



Mitsubishi Materials Corporation

Tungsten Business Strategy IR Meeting

September 12, 2025

Event Summary

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	Kazuo Ohara (“Ohara”)	Managing Executive Officer
	Toshiyuki Taniuchi (“Taniuchi”)	President, Japan New Metals Co., Ltd.
	Masahiro Hisanaga (“Hisanaga”)	Director, Japan New Metals Co., Ltd.

Tungsten Business Strategy IR Meeting

September 12, 2025

Managing Executive Officer, President, Metalworking Solutions Company
Kazuo Ohara



Ohara: I'm Ohara, President of the Metalworking Solutions Company, Mitsubishi Materials Corporation ("MMC"). I will now explain the Tungsten Business Strategy.

Presentation

Agenda

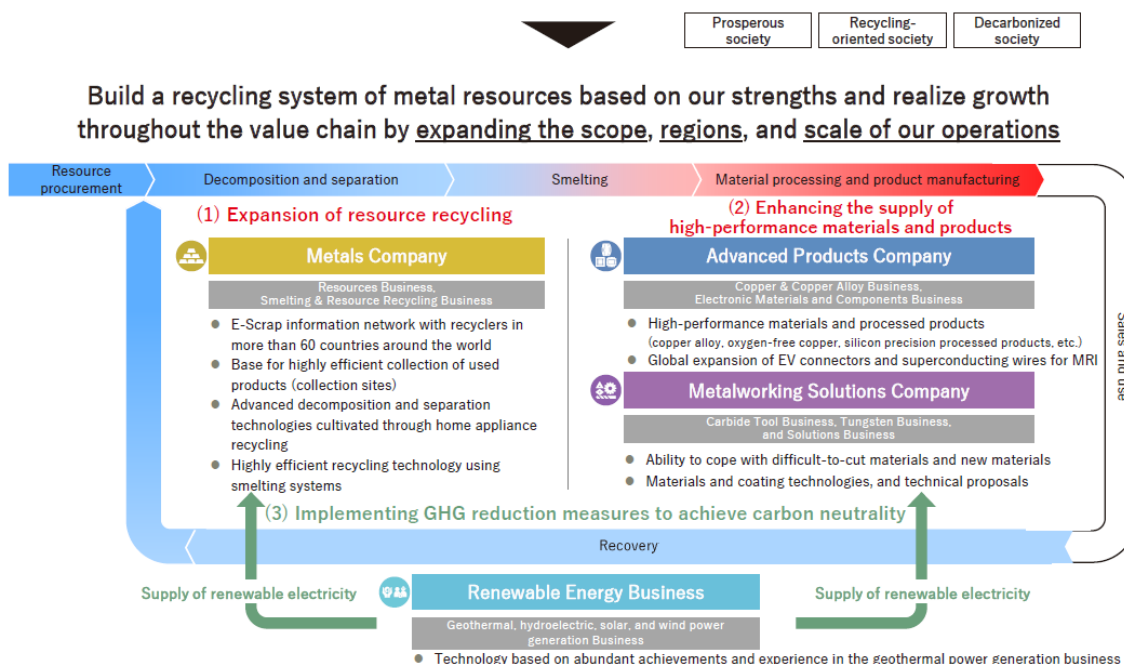
1. Overview of the FY2031 Strategy for Metalworking Solution Business
2. Tungsten Business
3. Strategy for Tungsten Business
4. About H.C. Starck

Here is today's agenda.

After explaining the overall Metalworking Solutions business strategy within the FY2031 strategy, I will explain the positioning of the tungsten business and MMC's overall strategy for our Tungsten business. Finally, I will explain how we will address the integration of H.C. Starck, whose acquisition was completed in December 2024.

Medium-term Management Strategy FY2031 (FY2031 Strategy)

For people, society and the earth, circulating resources for a sustainable future



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I will explain the Metalworking Solutions business's strategy within the FY2031 Strategy.

This is an overview of the Medium-term Management Strategy FY2031 for MMC as a whole. We have established "For people, society and the earth, circulating resources for a sustainable future" as Our Commitment. The Metalworking Solutions Company also has a resource circulation loop. Tungsten, a rare metal, is the raw material for all of the products the company manufactures. The upper part of the slide shows the arterial flow from material processing and product manufacturing to sales and customer use, and the lower part shows the venous flow of recovery.

We intend to build a recycling system of metal resources based on our strengths and realize growth throughout the value chain by expanding the scope, regions, and scale of our operations.

The left side of the slide shows the Metals Company, and the right side shows process-type companies such as the Metalworking Solutions Company and the Advanced Products Company.

The Metalworking Solutions Company is building a resource circulation loop within the company, where we manufacture products, provide finished products, and use MMC's channels to recover and recycle resources. Unlike our other businesses, the Metalworking Solutions Company is characterized by its resource circulation loop built within the company.

Overview of the FY2031 Strategy for Each Business Segment

*Explanation of initiatives related to business-specific strategies in blue

		1) Expansion of resource recycling	2) Enhancing the supply of high-performance materials and products
Metals Company	Resources Business	- Promotion of technological development to recover rare metal resources contained in copper deposits - Acquisition of copper mining interests and securing copper concentrates through continuous investment in mines - Expansion of electrolytic copper supply through SX-EW operations at copper mines	
	Smelting & Resource Recycling Business	- Strengthening and expanding the networks to promote resource recycling - Expansion of copper cathode production capacity* - Increasing recycling rate by expanding collection and processing of E-Scrap - Creation of rare earths and rare metals recycling businesses - Acquisition of new smelting technology (Exurban) - Accelerating business developments in Japan and overseas (E-Waste recycling)	*We revised its plan to increase its E-Scrap processing capacity while limiting the increase in copper concentrate processing capacity
Advanced Products Company	Copper & Copper Alloy Business	Improve the recycling rate of wrought copper products and establish a scrap platform base	- Overseas (Luvata): Rapid entry into growing markets (xEV, healthcare, environment) - Expand sales and strengthen services to overseas customers by establishing a new overseas plant which carries out a downstream process, with the domestic plants as mother ones(* Mainly explains capacity enhancement and profit improvement at domestic plants)
	Electronic Materials & Components Business		- Highly capital-efficient management through continual restructuring of the business portfolio - Strategic investment in focal products in growth areas - Developing and securing human resources for the creation of new businesses and the promotion of business alliances - Enhancing manufacturing capabilities and DX to enhance production sophistication and profitability - Providing business and social value (SDGs) for carbon neutrality
Metalworking Solutions Company		<u>Tungsten Business</u> - Expansion of business scale for rechargeable batteries in addition to carbide tools, etc. - Strengthening environmental responsiveness	<u>Cemented Carbide Tools Business</u> - Stable supply of the world's top quality, high-efficiency products utilizing the strength of materials and coating technology <u>Solutions Business</u> - Commercialization of solution sales to manufacturing sites
3) Supply of renewable electricity			
Renewable Energy Business		- New development at one location every three years to expand business - New entrants into wind power generation where power generation costs are expected to decline in the future - Development of solar power using company-owned land and development of small hydroelectric power utilizing operational experience	

The left-hand side of this slide shows the detailed divisions of each Company, but as major categories, (1) Expansion of resource recycling and (2) Enhancing the supply of high-performance materials and products, are the two key pillars. The Metalworking Solutions Company's strategy under the expansion of resource circulation is to expand the scale of its Tungsten business to include applications for rechargeable batteries, in addition to cemented carbide tools, and to strengthen its environmental responsiveness. Regarding product sales, as shown on the right side, we will provide customers with products that leverage our strengths in materials and coatings, with a focus on the cemented carbide tools business.

Metalworking Solutions Company

- FYE March 2025: Sales growth for automotive industry was significantly lower than anticipated
- FYE March 2026: We will focus our sales activities on key accounts, particularly in the automotive and aerospace sectors. Additionally, we will substantially increase the number of seminars to foster customer-friendly initiatives

(Billions of yen)	FYE March 2024 Result	FYE March 2025 Result	FYE March 2026 Forecast	FYE March 2026 Plan (FY2031 Strategy)	
Ordinary Profit	12.2	8.5	8.3	25.0	FY2031 Strategy Measures Cemented carbide tools Business - Stable supply of the world's top quality, high-efficiency products utilizing the strength of materials and coating technology Tungsten Business - Expansion of business scale for rechargeable batteries in addition to carbide tools, etc. - Strengthening environmental responsiveness Solutions Business - Commercialization of solution sales to manufacturing sites
EBITDA	24.5	20.9	25.9	39.9	Progress - The creation of high-value-added products is progressing in various fields such as automobiles, aircraft, and medical care. However, due to the deteriorating market conditions, cemented carbide tools's sales fell short of the FY2031 Strategy, and some investments were suspended or postponed - Completion of acquisition of H.C. Starck, one of the world's leading manufacturers of tungsten products
ROIC	5.2%	3.1%	3.7%	8.6%	
ROIC Spread	-1.3pt	-3.3pt	-3.6pt	+2.1pt	Initiatives for FYE March 2026 - Accelerating comprehensive cost reduction, including personnel reallocation, optimization of scale, and procurement optimization, while also preparing for labor-saving measures in anticipation of an economic turnaround - Strengthening sales expansion to the aerospace industry, which is on a growing trajectory - Accelerating efforts to secure the recovery and recycling capacity of used cemented carbide tools by leveraging recycling technologies, capabilities, and global bases of our company, Japan New Metals (our subsidiary), and H.C. Starck
EP	-2.1	-6.6	-7.3		

*EBITDA= Ordinary profit + Interest expense + Depreciation + Goodwill depreciation

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□ : Detailed explanations are provided on the following pages

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Next, I will explain the situation of the Metalworking Solutions Company.

In the fiscal year ended March 2025, global demand for cemented carbide tools declined significantly, partly because sales growth in the automotive sector was well below expectations. We believe that this trend was similar not only for us but also for our overseas competitors.

In the fiscal year ending March 2026, we will promote sales activities focusing on key accounts, mainly in the automotive and aerospace sectors, and we will also implement customer-focused initiatives, such as holding seminars worldwide.

In terms of strategic measures, the tungsten business, which is outlined in red, occupies a very important position. Prior to the acquisition of H.C. Starck, MMC's tungsten business was limited to Japan New Metals Co., Ltd. ("Japan New Metals"), and in terms of scale, it was a mid-tier supplier rather than a top-ranked global supplier.

With the acquisition of H.C. Starck, we have become the largest supplier of tungsten smelting and recycling excluding China. We plan to expand our business based on this foundation going forward.

Tungsten Industry Landscape

Tungsten is an indispensable materials supporting the manufacturing industry, and the strengthening of resource circulation creates new growth opportunities

< Tungsten >

Tungsten is a vital strategic material, indispensable for industrial applications due to its hardness—second only to diamond—and high wear resistance. As a key input for cemented carbides and catalysts, it is used in cutting tools, electronic components, semiconductors, petroleum refining, and heavy industrial parts. Global demand is projected to keep rising, with a CAGR of 2.1% through 2034.

< Trend in the Tungsten Market >

1. Surge in tungsten prices

Given that around 80% of tungsten concentrates rely on China, the tightening of Chinese export controls amid U.S.-China trade tensions has driven tungsten prices sharply higher since April 2025, setting new record levels.

2. Recycle

With concentrate production largely dependent on China, securing a stable raw material supply through higher recycling rates is vital. As the recycling market expands, scrap collection networks are being established, and the Company is also planning to strengthen its recycling capacity.

3. Risks of the Tungsten Business

In compliance with sourcing exclusively from non-conflict suppliers, we are making Group-wide efforts to secure both virgin materials and tungsten scrap, striving to ensure a stable supply of tungsten raw materials.

< Tungsten Ore (2024) >

	W ore production (ton/year)	Share
China	67,000	82.3%
Vietnam	3,400	4.2%
Russia	2,000	2.5%
EU	2,000	2.5%
South Korea	1,700	2.1%
Bolivia	1,600	2.0%
Africa	1,200	1.5%
Australia	1,000	1.2%
Others	1,500	1.8%

Source : U.S. Geological Survey

< Tungsten Recycle Rate >

Global **25**% (Our estimate)

This is an explanation of the tungsten business.

Tungsten is second only to diamond in hardness and offers high wear resistance. It is used in a variety of applications, particularly in the metal processing field, and is therefore an indispensable material for the manufacturing industry. Strengthening resource recycling is expected to create new growth opportunities. Tungsten itself is a rare metal and a critical mineral; therefore, we aim to create new growth opportunities by enhancing resource recycling.

Cemented carbide tools account for the largest share of tungsten use in terms of volume, but tungsten is also used in electronic components, semiconductors, petroleum refining, and parts related to heavy engineering. Because tungsten is extremely hard and has a very high density, it is applied in a variety of fields, and global demand for tungsten is expected to continue to increase. With a CAGR of 2.1% through 2034, we believe that tungsten will remain a material with strong growth potential.

I will outline three recent trends in the tungsten market.

First, there has been a sharp rise in tungsten prices. The price of ammonium paratungstate (APT), an intermediate product of tungsten, has surged. The main reason for this increase is that China, which accounts for about 80% of tungsten concentrate production, has restricted exports since February this year due to U.S.-China trade friction. Prices have been gradually rising since April, but they have increased significantly over the past one to two months.

As shown in the list of tungsten ore (2024) on the right side of the document, ore from China accounts for 82.3% of the total, an extremely high proportion. Vietnam ranks second and Russia third. Currently, no country purchases tungsten from Russia, and Russia itself does not export tungsten. The EU, Spain, the U.K., South Korea, Bolivia, and African countries follow in that order, but China's dominance is overwhelming.

Second, recycling. Tungsten is a scarce resource, and its concentrate production is heavily concentrated in China. Therefore, improving the recycling rate is considered essential to securing a stable supply of raw materials, and the recycling market is expanding.

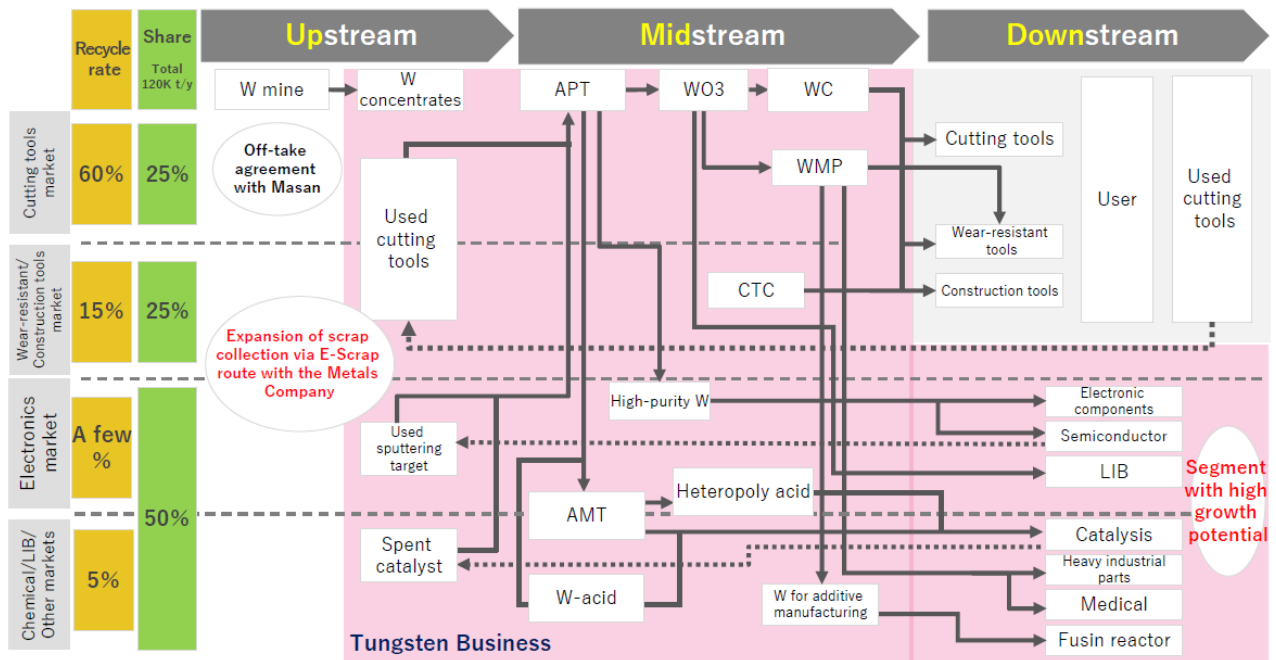
As scrap collection networks develop, the key for us is how to recycle collected scrap effectively.

On the right side of the handout, the global recycling rate for tungsten is shown as 25%, which we consider extremely low. We recognize that many items remain unrecovered. While some tungsten cannot be physically recovered, most is used in cutting tools and appears as part of industrial waste from plants. Strengthening recovery in this area is therefore essential.

Third, the risks associated with the tungsten business. We aim to ensure stable material procurement and supply by securing virgin raw materials and tungsten scrap to strengthen recycling, while strictly adhering to procurement from sources that do not fall under the category of conflict minerals.

Tungsten Materials Flow

Enhancing tungsten resource circulation, through Group-wide efforts



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This is an explanation of the material flow of tungsten.

At the top, the diagram shows Upstream, Midstream, and Downstream. The items listed at the top—W (tungsten) ore, W (tungsten) concentrate, APT, WO₃, and WC—represent the raw materials and illustrate the sequence in which tungsten ore is processed into finished products.

Details such as manufacturing methods will be explained later in the Japan New Metals section, but here I will explain how these materials are used and how they are recovered, as shown in the lower part of the diagram.

On the left side, you can see the cutting tool market, the abrasion-resistant and construction tool market, the electronic materials and semiconductor market, and the chemical, heavy engineering, LIB, and new markets, each with a percentage. The recycling rate indicates the proportion of used tungsten recovered in each market. Cutting tools are relatively easy to collect, although some portions remain unrecovered.

Wear-resistant tools include items such as rolls. A large amount of tungsten is used in rolls for steel rolling, but because of their size, they are difficult to scrap. Construction tools refer to bits used, for example, to break rocks and excavate tunnels. Tungsten is used at the tips of these bits. When breaking rocks, the tips often detach and mix with debris, making recovery extremely difficult. As a result, the recycling rate remains as low as about 15%.

In other areas, such as electronic materials and chemical or heavy engineering applications, the amount used is very small, and recovery is minimal.

Regarding tungsten demand, the lower half of the diagram accounts for a large share, roughly equal to the upper half. At the beginning of the Midstream, materials such as high-purity tungsten, AMT, and heteropoly acids are produced from APT and used in electronic materials and chemicals.

As for final products, shown on the right side of the Downstream, tungsten is used in electronic components, semiconductors, LIB additives, catalysts, heavy engineering, medical applications, and nuclear fusion reactors. These are areas where tungsten demand is expected to grow significantly. We believe that strengthening sales in these segments will be a key strategy for success in the tungsten business.

The upper half represents conventional applications such as cutting tools, with cemented carbide tools as the final products. As noted, these tools are relatively easy to collect, whereas the lower half is difficult to recover, and even theme for our future R&D and a key direction for upgrading our manufacturing processes. When collected, processing efficiency is low. Addressing these challenges is a major theme for our future R&D and a key direction for upgrading our manufacturing processes.

Strategy for Tungsten Business

Establishing the de facto standard for tungsten recycling through HCS*1-JNM*2 synergies

■Expansion of joint R&D and new business

- Advancing R&D and deepening expertise in materials development in partnership with HCS, JNM and MMC
- Promotion of cross-selling and sales growth
- Technical proposals to new customers through jointly developed products

■Enhancing efficiency

- Leveraging both supply chains to strengthen tungsten procurement
- Enhancing efficiency and competitiveness through collaboration in all areas, including production technology, sales channels, and IT systems

■Promoting recycling

- Achieving and maintaining an **80%** recycling rate for both companies
- Expanding recycling bases and promoting tungsten resource circulation design across Japan, Europe, North America, and Asia
- Global used-tool collection leveraging both recycling bases and the stable supply of cemented carbide tools to customers

*1: H.C. Starck *2: Japan New Metals

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Next, I would like to explain MMC's Tungsten business strategy in response to these developments.

First, joint research and development and the expansion of new businesses. We own two tungsten smelting companies, Japan New Metals. and H.C. Starck. Through this synergy, we intend to establish the de facto standard for tungsten resource circulation and maintain the world's No. 1 position in the recycling field. Japan New Metals has a long history and an R&D department, and H.C. Starck also has research facilities at its headquarters plant in Germany. We are also advancing recycling research and development at its central research laboratory, so it is important for the three companies to work together to strengthen their materials development capabilities. Although Japan New Metals and H.C. Starck are in the same tungsten business, their end products differ slightly. We plan to increase sales opportunities by cross-selling each other's products. In addition, we plan to present technical proposals to new customers for jointly developed products.

Second, promoting efficiency. We would like to strengthen tungsten procurement by making the most of both companies' procurement and supply chains. Although we will primarily focus on recycling, the procurement of virgin materials is still essential in some areas, so it is important to make the most of the procurement routes each company has.

Going forward, we would like to integrate the systems of both companies as much as possible in areas such as production technology, sales channels, and IT systems to conduct efficient business activities.

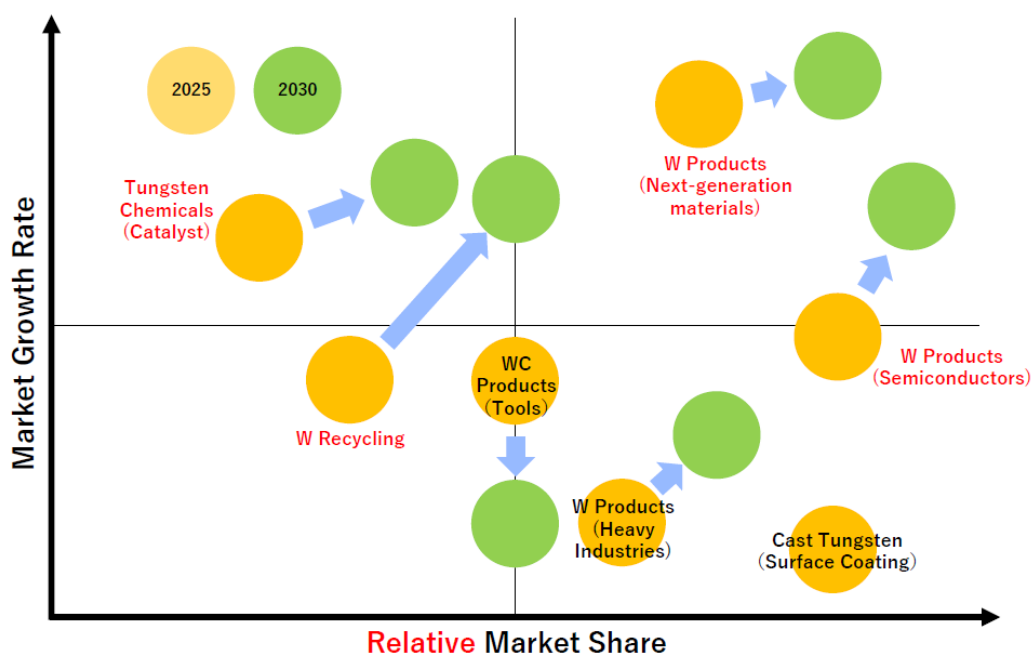
Third, promoting recycling. Both companies aim to achieve a recycling rate of 80%. We are also expanding the recycling facilities operated by both companies and would like to strengthen the design of tungsten resource circulation in the Americas, Asia, and other regions. This will require future investment, but there is still room for expansion in each region, so we will invest while carefully assessing our priorities.

We would also like to focus on collection using the recycling facilities of both companies. As we buy scrap from recyclers and industrial waste companies, we would like to leverage our tool sales channels to collect scrap and return it to recycling.

3. Strategy for Tungsten Business

Portfolio Strategy for Realizing a De Facto Standard

Prioritizing resources for tungsten recycling and growth in high-value-added products



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Next is our business portfolio strategy. Please note that the size of the circles does not represent profit margin or sales volume; it only indicates positions.

The yellow circles show MMC's portfolio in 2025, while the green circles indicate the positions we aim to achieve by 2030. The vertical axis represents market growth rate, and the horizontal axis represents relative market share.

We intend to move tungsten chemicals and W (tungsten) recycling from the left side to the upper right. On the other hand, for tungsten used in tools, demand for cutting tools has slightly plateaued due to a decline in automotive demand. Therefore, we will maintain market share as usual, but we do not expect significant growth.

We expect to increase market share in heavy engineering components, semiconductors, and next-generation materials as their growth rates continue to rise.

Cast tungsten is used for surface treatment. Unlike coating the surface layer, it is applied by thermal spraying onto the surface of a metal material to enhance the material's properties, and we also plan to strengthen our efforts in this area.

Company Profiles in Tungsten Business

Creating new value through the integration of both technologies

	 H.C. Starck Global tungsten player with large-scale recycling capacity and strength in mass production of W/WC powders	 JAPAN NEW METALS Specializing in customer-tailored products and focusing on high-value-added products for electronic components and semiconductors
Products	• Tungsten powders/Tungsten carbide powders • Tungsten chemicals	• Tungsten powders/Tungsten carbide powders • High purity tungsten powders • Tungsten chemicals for Li-ion battery • Molybdenum powders • Non-oxide ceramics powders • Heteropoly acids
Production/Technology	• Large-scale production • Efficient production technology • Automation technology • Recycling (molten salt)	• Custom-made production • High-purity technology • Recycling (oxidation roasting)
Manufacturing	• Production site in the world's three major markets (Germany, Canada and China)	• Two locations in Japan, Osaka and Akita (Focusing on the Japanese market)
Sales/Major customer	Sales : ¥58.9 billion(FYE March 2026 outlook) Sales mix : For cutting tools (70%), Others (30%) Major customer industries • Cutting/Wear-resistant/Construction tools • Chemicals • Heavy industry	Sales : ¥17.5 billion(FYE March 2026 outlook) Sales mix: For cutting tools (70%), Electronics (30%) Major customer industries • Cutting/Wear-resistant tools • Electronic components and semiconductor materials • Rechargeable battery

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This is a summary of the differences between H.C. Starck and Japan New Metals.

We often receive questions about why MMC, which owned Japan New Metals, acquired H.C. Starck. One of the characteristics of H.C. Starck is its large scale.

Because it is a process-type business, scale is very important, and high-efficiency mass production reduces costs. MMC acquired H.C. Starck as a global player in tungsten, recognized for its strength in mass production of W (tungsten)/WC (tungsten carbide) powders.

Japan New Metals, on the other hand, is more of a versatile supplier, with a wide range of applications and quick turnaround. Japan New Metals specializes in customized products for customers, focusing on high-value-added products for electronic components and semiconductors. H.C. Starck, by contrast, produces bulk products in large lots and is skilled at producing standard products in large quantities at low prices.

Japan New Metals has a strong advantage in its ability to respond to customers' detailed customization requests; however, because it produces small lots, it is at a cost disadvantage relative to H.C. Starck.

Looking at product types, H.C. Starck mainly produces W (tungsten)/WC (tungsten carbide) powders and chemical products made from tungsten. In addition, Japan New Metals manufactures high-purity tungsten powder, tungsten chemical products for secondary batteries, molybdenum-related products, non-oxide ceramic powder, heteropoly acids, and other products in a very detailed and specialized manner.

As noted earlier about cross-selling, we aim to expand sales of these Japan New Metals products by utilizing H.C. Starck's sales channels in Europe and the United States.

In terms of manufacturing technology, H.C. Starck has strengths in large-scale production, efficient production technology, and labor-saving technology.

As for recycling technology, H.C. Starck uses a molten-salt process and conducts recycling using a low-environmental-impact method.

On the other hand, Japan New Metals has strengths in the production of custom-made products for customers, high-purity technologies such as high-purity tungsten, and recycling technology. Regarding recycling, Japan New Metals uses a process called oxidation roasting.

In terms of the production footprint, H.C. Starck has production plants in Canada and Ganzhou, China, in addition to its headquarters in Germany.

Japan New Metals, on the other hand, operates with two sites—its headquarters plant in Toyonaka City, Osaka Prefecture, and its Akita Plant—and focuses on the Japanese market. The reason is that, as explained earlier, many product categories have final products for which Japanese customers hold a high share, so it is more efficient to keep the supply chain within Japan.

By comparison, among regions with high tungsten demand, H.C. Starck operates in Europe, the United States, and China, while Japan New Metals operates in Japan.

On a yen basis, H.C. Starck's forecast net sales for the current fiscal year are approximately ¥59.0 billion. Of this total, about 70% are to cemented carbide tools, and about 30% are to other markets.

H.C. Starck's main customers are cemented carbide tools manufacturers, chemical manufacturers, and heavy engineering manufacturers. Its plant in Canada is located in Sarnia, a center of petrochemical manufacturing, and it manufactures products for these customers. This is a different customer base from that of Japan New Metals.

On the other hand, net sales at Japan New Metals are expected to reach ¥17.5 billion this fiscal year. In terms of sales composition, the cemented carbide tools market accounts for about 40%, and electronic components for 60%. In Japan, its customers include not only cutting tool manufacturers, including MMC, and abrasion-resistant tool manufacturers, but also electronic component manufacturers, semiconductor material manufacturers, and rechargeable-battery-related materials manufacturers.

So far, I have explained the differences between Japan New Metals and H.C. Starck. Next, I will provide an overview of H.C. Starck.

Facts and Figures about H.C. Starck Group



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H.C. Starck has three manufacturing sites and employs approximately 770 people worldwide. We primarily sell directly to key accounts and collaborate with leading research institutions. The company has very close ties with German university research institutes and is widely recognized as an authority on tungsten products, not only in Germany but also across Europe.

At our headquarters in Goslar, Germany, the recycling rate is 80%, while the remaining 20% of raw materials comes from APT, an intermediate refined product, rather than tungsten concentrate.

We hold more than 100 registered patents and have approximately 140 pending applications. Although I mentioned earlier that H.C. Starck is characterized by large-lot production and a limited product range, the company actually offers over 650 types of tungsten-related products.

In addition, within the H.C. Starck Group, there is a research and analysis organization called ChemiLytics, which provides more than 150 types of analytical services. This organization possesses highly advanced analytical equipment that is rarely found elsewhere and is distinguished by its ability to handle a wide range of commissioned projects, including analyses of impurities in tungsten, and analyses of niobium—an area originally conducted within the H.C. Starck Group—on behalf of universities and other companies.

A Joint Global Footprint

H.C. Starck is represented with three production sites in all economically important regions, supported by three sales offices



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We have three production sites and three sales offices in major economic regions. The upper right corner of the diagram shows our headquarters in Goslar, Germany. It is located about one and a half hours by car from Hanover. There used to be a silver mine where tungsten was also mined, but it has since been closed.

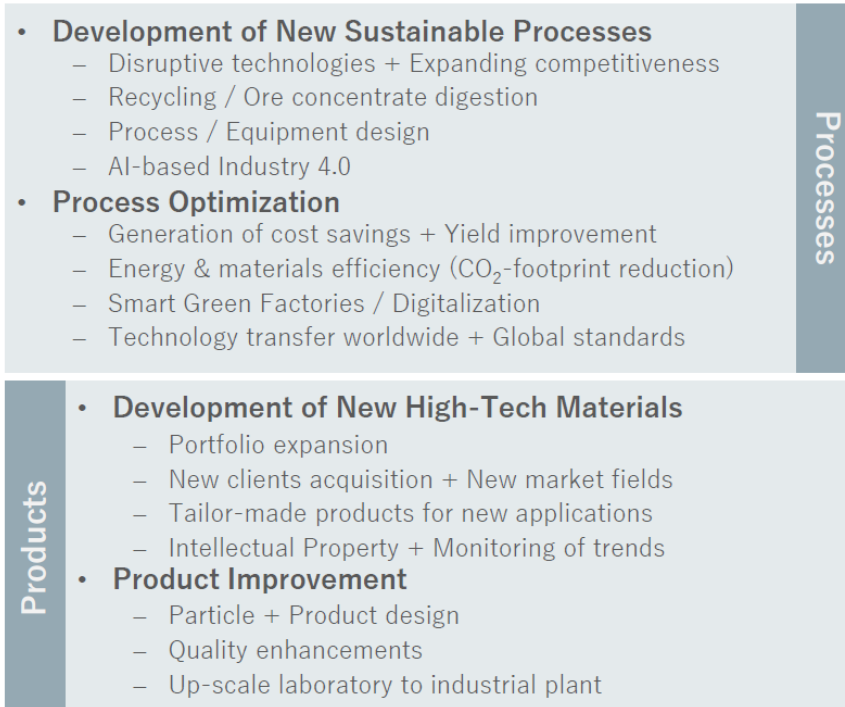
Sarnia, Canada, is a major petrochemical hub, providing an advantageous environment with many customers nearby. It is located in the southernmost part of Canada, and the plant is about 30 minutes from the Michigan–Canada border.

Our U.S. sales office is located in Boston. In China, we have a sales office in Shanghai, and there are two tungsten-related companies in the Ganzhou area. One is a primary concentrate company in which our JV partner holds the majority stake. The second company is engaged in refining up to the production of APT, and is operated with H.C. Starck as the majority stakeholder.

Regarding business development in China, where demand is high, our main focus is on domestic manufacturing and sales within China. Although not on a large scale, we used to export to Japan and other regions until export restrictions were imposed. A key feature of our operations is that, while there are many tungsten smelting companies in China, H.C. Starck is the only company that uses European technology for smelting, enabling us to offer tungsten of exceptionally high quality and added value at a premium price.

Technology & Innovation Global

Driving global technological leadership by leveraging excellence in both “processes” and “products”



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Global technology and innovation.

Our fundamental approach is to drive growth through technology, building on both processes and products. Currently, in Germany, we are working on the development of new sustainable processes. While improving competitiveness through innovative technologies is essential, we also aim to enhance recycling capabilities and ore concentration technologies.

Each company has its own proprietary smelting processes, but we strive to adopt the most advanced technologies available. Process optimization is not only about scale; it also focuses on improving efficiency, reducing costs, and increasing yield. In addition, we aim to enhance energy efficiency and transition to manufacturing with a strong focus on reducing the carbon footprint.

On the product side, we are developing advanced materials. At present, our portfolio is relatively limited to W/WC, but we plan to expand it to meet European market needs by leveraging H.C. Starck's technology. In terms of product improvement, we are working on particle design, product design, and quality enhancement.

This concludes my presentation. Thank you very much for your attention.

Question and Answer

Participant [Q]: Regarding the revenue structure of tungsten recycling, do you purchase used scrap from cemented carbide tools? How is the selling price determined?

Ohara [A]: In principle, yes. The first route is purchasing from scrap dealers. There are various scrap dealers—some offer favorable terms, while others push up prices. The second route is collecting directly from tool customers. Customers understand that it is a valuable metal, so we present a purchase price and buy it. Because scrap dealers add a margin, direct collection is naturally cheaper. The price of APT (ammonium paratungstate) is on the rise, but scrap prices are not highly sensitive to APT, so when APT prices rise, profitability tends to improve.

Participant [Q]: Please explain the difference between production costs from tungsten concentrate and recycling costs. Can you compete with China's concentrate-based production costs?

Ohara [A]: For production from concentrate versus recycling, the more low-cost scrap we can source, the more profitable recycling becomes. When China raises prices, scrap has an advantage—we call this the “scrap advantage.” APT prices move in line with the Chinese market. When APT rises, the price of material recycled from scrap also increases, expanding margins.

Participant [Q]: Does recycling offer any customer-facing added value, such as lower CO₂ emissions?

Ohara [A]: The CO₂ benefit depends on the process. H.C. Starck uses a lower-environmental-impact recycling method. At Japan New Metals, there is a firing step that emits CO₂. At the group level, since H.C. Starck's production volumes are large, CO₂ per unit of output is relatively low.

Participant [Q]: You are adapting the portfolio in response to slower growth in the cemented carbide tools market. How large is your market share outside cemented carbide tools today, and how can you increase it?

Ohara [A]: In electronic components, there are few competitors among tungsten smelters. In tungsten chemicals within Japan, Japan New Metals has a very high—indeed top—share.

Participant [Q]: You mentioned a division of roles between H.C. Starck and Japan New Metals. Will H.C. Starck also pursue customized products to support the portfolio shift? How will you create synergies with Japan New Metals?

Ohara [A]: Whether to have H.C. Starck produce customized products is under discussion. We must clarify the economics of either selling Japan New Metals' products globally or having H.C. Starck produce customized products and expand the lineup. H.C. Starck is also exploring sales opportunities for customized products. H.C. Starck previously handled customized products, but that business unit was sold to another company. We are working to win back former customers through H.C. Starck's sales channels. Japan New Metals has sold very little in Europe and the U.S. Depending on the new customer, we will determine whether to produce in Goslar or at Japan New Metals.

Participant [Q]: Toward 2030, do you plan to incorporate changes in the production mix?

Ohara [A]: We aim to shift the sales portfolio, but moving manufacturing bases requires customer qualification/approval. We believe that leading with sales is important. A key constraint is that original production sites cannot be changed immediately.

Participant [Q]: Of the tungsten materials produced by Japan New Metals, roughly how much are supplied to MMC's cemented carbide tools?

Ohara [A]: It is difficult to disclose figures, but MMC is the largest destination for tool demand. We also sell to other cemented carbide tool manufacturers. Since there are only two major domestic suppliers, one or the other supplies the tool makers.

Participant [Q]: Does MMC's cemented carbide tools business purchase almost all materials from Japan New Metals, or are there other procurement routes?

Ohara [A]: It's difficult to detail, but we also purchase from other sources. For cost reasons, buying from China can sometimes be cheaper. However, we intend to reduce the Chinese share to zero over time. As MMC Group, we aim to shift sourcing to the H.C. Starck Group, the Japan New Metals Group, and non-Chinese countries. From a resource-circulation perspective, sourcing through recyclable channels aligns with our vision.

Participant [Q]: Please explain the benefit for a cemented carbide tools company like MMC of having upstream exposure like Japan New Metals.

Ohara [A]: Since "upstream" refers to mining, I will describe the benefits of owning the midstream. China has repeatedly restricted tungsten exports. In 2005 and 2011, China doubled APT prices; owning midstream capacity was a major advantage in those periods. For H.C. Starck, an important benefit of the combination is that MMC has tool sales channels. Recovering used tools via those channels was previously not feasible and is now an advantage. Going forward, we would like to develop tungsten powders that can be supplied exclusively to MMC. If Japan New Metals and H.C. Starck can jointly produce best-in-class powders, competitiveness will increase further.

Participant [Q]: With APT prices rising and China's resource concentration, is there any possibility of substitutes for tungsten?

Ohara [A]: In practical terms, no. Despite high APT prices, there are essentially no viable substitutes; no other element meets industrial performance requirements. This is a significant advantage for MMC's positioning.

Participant [Q]: Regarding the potential increase of production sites outside China, how might the concentration of tungsten production be resolved?

Ohara [A]: Outside China, tungsten was mined globally from the 1990s to the early 2000s. There are many tungsten mines in places like Canada and Australia. From the 1990s to 2005, China sold at very low prices, and most non-Chinese mines closed. In 2005, with little competition, prices rose from about \$100 per unit to \$200 per unit to recover margins, and since then they have rarely fallen below \$200, enabling steady profits. Mining costs are viewed as below \$200. APT prices, which hovered around \$200–\$300, rose to \$380 in the past six months and stood at \$540 as of last week. Outside China, we are looking at mines in Uzbekistan and Kazakhstan.

Participant [Q]: Earlier you said about 80% of H.C. Starck's material is recycled, while page 11 shows an overall target of 80%. What are the figures for Japan and for H.C. Starck overall?

Hisanaga [A]: In Japan (Japan New Metals), we are a little over half.

Ohara [A]: H.C. Starck's Goslar plant is around 80%, but in China and Canada APT intermediates are produced from ore. In aggregate, we are targeting 80% for the MMC Group.

Participant [Q]: You mentioned that recycling rates differ between the molten-salt process and oxidation-roasting process. Does this affect product quality or purity?

Hisanaga [A]: Both processes yield intermediates that still contain impurities. In downstream steps, H.C. Starck uses solvent extraction, while Japan New Metals uses ion-exchange technology. By removing impurities in this hydrometallurgical step, the resulting products achieve the same quality.

Participant [Q]: Sales to cemented carbide tools are large, but profitability seems higher for electronic materials. After acquiring H.C. Starck, the share of relatively general-purpose cemented carbide tools has increased. If you expand cross-selling to H.C. Starck customers, to what extent can the electronic materials share rise?

Ohara [A]: Japan New Metals has been highly focused on the Japanese market, which was fine because customer shares were high globally. That said, there is room to grow in application development and demand cultivation, and we will improve profitability by leveraging H.C. Starck's channels and experience. Another benefit of acquiring H.C. Starck is large-scale production capability. Japan New Metals will focus on high-performance products, while Mitsubishi Materials' cutting tool business will gradually replace existing raw materials with more cost-effective alternatives produced by H.C. Starck.

Participant [Q]: What explains H.C. Starck's recent weak profitability? Please describe the material flows among H.C. Starck, Japan New Metals, and MMC that ultimately drive earnings.

Ohara [A]: For H.C. Starck, exposure to European cemented-carbide manufacturers is high, and given weak European demand, the situation is challenging. Financial discipline had also slipped somewhat, and we are strengthening the balance sheet. We will improve fundamentals and profitability. H.C. Starck's strengths are recycling technology and volume, so we will increase the recycling portion to capture the scrap advantage. By collaborating in R&D, we aim to raise productivity and return higher-grade powders to cemented-carbide tools. We are also advancing R&D collaborations beyond the Metalworking Solutions business, and joint recycling research in other domains is promising.

Participant [Q]: In copper recycling smelting, competition for scrap has intensified. What does competition look like in tungsten recycling?

Ohara [A]: In Japan, Allied Materials (operated by Sumitomo Electric) is active. Overseas, there is GTP in the United States (owned by Ceratizit), and WBH in Austria (owned by Sandvik). Since APT is not exported from China, these companies are seeking to secure scrap. However, with the recovery rate still around 25%, there is no scramble for scrap or price war among competitors. We are more concerned about reports that Chinese firms are actively buying up scrap.

Participant [Q]: Will the recent rise in APT prices benefit this year's financial results?

Ohara [A]: We expect a positive impact.

Presentation

Hisanaga: I, Hisanaga, will give an overview of Japan New Metals' Akita Plant.

Akita City Barajima Area



Located in the center of Akita City, the area is well served by water, sandwiched between the Asahi River, Akita Canal, and Omono River. Residential areas are located in the east, while an industrial area centered on **Mitsubishi Materials** is located in the west.



Kanto Festival



Folklore demons of the Oga Peninsula



Kiritanpo



Japanese sake



JAPAN NEW METALS

2

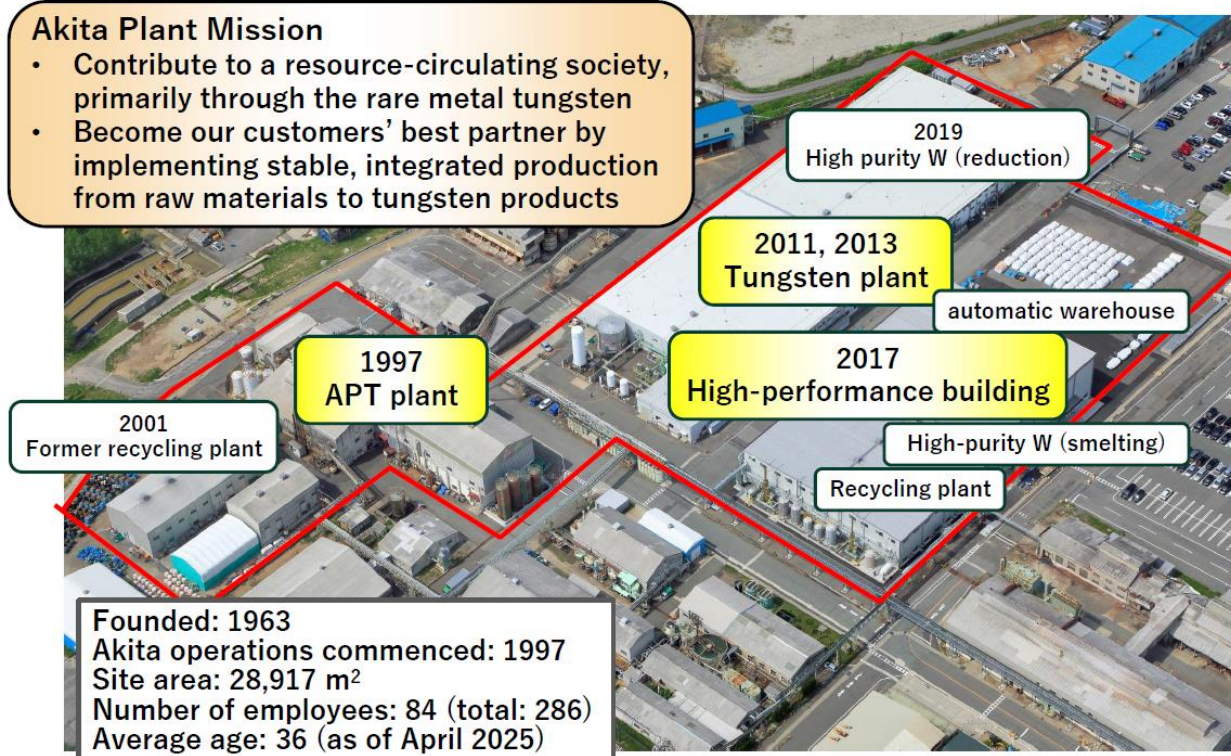
This is the area around the Akita Plant. Japan New Metals is located in the Barajima Area of Akita City, Akita Prefecture. The plant is easily accessible, taking only 20 minutes from the city center. The Asahi River, the Akita Canal, and the Omono River run through the center of Akita City, and the area has good access to water, making it a suitable environment for wet smelting.

In addition, there is an industrial area centered on MMC in the Barajima Area, and part of this area is leased and operated by Japan New Metals.

Akita Plant

Akita Plant Mission

- Contribute to a resource-circulating society, primarily through the rare metal tungsten
- Become our customers' best partner by implementing stable, integrated production from raw materials to tungsten products



JAPAN NEW METALS

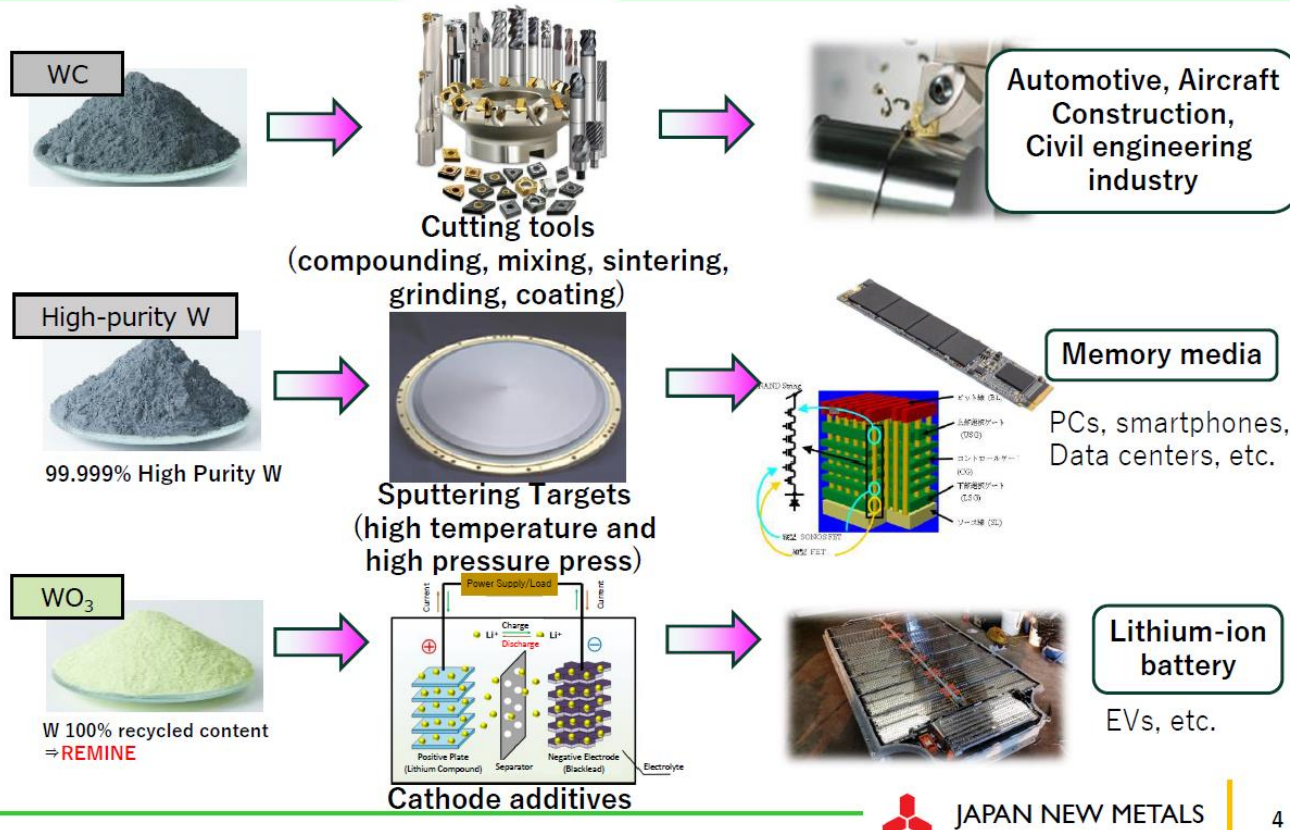
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Next is the mission of the Akita Plant. Japan New Metals is committed to “Contribute to a resource-circulating society, primarily through the rare metal tungsten” and “Become our customers’ best partner by implementing stable, integrated production from raw materials to tungsten products.”

Japan New Metals was founded in 1963, and the Akita Plant itself began operations in 1997. The site area is just under 30,000 square meters, and the company as a whole has 286 employees. The Akita Plant has 84 employees, and the average age is 36 years old. This is an extremely young and lively plant.

Operations also began in 1997 in the central APT (short for ammonium paratungstate) plant, and recycling was partially initiated in 2001. After that, we expanded the downstream-process tungsten plant in two stages in 2011 and 2013. In 2017, we constructed the high-performance building, where we strengthened recycling capabilities. In addition, as mentioned earlier, we have been focusing on high-purity tungsten, installing a dedicated wet-process line at the center of the high-performance building, and in 2019, we expanded the downstream reduction facilities.

Product Range (Application)



JAPAN NEW METALS

4

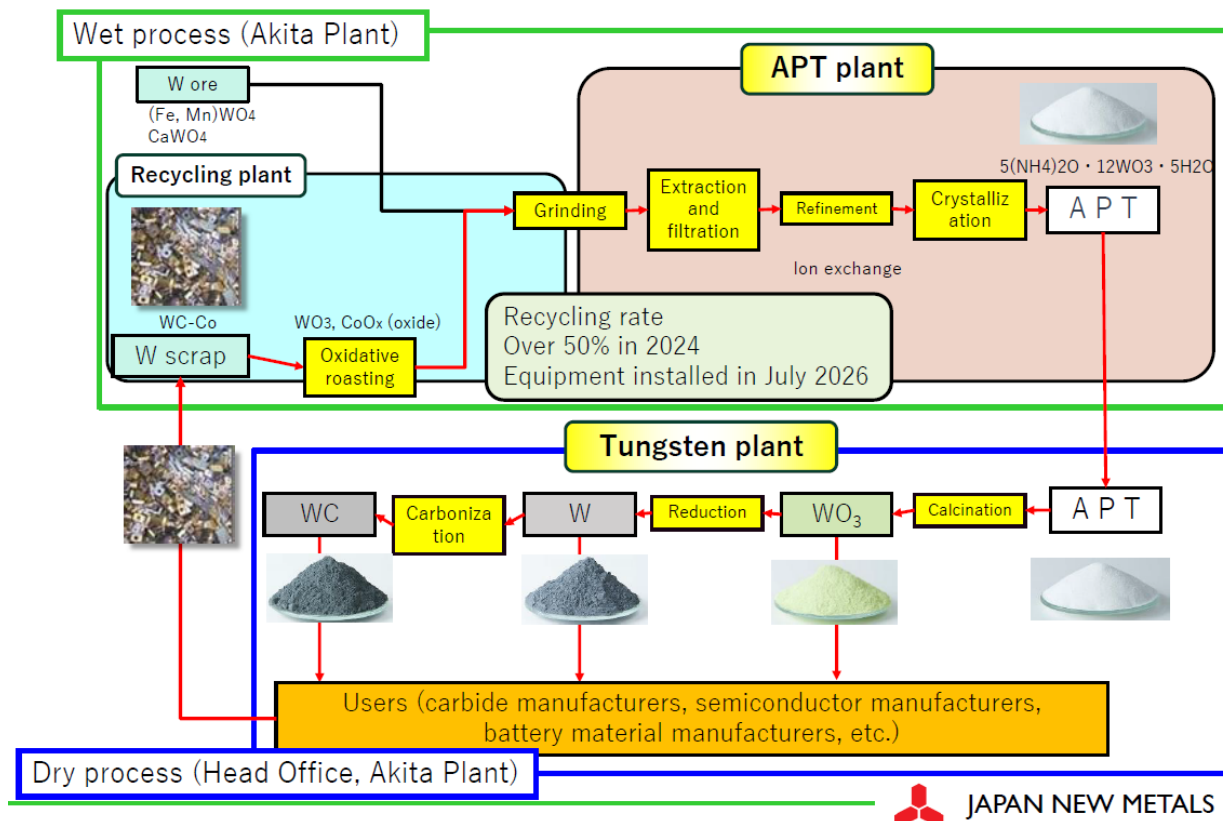
Let me explain the product groups and applications that Japan New Metals handles. The first is tungsten carbide, our main product. After it is delivered to customers, it is blended, mixed, sintered, processed, and coated to produce cutting tools. These tools are widely used in the automotive, aerospace, and construction and civil engineering markets.

Next is high-purity tungsten in the center section. This is a high-purity product of 5N grade. When it arrives at the customer, it is pressed at high temperature and high pressure to form a sputtering target. This is used as part of the raw material for storage media and memory-related components such as PCs, smartphones, and data centers. As shown in the diagram of the laminated structure, Japan New Metals' tungsten is used for the gate and source layers in this structure.

At the bottom, WO₃, or tungsten trioxide, is used in LIBs and secondary batteries for electric vehicles. The structure of the LIB is shown in the center, with the cathode material on the left, the anode material on the right, and the separator in the center. Adding a small amount of tungsten trioxide to the cathode material significantly increases its durability.

In addition, tungsten trioxide is a specialized product that uses tungsten with a 100% recycling rate and is registered under MMC's REMINE brand. This product conforms to ISO 14021 and is a metal product that has received third-party verification. We are currently working to expand its sales.

Production Process



5

Here is tungsten production process.

Tungsten scrap collected at the recycling plant in the upper left is oxidized and roasted to produce powder. The resulting powder is extracted, filtered, purified, crystallized, and converted into a white powder called ammonium paratungstate (APT) in the APT plant.

In the past, we processed tungsten ore, but we no longer use it and now handle only scrap at the Akita Plant.

Next, at the bottom, the finished APT is processed into tungsten trioxide, tungsten, and tungsten carbide through the processes of calcination, reduction, and carbonization in the tungsten plant, and then supplied to customers. Used materials are returned to the recycling plant, thereby ensuring resource recycling.

The used materials are returned to the recycling plant, thereby ensuring a sustainable resource circulation.



Manufacturing Process (Recycling Plant)



JAPAN NEW METALS

6

I will explain more details.

This shows the types of scrap processed at the recycling plant. Broadly speaking, there are two types: soft scrap and hard scrap. Soft scrap includes powder and sludge, which are collected in-house. Sludge consists of scraps produced during the grinding of cemented carbide tools. Since grinding generates heat, the material is shaved while water or oil is applied, so it becomes a thick material containing water or oil.

The hard scrap on the right includes cutting tool inserts, end mills, drills for printed circuit boards with a diameter of about 1-millimeter, large rolls used for extruding wiring materials for construction, and tungsten targets. These various scraps, including tungsten, are pretreated, pulverized, and adjusted, and then efficiently baked in a special furnace and oxidized (roasted) into powder. This powdered material is called “sintered ore” at Japan New Metals.

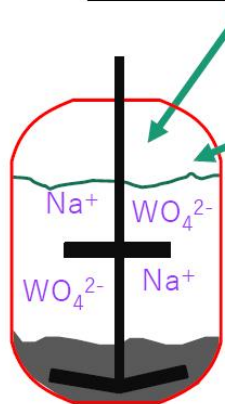


Wet Engineering; Extraction



Autoclave

Introduction of alkaline drugs



Recovery (incineration)

Precipitate = metal hydroxides other than tungsten
Co is sold as a valuable item

Recovery powder is mixed with an alkaline liquid in an autoclave. Metals are insoluble in alkaline solutions (precipitation)

Tungsten dissolves in alkaline solution
This property allows for the separation of tungsten ions from other impurities

Tungsten solution



JAPAN NEW METALS

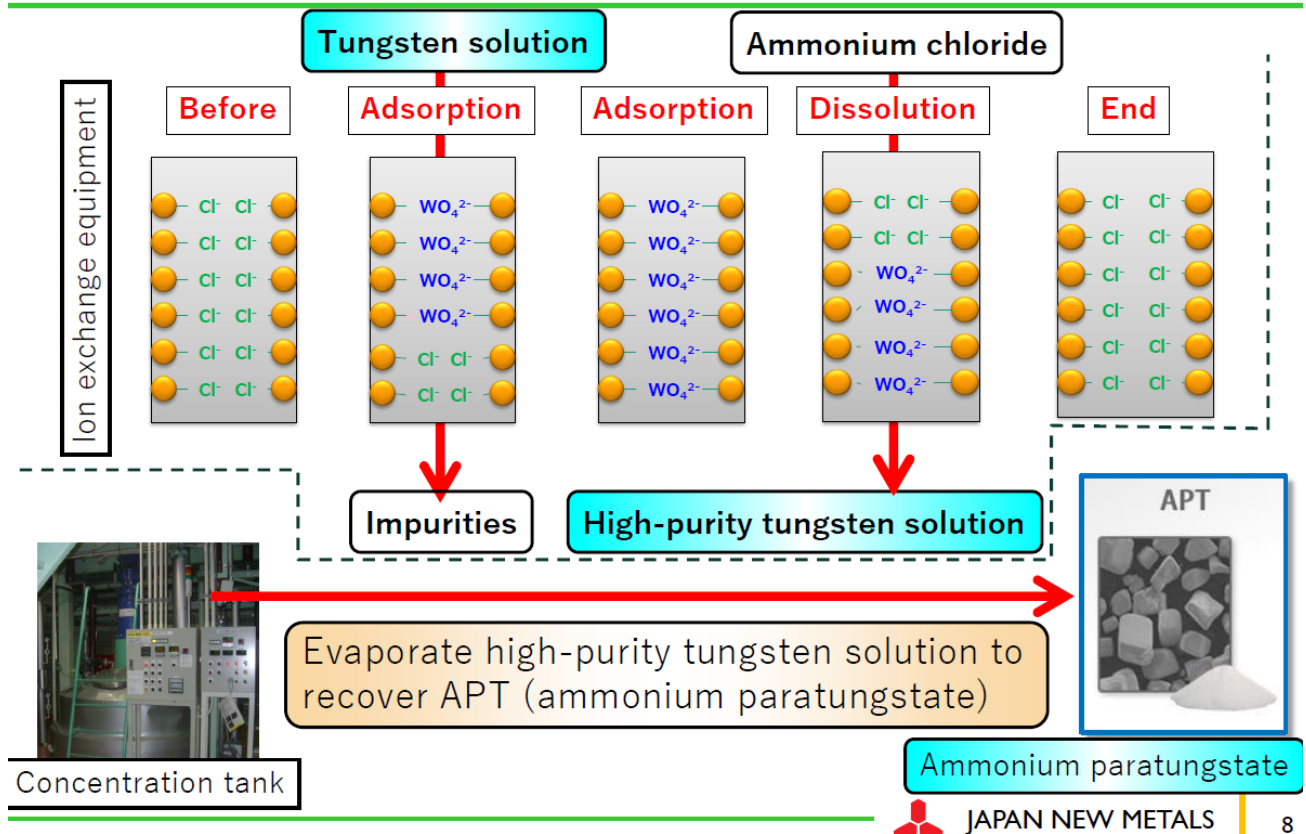
7

Next, extraction is carried out in the wet process.

The sintered ore collected earlier is mixed with an alkaline solution in a pressurized vessel called an autoclave. Metals other than tungsten generally do not dissolve in the alkaline solution; instead, they form hydroxides that precipitate. Tungsten, however, dissolves in the alkali and moves into the solution, and this property is utilized for the separation process. Precipitates containing some cobalt are valuable and are therefore sold.



Wet Engineering; Ion Exchange, Enrichment



Next is ion exchange and concentration.

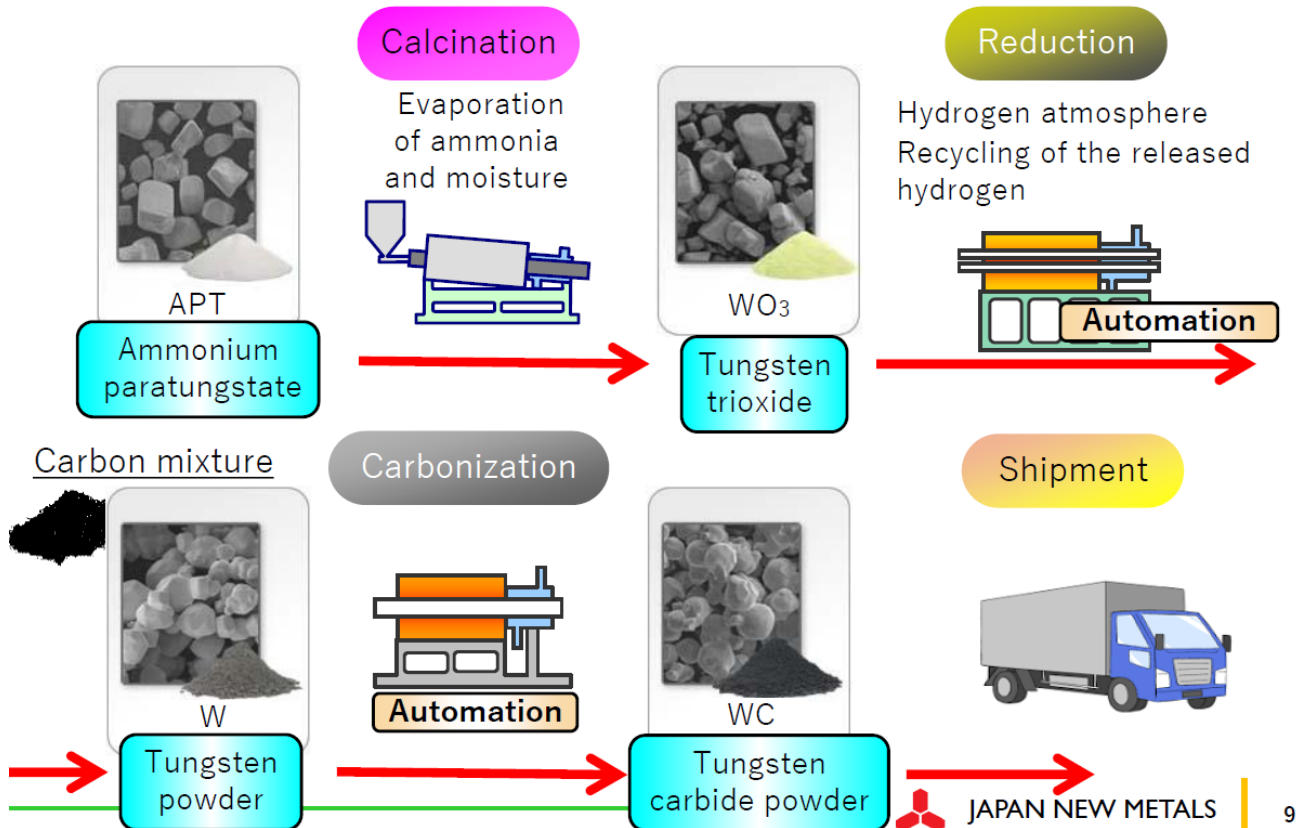
The tungsten solution obtained earlier is passed through a resin containing chloride ions using an ion exchange facility. Tungsten ions adhere to the resin, and chloride ions along with other impurities are discharged at this stage.

After adsorption is complete, ammonium chloride is introduced, and at the same time, chloride ions and tungsten ions are exchanged, allowing only tungsten ions to be recovered. This process yields a highly pure tungsten solution.

After that, chloride ions reattach to restore the resin to its original state, enabling the purification process to be repeated. Finally, the tungsten solution is dried in an evaporator, producing a white powder called ammonium paratungstate.



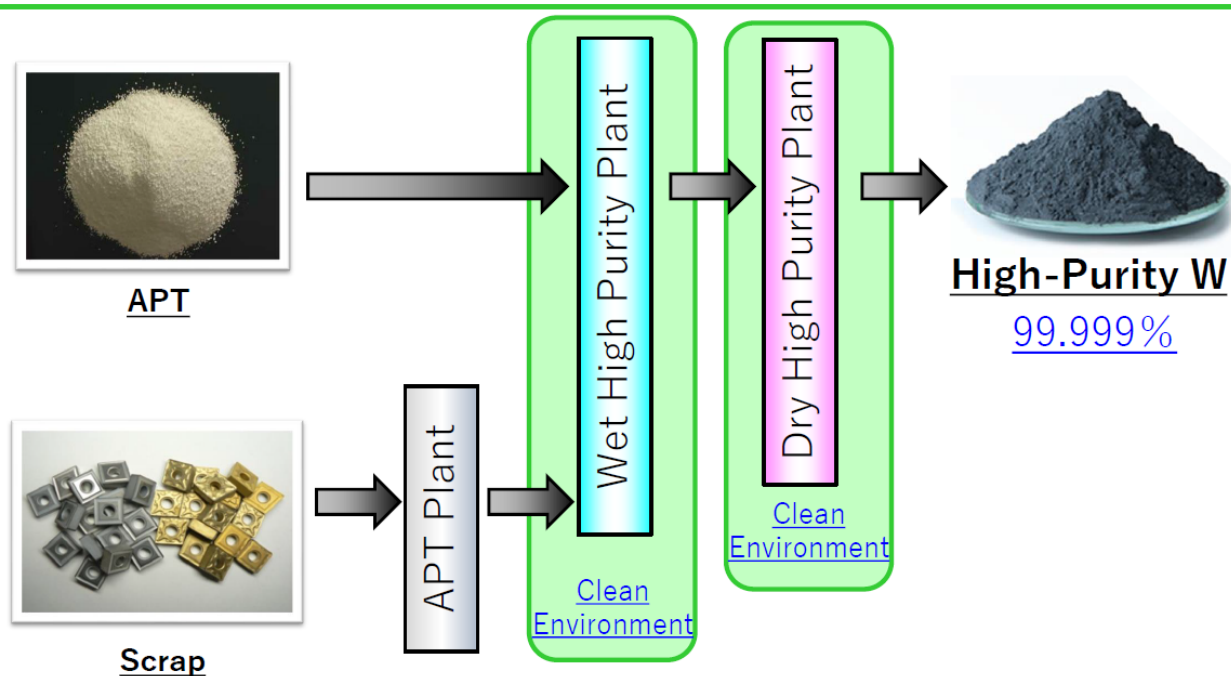
Tungsten Plant



It is then transported to the tungsten plant. Here, ammonia and water are first evaporated in the calcination process, turning the white powder into a yellow-green powder called tungsten trioxide. By reducing it in a hydrogen atmosphere, it is converted into a metal called tungsten. At this stage, a considerable amount of hydrogen is used, so hydrogen is recycled as much as possible. In the next step, tungsten is mixed with carbon and carburized at high temperatures to produce tungsten carbide, which is then shipped to customers. Large-scale automation has been implemented for both reduction and carburization processes, and production is primarily managed by operators.



Wet and Dry High-Purity Plants



We have a dedicated line for producing high-purity tungsten.
Facility enhancement is underway.



JAPAN NEW METALS

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Finally, I would like to explain the high-purity plants for wet and dry processes. The raw material for tungsten in this plant is either APT or scrap. High-purity tungsten products cannot tolerate contamination even at the parts-per-million level, so the environment for both high-purity wet and dry processes is managed under a strict control system, including changing work clothes, pressurizing the entire work area, and partially using clean rooms.

Demand for products from this plant is expected to increase in the future, so we are currently proactively expanding our facilities.

This concludes the overview of the Akita Plant. Thank you for your attention.

Question and Answer

Participant [Q]: H.C. Starck uses solvent extraction and Japan New Metals uses ion exchange. Please explain the differences in the accuracy and cost of impurity removal.

Hisanaga [A]: H.C. Starck operates at a larger scale, so costs are lower. At the same scale, costs are nearly the same. The level of impurity removal is basically the same whether tungsten is adsorbed onto ion-exchange resin or onto an oil-based medium. Ion exchange produces a large volume of wastewater, and water is abundant around the Akita Plant; whereas in Germany water is scarce, so an oil-based process is used instead.

Participant [Q]: What about higher purity? Is Japan New Metals' process superior to H.C. Starck's?

Hisanaga [A]: Purification to high purity cannot be achieved with the ion-exchange line alone, so it is performed in facilities using dedicated wet-process technology. The current solvent-extraction process at H.C. Starck probably cannot produce tungsten of the same purity.

Taniuchi [A]: There may be differences in the impurity elements removed when refining tungsten due to substantial differences between the processes. Japan New Metals may be better at removing one element, while H.C. Starck may be better at removing another. Although the differences are at the parts-per-million level, the residual-impurity levels appear to vary by process. The Japan New Metals process may more readily remove impurities that customers in the semiconductor and electronic component sectors find undesirable.

Participant [Q]: In a scenario where APT prices do not increase, if materials derived from Chinese concentrates are assumed to be cheaper than recycled materials, does promoting recycled materials still offer an economic advantage?

Hisanaga [A]: We have shifted to a structure where recycling is more profitable regardless of APT prices. If APT prices were to fall sharply, we would not be able to compete; however, at the price levels seen in recent years, processing recycled materials is more advantageous.

Taniuchi [A]: The environmental impact of recycling is also lower than that of mining. In particular, tools have an extremely high tungsten content of over 90%, so recycling efficiency is very high.

Participant [Q]: Are there any moves to restart tungsten mines globally? Will MMC participate in tungsten-mine investments?

Ohara [A]: MMC will probably not participate in tungsten-mine investments. The risk is extremely high considering developments in China up to 2005. There are reports that ore grades in China and Vietnam are declining, so we will monitor developments closely. Our main focus is on resource recycling, so we prioritize advancing recycling processes over mine investments. If the price of tungsten were to fall below \$100 as seen before 2005, recycling would not be able to compete, but we do not expect that scenario. As long as the price remains between \$200 and \$300, the recycling process is sufficiently profitable. Since enhancing the recycling process is a source of profit, it is a joint research theme of great significance for MMC, Japan New Metals, and H.C. Starck.

Participant [Q]: On page 5 of Japan New Metals, there is a statement that no tungsten ore is used and that all material is scrap-derived. Could you explain the current recycling rate of more than 50%?

Hisanaga [A]: The Akita Plant uses 100% recycled feedstock; for Japan New Metals as a whole, the recycling rate is just over 50%.

Participant [Q]: Will the facility be installed in July 2026 at a site other than the Akita Plant?

Hisanaga [A]: The facility will be installed at the Akita Plant, which already has a recycling rate of 100%. This installation will increase the amount of recycled materials processed.

Taniuchi [A]: In addition, Japan New Metals has the Akita Plant and the Toyonaka Plant. APT is refined in the pre-process at the Akita Plant and sent to the post-process at the Toyonaka Plant to produce WC. The post-process has greater capacity than the pre-process and includes not only APT sent from the Akita Plant but also materials

not derived from recycling purchased from other sources. If the pre-process capacity is increased, the amount of materials purchased from other sources can be reduced, thereby increasing the overall recycling rate.

Participant [Q]: If the capacity of the pre-process is increased, can the recycling rate be raised? For example, is there a risk that other processes will become bottlenecks due to quality impacts?

Hisanaga [A]: In this facility expansion, there will be no impact on quality, and other processes will not become bottlenecks.

Taniuchi [A]: In the future, increasing the capacity of the entire pre-process, including the ion-exchange purification stage, will be key to raising the recycling rate.

End