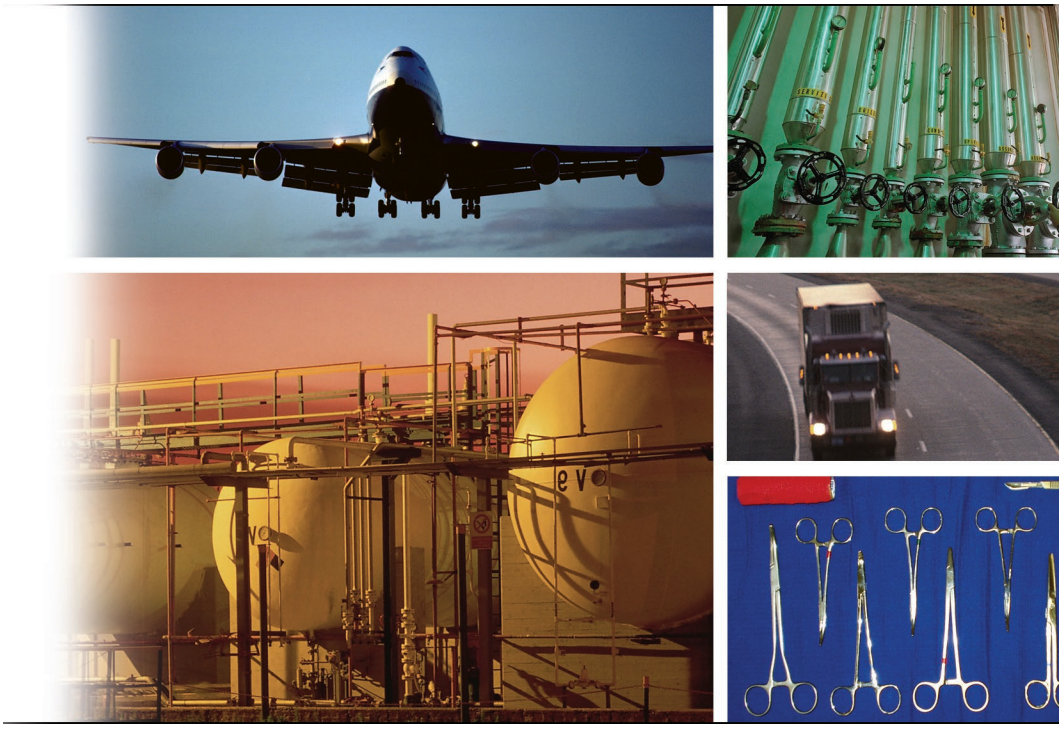
A new Thintri
MARKET STUDY 2016

The Titanium Age:

Markets, Opportunities, and New Processes

Thintri, Inc. announces the release of a new market study, **The Titanium Age: Markets, Opportunities and new Processes.** This report, the third version of Thintri's initial titanium study analyzes current markets in titanium, pricing and supply issues in a range of titanium products like scrap, sponge, ingot, plate, etc., and effects of current economic and demand conditions. The report also discusses emerging market opportunities through the maturing of technologies that promise to reduce the cost of titanium extraction, manufacturing, machining and welding. Forecasts are provided for both traditional and potential new titanium markets in a number of key sectors.



Thintri Inc.

Thintri Inc. provides business and market intelligence for a wide range of technologies through custom consulting, technology assessments, and published market studies.

- Materials Engineering
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Titanium, a resource with enormous potential in a large number of markets, has been hobbled by high costs and volatile prices, processing difficulties, supply issues and industry-wide inefficiencies.

Titanium has the highest strength to density ratio of any metal, is essentially nonmagnetic, and is highly resistant to corrosion, even in hostile environments like salt water. Furthermore, it is highly biocompatible. Titanium has become well established in aerospace, trucks and heavy vehicles, medicine, chemical processing and general industry.

In recent years titanium suppliers have worked hard to bring the benefits of titanium to new applications, but just as new markets for titanium have opened up, the supply of titanium tightened considerably, with notable effects on prices. Much of the constricting of supply was attributable to sharply rising aerospace demand as well as greater use in steel production, which reduced the supply of scrap. These factors led to an extraordinary runup in prices, where some more than doubled in a single year, and some users were simply unable to obtain the titanium they needed. The volatility dampened enthusiasm for titanium in new markets where it offers substantial long term cost savings.

In response, suppliers of titanium sponge rapidly moved to expand their output. Very soon, however, markets and prices dropped with the recession. Today, titanium demand is sluggish at best for most (but not all) applications, largely due to plunging markets in oil & gas and an economic slowdown in China. Industry experts indicate that as large aerospace consumers such as Boeing and Airbus work through inventories, expected in late 2016 or early 2017, and the oil & gas sectors bottoms out, demand will rebound.

Throughout all this, a number of low cost processing technologies have continued development that promise titanium (commercially pure and alloyed), potentially at greatly reduced cost. These processes, some of which are already commercialized, will significantly reduce costs in extraction, machining, welding and manufacture of titanium, while relieving availability problems that have plagued users in the past.

The promise of supply stability and lower prices will create an opening whereby new markets can be captured, bringing titanium to a broad range of new applications. Low cost production processes could a substantial investment opportunity.

Understand the Markets

Thintri's new market study analyzes the current state of traditional titanium markets and current economic conditions. The effects of emerging low cost titanium processes and the market forces that will determine the future of the industry are investigated in detail. New and sometimes unexpected market opportunities are analyzed and forecasts are provided for both traditional markets, some of them unaffected by low cost processes, and new market opportunities created by low cost titanium.

The report is based on more than 100 in-depth interviews with experts from industry, Government and academia, as well as a broad range of published materials.

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The Titanium Industry, Markets and Forecasts

Titanium, raw materials production

Demand Drivers

Supply Side — Capacity

Current and Historical Prices, Forecasts

Market segments

- Aerospace
  - o Engines
  - o Airframe
  - o New aircraft
- Industrial
  - o Chemical processing
  - o Power generation
  - o Desalinization
  - o Automotive
    - — Cars
    - — Trucks and heavy vehicles
- Medical
  - o Implants
  - o Surgical instruments
- Military
  - o Aerospace
  - o Marine
  - o Land-based
- Consumer

Emerging Markets and Latent Demand

- Effect of new processes
  - o Extraction (Armstrong, MER, etc.)
  - o Fabrication
  - o Manufacture
  - o Welding
  - o Machining
- Aerospace markets
- Automotive markets
- Industrial markets
- Medical
- Consumer

Price: $4200

To order, contact Thintri, Inc. or check our Web site: www.thintri.com

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