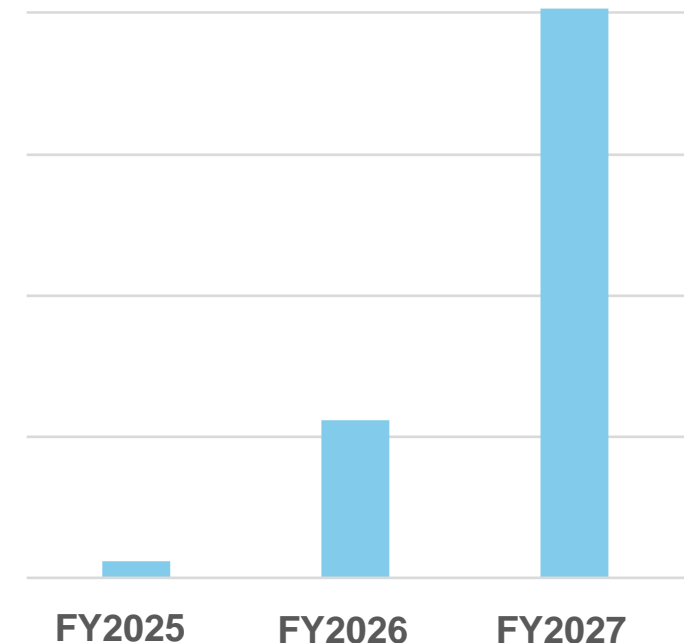
## [Future plan]

- ✓ Start selling 6-inch substrates to customers
- ✓ Already built a line for 8-inch substrates line (6,000 substrates/month) at the end of 2025
- ✓ Will start selling 8-inch substrates from FY2026
- ✓ Will offer license to partner companies



## Sales volume plan

**SiCkrest® + polycrystal substrates**





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# Initiatives for New Business Creation

# Challenges in the conventional business approach

- ✓ In the existing material products and markets, differentiation (quality/price) is difficult due to market maturity, increasing raw material prices, and required characteristics that have plateaued; starting from seeds, which is the conventional approach, only leads to a red ocean.
- ✓ When it is difficult to immediately launch innovative technologies and products, an approach is needed that starts from needs, or starts from product planning, explores insights (potential needs) and benefits (users' benefits), and presents new value to customers.

Approach	Starting from seeds (Product-out type)	Starting from needs (Market-in type)
Definition	Start from technology development To pitch products	Start from product planning To create a state in which products are sold
Relationship with customers	<p>● A sales representatives approaches a customer</p>  <p><b>Sales representative</b></p>	<p>● A customer makes inquiries</p>  <p><b>Sales representative</b></p>



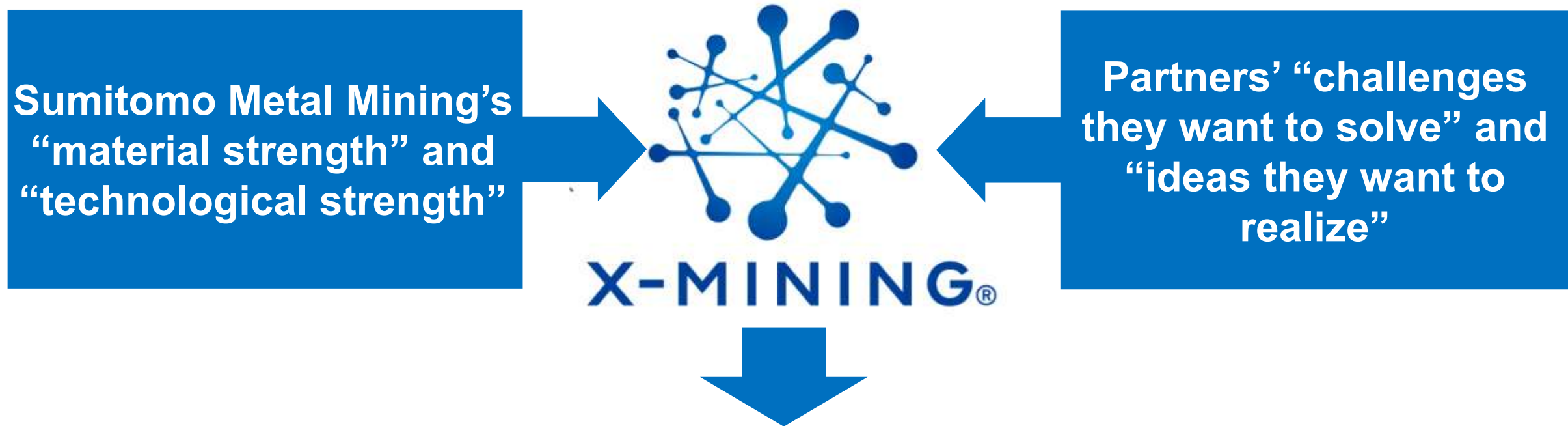
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**X-MINING®**



# What is X-MINING?

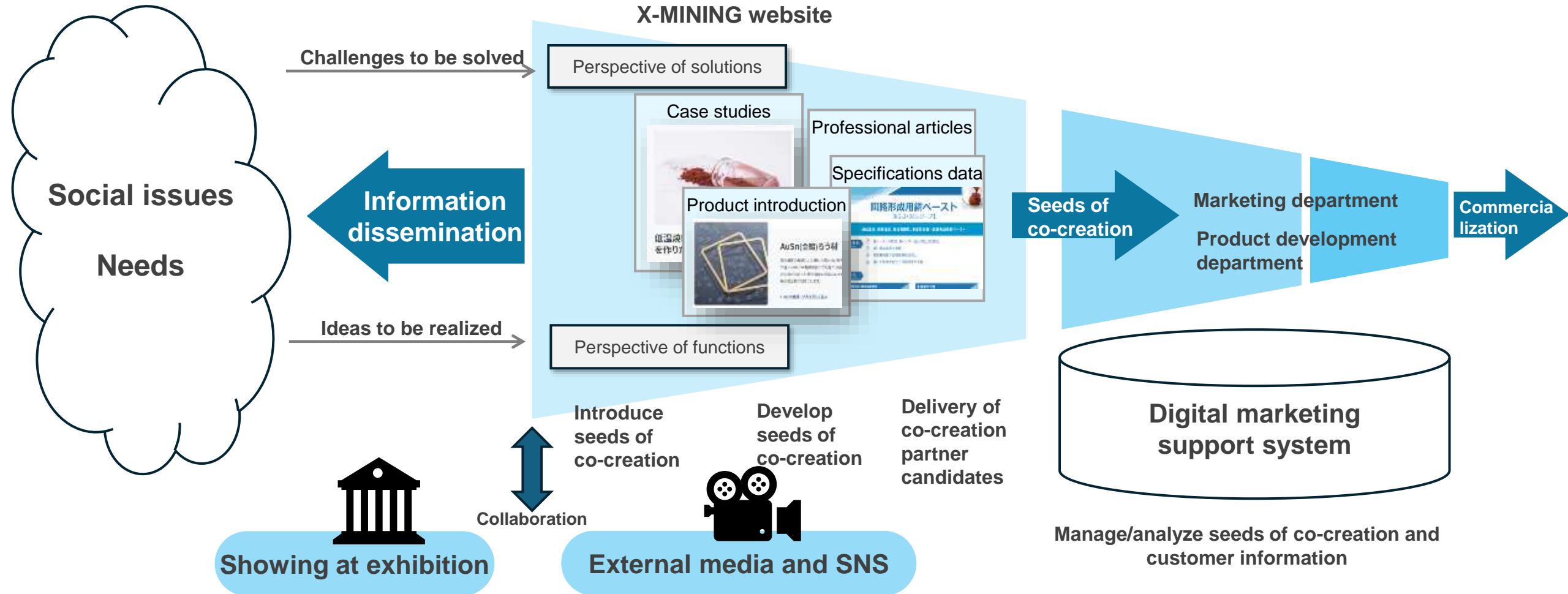
An initiative for communicating Sumitomo Metal Mining's materials and technologies to partners, realizing their ideas together, and creating new value



**Create new value through co-creation**

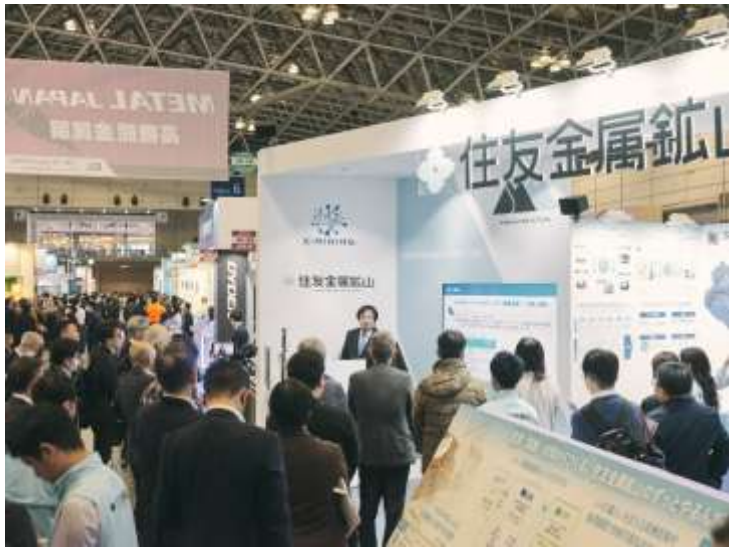
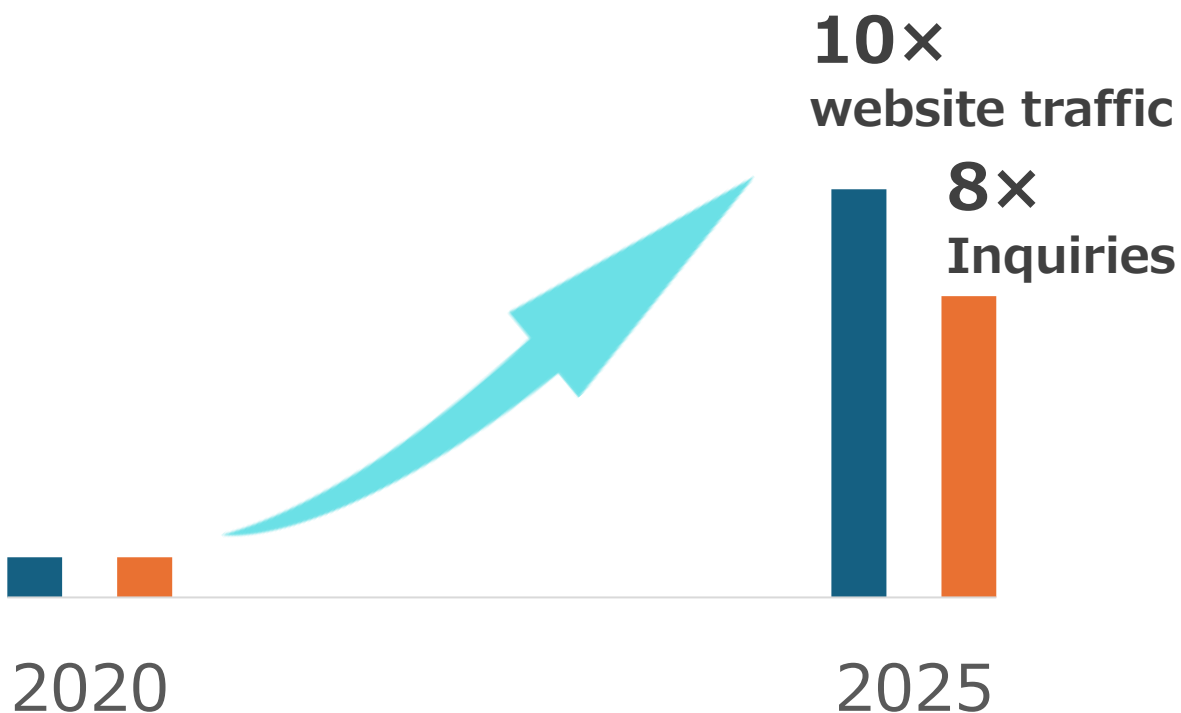
# Information dissemination through the X-MINING website

The X-MINING website is a platform for communicating the Company's technological and material information from the perspectives of solutions and functions, gathering challenges to be solved as well as ideas, and leading them to co-creation



## Enhance dissemination through exhibitions and media

- [Initiatives]
- Expand website content
  - Increase brand awareness through branding strategies



# Materials/technologies that are expected to grow

## Near-infrared absorbing material SOLAMENT®

Inorganic materials with excellent weather resistance that combine high visible light transmission with strong near-infrared absorption capability. These are original materials invented by the Company, with patents/trademarks in Japan and abroad.



## Ultra-Fine Nickel Powders (R&D)

Developed ultra-fine nickel powder less than 0.1  $\mu\text{m}$  using unique wet process. It features fine particles, uniform particle size distribution, and excellent dispersibility.



## Copper Clad Laminate (2-layer FCCL & Transparent FCCL)

Copper clad laminate with the flat film-metal interface and uniformed copper thickness, has applicability as a transparent material. Sumitomo Metal Mining's Copper Clad Laminate is a flexible substrate material with copper layer formed on various organic resin films such as polyimide film.



## MOD Paste (Metal Organic Decomposition Paste) (R&D)

A next-generation wiring material, developed as a material for printed electronics, enables thick film printing. Circuit formation is possible for resin substrates that require high oxidation resistance and low-temperature processing.



## Fine Copper Powder (Oxidation-Resistant Nano Copper Powder) (R&D)

Sumitomo Metal Mining's fine copper powder features a uniform particle size distribution, low-temperature sintering, and oxidation resistance that allows it to be handled in the atmosphere at temperatures ranging from room temperature to 160°C.



## Iron-Gallium (Fe-Ga) Magnetostrictive Alloy Single Crystal (R&D)

A magnetostrictive material for vibration power generation (energy harvesting) used in independent power supply for IoT.



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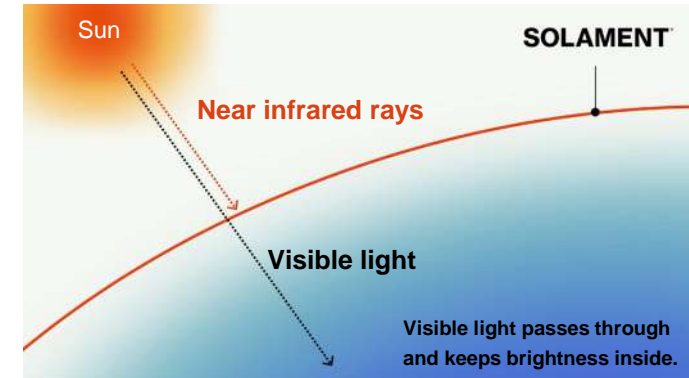
SOLAMENT<sup>®</sup>



# SOLAMENT®: Expanding new applications through branding

## Accelerate commercialization in new fields

- ◆ Rebrand the near-infrared absorbing material CWO as SOLAMENT®.  
Introduce a BtoCtoB brand strategy to spread the recognition of the material and drive market expansion in new fields (apparel/agriculture)
- ◆ In parallel with branding, cultivate influential partners in new fields and collaborate with them to accelerate commercialization in new fields



Heat shielding mechanism of SOLAMENT



SOLAMENT (left) and  
its logo with sun as a motif (right)



Expansion  
into new  
fields

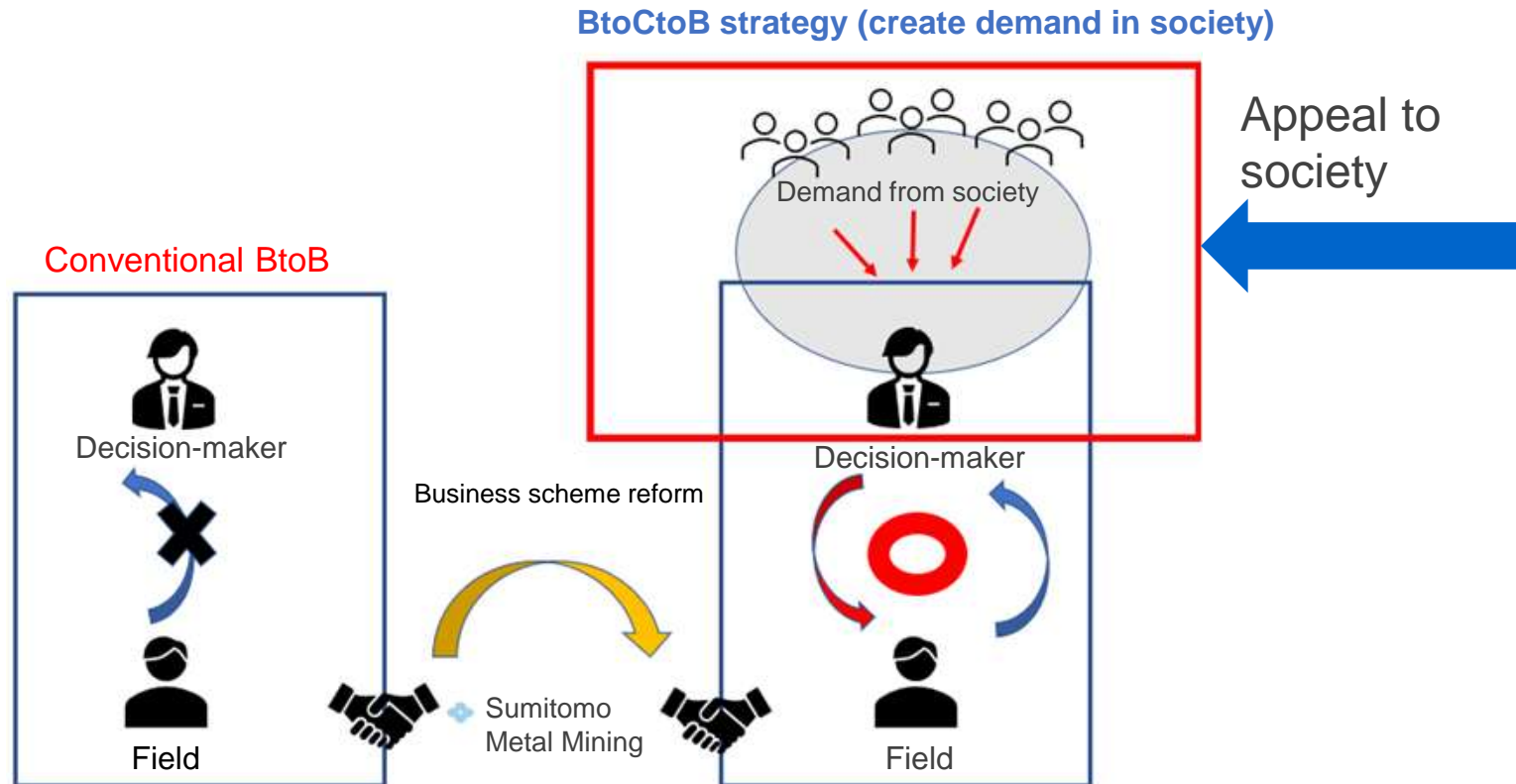


Expand from window materials, which hold a high market share,  
to new fields such as apparel

# SOLAMENT®: Expanding new applications through branding

## Adopt a BtoCtoB strategy to accelerate demand creation and spread in new fields

- ◆ Use a branding strategy that includes “to C” (society) to create material recognition and demand.  
Through this strategy, give pressure from society and the field level to decision-makers and accelerate adoption.



Produce a concept model that embodies material potential



Records of adoption by influential brands



Showing at exhibitions in Japan and abroad



Carry out brand action



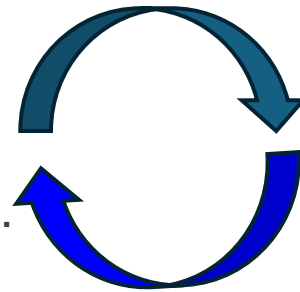
# SOLAMENT®: Expanding new applications through branding

Establish the brand and accelerate the expansion of partnerships with influential partners

## Partnership examples in the apparel field



Improve brand value  
Technical support  
Introduce projects, etc.



Clothing fiber  
trading company



Achieve adoption in apparel  
Provide industry information  
Introduce partners for brand  
partnerships, etc.

SOLAMENT® products (parasol, sunshade)  
were well received at the Sumitomo Pavilion  
in Expo 2025 Osaka, Kansai



Apparel (influential brand)

**MILLET®**



**ONWARD**

Creation of next-generation apparel products and  
adoption by influential brands

# Oxidation-resistant nano copper powder

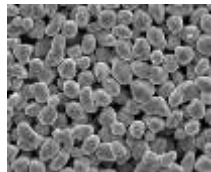
# Oxidation-resistant nano copper powder

## Making full use of “X-MINING”

Use “X-MINING” to fully grasp market needs in the BtoB business

Powder technology  
Surface technology  
Paste technology  
Printing technology

Sumitomo Metal Mining’s  
“material strength” and  
“technological strength”



“Want a material that is less costly than silver but has properties comparable to it”  
“Copper is a likely candidate but there is no material that can solve the issue of oxidation”

Partners’ “challenges they want to solve” and  
“ideas they want to realize”

“Oxidation-resistant nano copper powder”

# Oxidation-resistant nano copper powder

Fine copper powder with a special organic coating, which is based on powder control technology that has been developed over a long period of time

1

## Oxidation resistance

- Storage/handling in the atmosphere is easy
- Slow oxidation at temperatures below 160°C

2

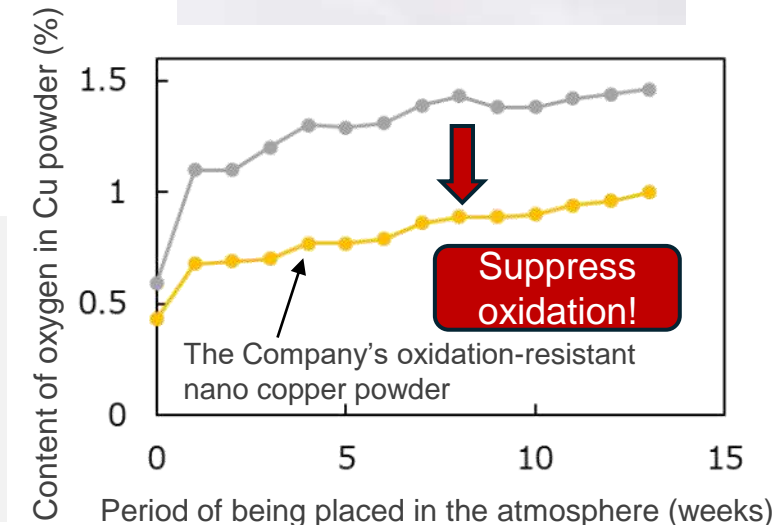
## Particle size control

- Fine (particle sizes of 100 nm to 200 nm)
- Uniform particle size distribution

3

## Low-temperature sintering

- Allow sintering at low temperatures at 180°C to 250°C
- Allow use in resin substrates with low thermal resistance, etc.



# Oxidation-resistant nano copper powder

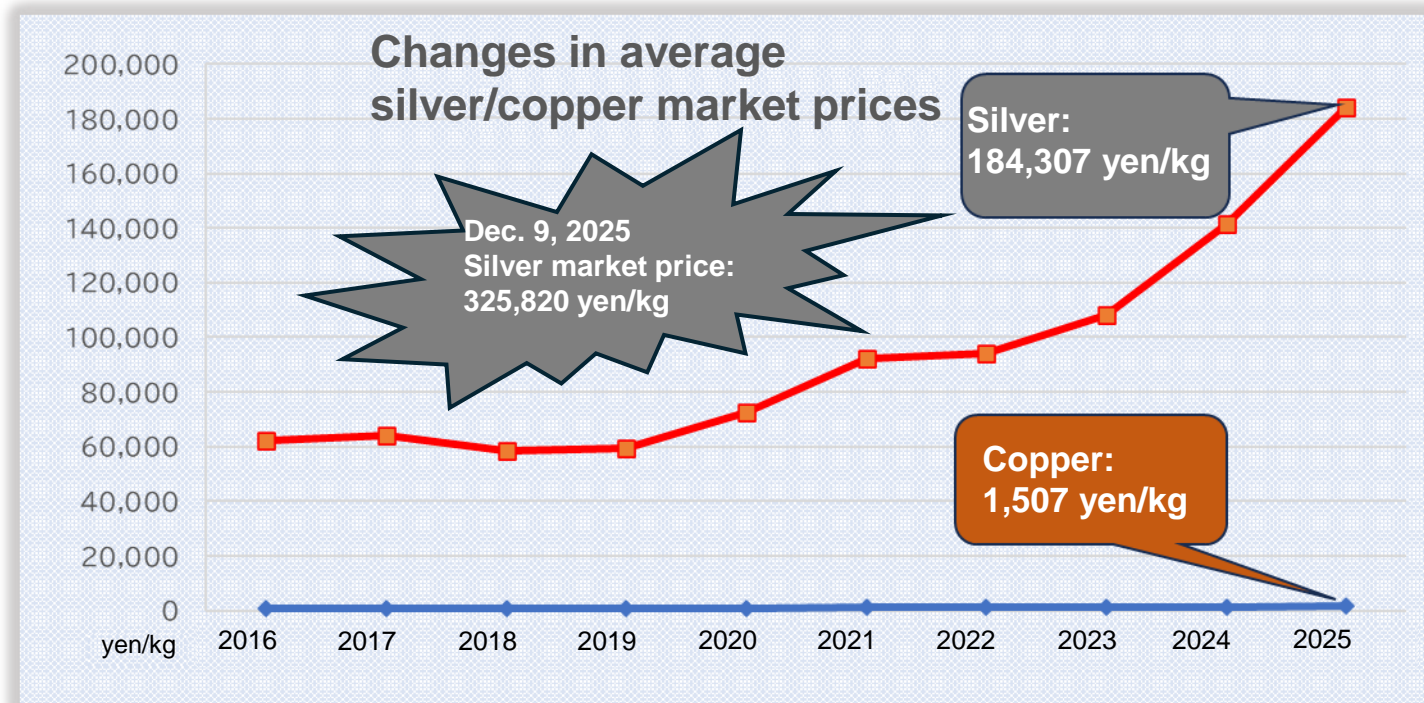
## Background behind demand for copper powder

### [Application examples]

#### Power module for EV motor



- ✓ Expected as a low-temperature sintering material for next-generation semiconductors mounted on applications, such as EVs, electric railroad cars, solar cells, and wind power generation
- ✓ Due to soaring silver prices, demand for copper sintering materials has come to light as a major alternative to silver ones. The market is expected to start in 2027.

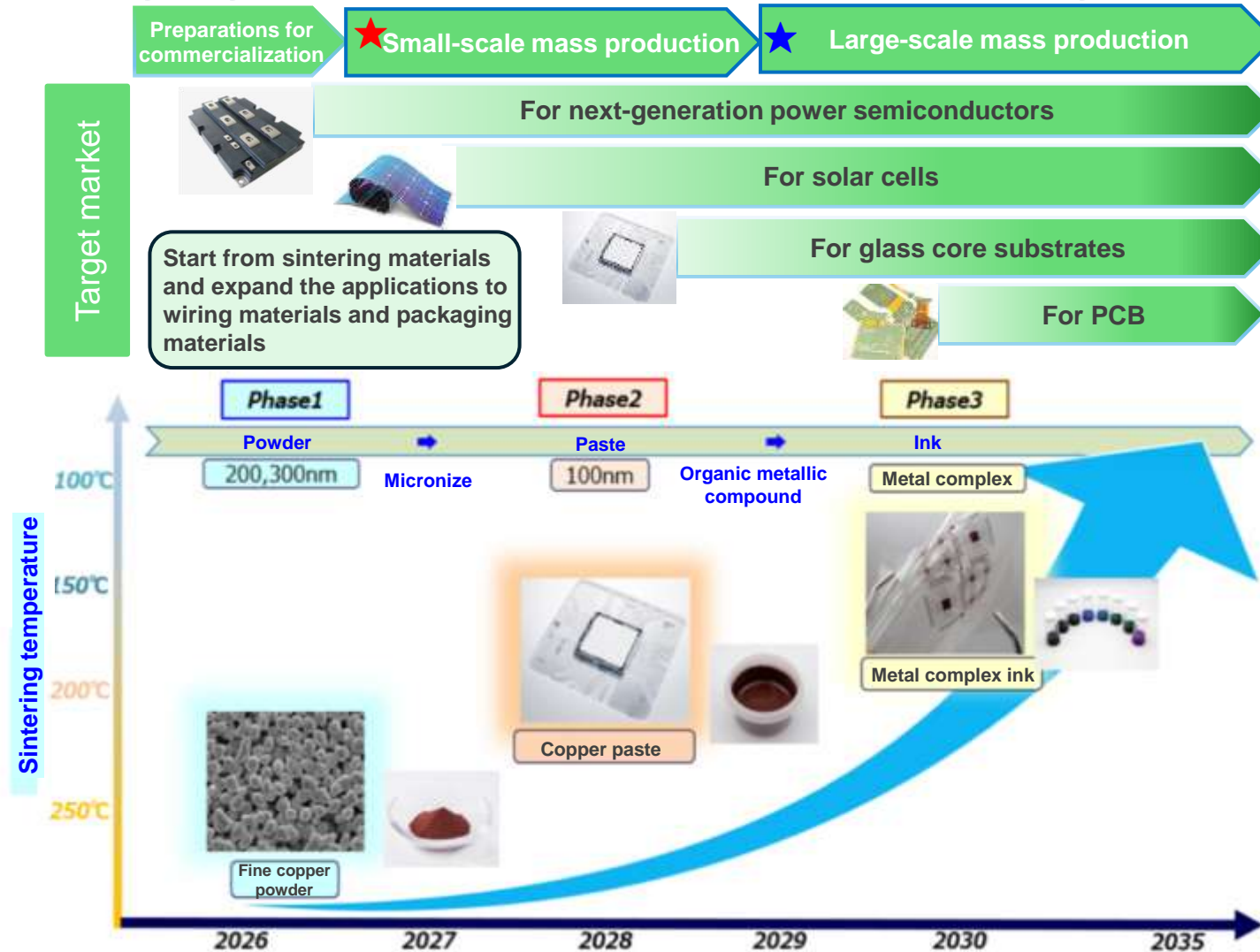


(yen/kg)	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Average silver market price	62,030	64,020	58,490	59,520	72,690	92,010	94,220	108,320	141,420	184,307
Average copper market price	574	734	764	699	700	1,068	1,203	1,246	1,436	1,507



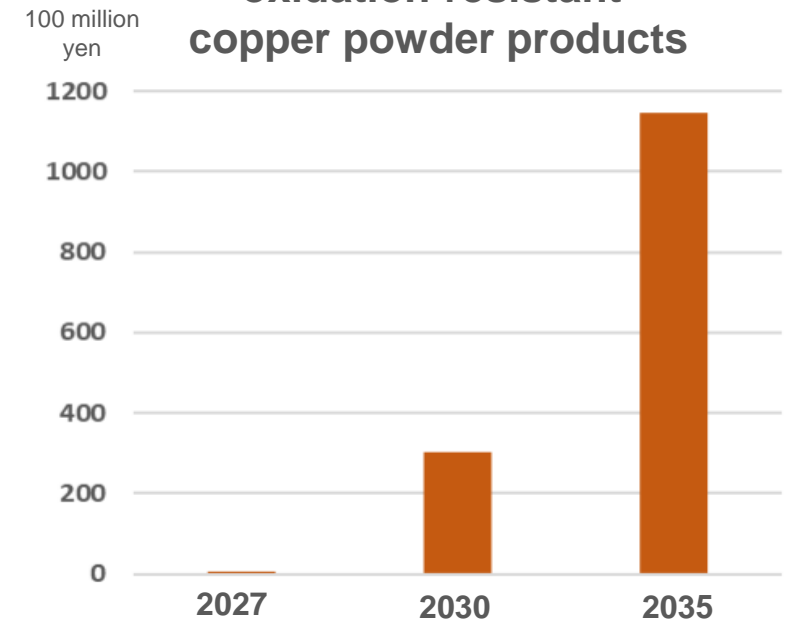
# Oxidation-resistant nano copper powder

Advance the development/commercialization of new products by changing product forms and anticipating market changes



- ◆ **In FY2026 1Q, commercialize** and start small-scale mass production
- ◆ **As demand increases**, start large-scale mass production

Market size forecast of oxidation-resistant copper powder products



Created by Sumitomo Metal Mining Co., Ltd.

# Disclaimer

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