Titanium Opportunities in Additive Manufacturing

Description: This new specialty market report is the first of its kind to explore opportunities and considerations specifically for titanium and titanium alloys. Titanium is becoming one of three premiere metal group opportunities for additive manufacturing systems of numerous types, sought after primarily for its high strength to weight ratio, biological inertness, and other desirable properties when combined with additive layer manufacturing.

As a specialty study in a specific material, this report presents both market forecast data as well as critical market analysis for use of titanium in key industries adopting AM, as well as considerations for the future adoption and use in other applications. The primary opportunity factors related to the broader supply chain, primary providers of AM titanium powder and other forms, and analysis of the print technologies and powder production processes all combine to help business development and strategy professionals determine how to focus their efforts in titanium powder, parts, and print technologies.

Titanium is increasingly sought after in AM for its high strength to weight ratio, biological inertness, and other desirable properties. This report provides ten-year forecasts – in US$ Millions and Kilograms – for titanium in the following sectors, aerospace, automotive, jewelry, dental, medical, service bureaus, and ‘other adopting industries’. Other applications discussed include heavy equipment, marine, energy, and consumer products. The author’s projections also provide breakouts by Ti6Al4V and other titanium alloys.

This report also profiles titanium-related product/market strategies of leading firms discussed include: 3D Systems, Arcam, Concept Laser, EOS, ExOne, Farsoon Fonon, GE, GKN Hoeganaes, Honeywell, i.Materialise, LPW, Matsuura, Metalysis, Optomec, Oxford Performance Materials, Phenix, Ping, Praxair, Puris, Realizer, Renishaw, Sisma, SLM Solutions, Tekna, and Xi’an Brightlaser

Highlights from the Report:
AM titanium will continue to be used where premium performance is required. In the short term, the supply chain for AM titanium powder will continue to be controlled by smaller specialty providers –but larger global metal firms are now beginning to jump in. These firms have historically sold to metal AM system vendors, however today several very large users of metal AM in aerospace and medical are ordering in volumes large enough to sustain smaller powder providers.

The vast majority of titanium powder used in current additive manufacturing systems falls into two types—Ti6Al4V (Ti64) and commercially pure titanium (CPT).

Increased use of specialty titanium alloys is expected to vary depending on adopting industry.

Titanium is being explored for smaller structures in aircraft engines such as brackets and housings, but may expand into much larger structural components to drive demand. By 2020, aerospace will be consuming almost 155,000 Kgs of titanium. Most available specialty Titanium alloys today have been developed primarily with aerospace in mind.

Titanium also has good prospects in medical markets due to bio-inertness, and ‘as manufactured’ bone ingrowth performance. It also is capable of outperforming heavier alloys with its strength to weight ratio. Current production of titanium orthopedic implants using AM is growing rapidly across the board, with new products in spine, hip, knee, and other orthopedic areas. Medical applications of AM titanium will account for around 274,000 Kg of Titanium in 2020 thanks to this growth.

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