”Japan Titanium Industry Carbon Neutrality Action Plan”

<Vision for Carbon Neutrality by 2050>
As the Japanese titanium industry, we will continue to pursue innovative technological development, while also working to expand the use of scrap materials and the adoption of green energy, and will take a comprehensive approach toward achieving carbon neutrality by 2050.

[Pillar 1]

Pillar 1 Reducing CO_2 emissions from domestic business operations	Goals & Action Plan	CO_2 Emissions ・ FY2013 : 449,359 tons →FY2030 : 292,395 tons ・Reduction 156,964 tons (−35%)
	Rationale For Setting Goals	1. Target business areas CO_2 emissions from domestic manufacturing processes for titanium sponge, ingot, and wrought products (Scope 1, Scope 2). 2. Specific initiatives (1) Improving energy efficiency, energy conservation and the use of green energy (LED lighting, waste heat recovery, solar power, etc.) (2) Development of coke substitute technologies 3. Average emission factor for all power sources FY2013 : 0.57kg-CO_2/kWh →FY2030 : 0.25kg-CO_2/kWh (Source: Cabinet Decision of October 22, 2021, Action Plan on Global Warming, Appendix 1-7)

[Pillars 2, 3 & 4]

Pillar 2 Strengthening collaboration between stakeholders (Contribution through low-carbon and energy-saving products and services)	➢ By supplying lightweight, high-strength, and highly corrosion-resistant titanium—which is essential for a carbon-neutral society—we contribute to reducing CO_2 emissions at the end-use stage. ➢ Specifically, titanium alloys—which possess the highest specific strength of any metal—contribute to CO_2 reduction in aviation sector. In fuel-cell vehicles, titanium—which offers excellent corrosion resistance—is used for separators to achieve zero CO_2 emissions. The use of titanium in equipment for producing hydrogen, the fuel for these vehicles, can significantly improve efficiency. ➢ In this way, titanium plays a major role in promoting CO_2 reductions in traditional sectors, achieving net-zero CO_2 emissions in new sectors, and in the production of hydrogen—which underpins these new CO_2 reduction technologies—making it an indispensable material for a carbon-neutral society.
Pillar 3 Promotion of international contributions (Global deployment and support of products and technologies, including in developing countries)	➢ While we rely on overseas sources for ingots of many non-ferrous metals, such as aluminium and magnesium, we import titanium ore, smelt it domestically and produce high-quality titanium sponge for use in aircraft. As one of the few remaining sources of titanium materials for Western countries, Japan fulfils its supply responsibilities—including those relating to economic security—and thereby makes a significant contribution to the international community. ➢ Titanium manufactured in Japan is used as mill products in the aerospace, chemical, energy and hydrogen sectors, and can help reduce CO_2 emissions during the product life cycle by enabling lighter weight and longer service life. ➢ By ensuring a stable supply of titanium (titanium sponge and mill products) and expanding its applications—leveraging Japan's advanced manufacturing and processing technologies—we will promote international contributions toward the realization of a global carbon-neutral society, starting with domestic efforts to reduce emissions.
Pillar 4 Developing innovative technologies towards carbon neutrality by 2050	➢ Improvement of the existing production process (Kroll-titanium sponge technology)—the advancement of Pillar 1 ➢ Development of new smelting methods (titanium sponge making) and practical application of advanced recycling technologies

(Prepared in October 2026)