

Titanium

Titanium alloys combine titanium with elements such as aluminium, vanadium, or iron to achieve exceptional strength-to-weight ratios, high-temperature resistance, and superior corrosion resistance. They are used extensively in aerospace applications, medical implants, marine environments, and high-performance automotive components due to their durability and low density. The product journey described here is for material supplied by one of our partners in the US.



Raw materials

Premium titanium sponge made from titanium ore (primarily rutile and ilmenite) is sourced from a diversified group of leading global suppliers. The resulting product is a high-purity porous form of metallic titanium that is then melted and refined into ingots.

Rutile and ilmenite in the sponge are sourced from specialists in high-grade mineral sands and their origin aligns with major global suppliers to the US industry.



Processing

The product journey for titanium is a vertically integrated, high-precision process focused on aerospace and defence applications. It transforms raw materials into specialised alloys and finished components:

- **Formulate** – input materials including premium titanium sponge are formulated to exact specifications
- **Blend** – materials are mixed to create the charge for melting and fed into the furnace
- **Melt** – under mechanically driven vacuum, electron beams create the energy to to liquefy the material, layer by layer
- **Refine** – the melt flows into refining hearths, removing defects with each pour
- **Finishing** – ingots and rounds are produced for levelling, annealing and machining





Transparency and resilience

A diversified global supply chain is expertly managed to avoid disruptions and geopolitical risks:

- By managing the entire process from premium titanium sponge to melting and final fabrication, quality control for aerospace and defence applications is assured
- Long-term supply agreements with certified global producers ensure a reliable, cost efficient supply of premium titanium sponge
- Operations are governed by a code of conduct that emphasises ethical business practices, human rights, the avoidance of conflict minerals and compliance with environmental regulations



Performance

The high performance of these particular titanium alloys comes from a combination of precise, tailored chemical compositions, advanced microstructural control, and specialised processing techniques (such as cold-rolling and vacuum arc remelting) that optimise strength, ductility, and fatigue resistance.

Their exceptional performance in demanding environments is driven by a high strength-to-weight ratio, superior corrosion resistance, and the ability to maintain structural integrity at high temperatures.



Sustainability

Overall the aim is to minimise environmental impact through energy efficiency, reducing emissions, and waste reduction, targeting ISO 14001 certification.

- Materials support customers' sustainability goals by enabling high-efficiency, low-emission technologies in aerospace, defence, and power generation
- Recycling manufacturing scrap and utilising reclaimed materials in the production process to reduce landfill
- Focus on safety, ethical business practices, and fostering a diverse and inclusive workplace

FORMS AVAILABLE:



Coil



Sheet



Plate



Rod



Bar

For more information on any of our products and services please get in touch.

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