

Analyzing the Global Titanium Industry

https://marketpublishers.com/r/A4C3E42FC77EN.html

Date: November 2011

Pages: 300

Price: US\$ 500.00 (Single User License)

ID: A4C3E42FC77EN

Abstracts

The importance of titanium has been growing steadily in the last couple of years. The sheer strength of titanium alloys are unmatchable and are titanium is used widely in the aerospace industry. In fact, the engines of an A380 aircraft used approximately 11 tons of titanium. Apart from the aerospace industry, titanium is used widely in industries such as the automotive industry, chemicals and petrochemicals, power generation, heat exchangers and metallurgy.

However, due to the high cost of titanium refining and processing, the metal is quite expensive, up to almost five times more costly than aluminum. Titanium prices have been souring in the recent years and prices are likely to remain high, driven mainly by demand side events, particularly aircraft demand cycles.

Aruvians Rsearch analyzes the Global Titanium Industry in its research offering Analyzing the Global Titanium Industry. This cutting-edge report on the global titanium industry is a complete profile of the entire titanium market.

The report begins with an analysis of the basics of titanium. We analyze the various characteristics of titanium due to which titanium is so much in demand, the various titanium metal products such as ores and concentrates, titanium sponge, titanium ingot, and titanium mill products. We also look at the processing steps for titanium, along with the applications of titanium and the safety issues with titanium.

An analysis of the titanium supply chain includes the mining and basic processing of mineral sands, chemical processing, metal processing and the end use applications of titanium.

In order to understand the global titanium mining industry, it is necessary to establish the profile of the global mining industry, and we do so in Section D of the report,



Analyzing the Global Mining Industry. In this section, we analyze the global metals and mining sector in terms of market statistics, market value and volume, market segmentation, and competition in the industry.

Moving on to the analysis of the global titanium industry, we analyze industry profile, industry statistics, the geographic distribution of titanium, trends in titanium mineral concentrates market, the usage of titanium in both the aerospace and non-aerospace industries. Non-aerospace industries analyzed include automotive, chemicals and petrochemicals, power generation, heat exchangers and metallurgy. We also look at the world production of titanium and titanium dioxide, as well as titanium mineral concentrates.

The high cost of titanium is analyzed in the section, along with investments in the global titanium industry, recent titanium price surges, as well as an analysis of the production costs including refining cost, fabrication cost, buy-to-fly ratio and the cost saving technical changes for the market.

An analysis of the oligopoly in the market as well as the major titanium buyers helps the reader understand the industry structure.

Industrial processes used for titanium production are analyzed in Section F. Processes analyzed include the commonly used Kroll and Hunter processes, along with a look at some emerging and established alternative processing methods such as the Armstrong Process, FFC Cambridge process, the MER process, the TiRO process, amongst others.

Global titanium industry trends, challenges facing the industry such as lack of investment, barriers to technology adoption, small market size, etc., are looked at in the following sections. Market drivers including supply side and demand side drivers are also analyzed.

No analysis of the global titanium industry is complete without a look at the global titanium dioxide market. We analyze the global titanium dioxide market in section J of this report. In this section we look at the market statistics, the uses of titanium dioxide, industry trends, as well as pricing trends. We also analyze how the demand for ilmenite, rutile, and slags & synthetic rutile is impacting pricing trends in the industry. Industry feedstock producers, industry processors and industry end users are analyzed as well.

A country-wise analysis of the global titanium industry follows. Countries analyzed



include Australia, Canada, Chile, China, India, Japan, Kazakhstan, Kenya, Madagascar, Mozambique, Norway, Russia, Senegal, South Africa, Ukraine, the United States, and Vietnam. For the major titanium producing countries such as the US, Ukraine, South Africa, China, and Australia, we include more in-depth data as compared to countries that have smaller or nascent titanium sectors.

The report also takes a brief look at titanium substitutes and complements, before moving on to the industry outlook. The global titanium industry's future perspective is analyzed through an industry outlook, and an outlook for global titanium consumption and production.

Section N of the report analyzes the various industry players through a corporate profile, an analysis of the business segments they operate in, the major products & services, a financial analysis and a SWOT analysis. The SWOT analysis is not available for smaller players.

Aruvians Rsearch's report Analyzing the Global Titanium Industry is a comprehensive strategic analysis of the global titanium and global titanium dioxide industry.



Contents

A. EXECUTIVE SUMMARY

B. INTRODUCTION TO TITANIUM

- B.1 What is Titanium?
- **B.2 Titanium Occurrences & Resources**
- **B.3 Physical Characteristics**
- **B.4 Chemical Characteristics**
- **B.5 Titanium Metal Products**
- **B.5.1 Ores and Concentrates**
- B.5.2 Sponge
- B.5.3 Ingot
- **B.5.4 Mill Products**
- B.6 Processing of Titanium
- B.6.1 Extracting Titanium Metal from Ore
- B.6.2 Producing Ingot from Sponge
- **B.6.3 Primary Fabrication**
- **B.6.4 Secondary Fabrication**
- B.6.5 Titanium Scrap
- B.6.6 Ferrotitanium
- **B.7** Applications of Titanium
- **B.8 Safety Issues with Titanium**

C. TITANIUM SUPPLY CHAIN

- C.1 Mining & Basic Processing of Mineral Sands
- C.2 Chemical Processing
- C.3 Metal Processing
- C.4 End Use Applications

D. ANALYZING THE GLOBAL MINING INDUSTRY

- D.1 Introduction
- D.2 Industry Definition
- D.3 Global Metals & Mining Market Overview
- D.4 Market Value
- D.5 Market Volume



- D.6 Market Segmentation
- D.7 Competition in the Industry

E. ANALYZING THE GLOBAL TITANIUM INDUSTRY

- E.1 Industry Profile
- E.2 Industry Statistics
- E.3 Geographic Distribution of Titanium
- E.4 World Production of Titanium and Titanium Dioxide
- E.5 World Production of Titanium Mineral Concentrates
- E.6 Trends in Titanium Mineral Concentrates Market
- E.7 Titanium Use in the Aerospace Industry
- E.8 Titanium Use in Non-aerospace Industry
- E.8.1 Automotive
- E.8.2 Chemical and Petrochemical
- E.8.3 Power Generation
- E.8.4 Heat Exchangers
- E.8.5 Metallurgy
- E.9 Investments in the Industry
- E.10 High Cost of Titanium
- E.11 Recent Titanium Price Surge
- E.12 Production Costs
- E.12.1 Refining Cost
- E.12.2 Fabrication Cost
- E.12.3 Buy-to-Fly Ratio
- E.12.4 Cost-Saving Technical Changes
- E.13 Oligopoly in the Market
- E.14 Major Titanium Buyers

F. INDUSTRIAL PROCESSES FOR TITANIUM PRODUCTION

- F.1 Kroll Process
- F.2 Hunter Process
- F.3 Alternate Processes
- F.3.1 Armstrong/ITP Process
- F.3.2 Cardarelli (QIT Fer et Titane) Process
- F.3.3 FFC Cambridge Process
- F.3.4 Ginatta Process
- F.3.5 Idaho Titanium Technologies



- F.3.6 MER Process
- F.3.7 OS Process by Kyoto University
- F.3.8 Peruke Process
- F.3.9 SRI International Process
- F.3.10 TiRO Process

G. GLOBAL TITANIUM INDUSTRY TRENDS

H. CHALLENGES FACING THE INDUSTRY

- H.1 Lack of Investment
- H.2 Spot Market vs. Longer-Term Contracts
- H.3 Small Market Size
- H.4 Barriers to Adoption of New Technologies

I. MARKET DRIVERS

- I.1 Factors Driving the Market
- I.2 Supply Side Drivers
- I.2.1 Availability of Raw Materials and Price Trends
- I.2.2 Shortage of Titanium Sponge and Scrap (Historical Analysis)
- I.2.3 Depletion of U.S. Titanium Sponge Stockpile (Historical Analysis)
- I.2.4 Entry and Exit of Players
- I.3 Demand Side Drivers
- I.3.1 Rising Aircraft Demand
- I.3.2 Rising Industrial Demand

J. GLOBAL TITANIUM DIOXIDE MARKET

- J.1 Market Profile
- J.2 Usage of Titanium Dioxide
- J.3 Industry Trends
- J.4 Pricing Trends
- J.4.1 Demand for Ilmenite
- J.4.2 Demand for Rutile
- J.4.3 Demand for Slags and Synthetic Rutile
- J.5 Industry Feedstock Producers
- J.6 Industry Processors
- J.7 Industry End Users



K. GLOBAL TITANIUM INDUSTRY: COUNTRY-WISE ANALYSIS

				- 1	
ĸ	1	Λ.	ust	ra	lιο
r		\sim 1	121	1 1	117

K.2 Canada

K.3 Chile

K.4 China

K.5 India

K.6 Japan

K.7 Kazakhstan

K.8 Kenya

K.9 Madagascar

K.10 Mozambique

K.11 Norway

K.12 Russia

K.13 Senegal

K.14 South Africa

K.14.1 Industry Overview

K.14.2 Importance of Titanium to the Economy

K.14.3 Production Regions

K.15 Ukraine

K.15.1 Industry Overview

K.15.2 Volchanske Deposit

K.15.3 Birzulivske Deposit

K.15.4 Nosachivske Deposit

K.16 United States

K.16.1 Industry Overview

K.16.2 Industry Structure

K.16.3 US Production of Titanium Mineral Concentrates

K.16.4 US Production of Titanium Metal

K.16.5 US Production of TiO2 Pigment

K.16.6 US Consumption of Titanium Mineral Concentrates

K.16.7 US Consumption of Titanium Metal

K.16.8 US Consumption of TiO2 Pigment

K.16.9 Titanium Use in the US Aerospace Sector

K.16.10 Titanium Use in Other Sectors in the US

K.16.11 US Import/Export of Titanium

K.16.12 Regulations Impacting the Titanium Industry

K.16.13 Titanium Mill Products in the US



- K.16.14 Titanium Ingot Market in the US
- K.16.15 Titanium Sponge Market in the US
- K.16.16 Titanium Scrap Market in the US
- K.17 Vietnam

L. TITANIUM SUBSTITUTES & COMPLEMENTS

M. GLOBAL TITANIUM INDUSTRY: FUTURE PERSPECTIVE

- M.1 Industry Outlook
- M.2 Forecast for Global Titanium Consumption
- M.3 Forecast for Global Titanium Production

N. MAJOR INDUSTRY PLAYERS

- N.1 Allegheny Technologies Incorporated
- N.1.1 Corporate Profile
- N.1.2 Business Segment Analysis
- N.1.3 Major Products & Services
- N.1.4 Financial Analysis
- N.1.5 SWOT Analysis
- N.2 Astron Limited
- N.2.1 Corporate Profile
- N.2.2 Business Segment Analysis
- N.2.3 Major Products & Services
- N.2.4 Financial Analysis
- N.2.5 SWOT Analysis
- N.3 BHP Billiton Limited
- N.3.1 Corporate Profile
- N.3.2 Business Segment Analysis
- N.3.3 Major Products & Services
- N.3.4 Financial Analysis
- N.3.5 SWOT Analysis
- N.4 E.I. du Pont de Nemours & Company
- N.4.1 Corporate Profile
- N.4.2 Business Segment Analysis
- N.4.3 Major Products & Services
- N.4.4 Financial Analysis
- N.4.5 SWOT Analysis



- N.5 Huntsman Corporation
- N.5.1 Corporate Profile
- N.5.2 Business Segment Analysis
- N.5.3 Major Products & Services
- N.5.4 Financial Analysis
- N.5.5 SWOT Analysis
- N.6 Osaka Titanium Technologies Co., Ltd.
- N.6.1 Corporate Profile
- N.6.2 Business Segment Analysis
- N.6.3 Major Products & Services
- N.6.4 Financial Analysis
- N.6.5 SWOT Analysis
- N.7 Rio Tinto Plc
- N.7.1 Corporate Profile
- N.7.2 Business Segment Analysis
- N.7.3 Major Products & Services
- N.7.4 Financial Analysis
- N.7.5 SWOT Analysis
- N.8 Baoji Titanium Industry Co., Ltd
- N.8.1 Corporate Profile & Business Segments
- N.8.2 Major Products & Services
- N.8.3 Financial Analysis
- N.9 Exxaro Resources
- N.9.1 Corporate Profile & Business Segments
- N.9.2 Major Products & Services
- N.9.3 Financial Analysis
- N.10 Iluka Resources Limited
- N.10.1 Corporate Profile & Business Segments
- N.10.2 Major Products & Services
- N.10.3 Financial Analysis
- N.11 Kenmare Resources
- N.11.1 Corporate Profile & Business Segments
- N.11.2 Major Products & Services
- N.11.3 Financial Analysis
- N.12 Kronos Worldwide
- N.12.1 Corporate Profile & Business Segments
- N.12.2 Major Products & Services
- N.12.3 Financial Analysis
- N.13 RTI International Metals, Inc.



- N.13.1 Corporate Profile & Business Segments
- N.13.2 Major Products & Services
- N.13.3 Financial Analysis
- N.14 Titanium Metals Corporation
- N.14.1 Corporate Profile & Business Segments
- N.14.2 Major Products & Services
- N.14.3 Financial Analysis
- N.15 Toho Titanium Company
- N.15.1 Corporate Profile & Business Segments
- N.15.2 Major Products & Services
- N.15.3 Financial Analysis
- N.16 Tronox Incorporated
- N.16.1 Corporate Profile & Business Segments
- N.16.2 Major Products & Services
- N.16.3 Financial Analysis
- N.17 VSMPO-AVISMA Corporation
- N.17.1 Corporate Profile & Business Segments
- N.17.2 Major Products & Services
- N.17.3 Financial Analysis
- N.18 Cristal Global
- N.19 Jinchuan Group Co Ltd
- N.20 Mineral Deposits Ltd.
- N.21 Nordic Mining ASA
- N.22 White Mountain Titanium Corporation

O. APPENDIX

P. GLOSSARY OF TERMS

LIST OF FIGURES

- Figure 1: Illustrative Overview of the Upstream Value Chain of Titanium Metal
- Figure 2: Comparison of the Global Titanium Mineral Reserves, both Ilmenite and Rutile
- Figure 3: Densities of Various Metals
- Figure 4: Strength-to-Weight Ratios of Various Metals
- Figure 5: Vacuum Arc Remelting Process for Converting Titanium Sponge into Ingot
- Figure 6: Composition of Materials Used to Produce Titanium Ingot & Mill Products
- Figure 7: Converting a Titanium Ingot into an Aircraft Part
- Figure 8: Titanium Supply Chain



- Figure 9: Global Metals & Mining Industry Value (\$ Billion) 2006-2010
- Figure 10: Global Metals & Mining Industry Volume (in million metric tons) 2006-2010
- Figure 11: Global Metals & Mining Industry Segmentation (%), 2010
- Figure 12: Percentage of Titanium in the Structural Weight of Selected Military Aircrafts
- Figure 13: World Titanium Sponge Production, 2010
- Figure 14: Global Production of Titanium
- Figure 15: Typical Mine Site
- Figure 16: Volume Percentage of Titanium Metal used in the Non-Aerospace

Applications

- Figure 17: Sectors to Which TIMET's Titanium Mill Products Were Shipped, 2010
- Figure 18: Schematic Diagram of the Kroll Process Showing the Separate Electrolysis
- Plant for the Recycle of Magnesium and Chlorine
- Figure 19: Process Flow Diagram of the Original Armstrong/ITP Process
- Figure 20: Schematic Diagram of the Alternative Reaction Chamber for this Process
- Figure 21: Diagram of the QIT Process
- Figure 22: Diagram of the FFC Cambridge Process
- Figure 23: Basic Process Flow Diagram of the Plasma Quench Reactor System
- Figure 24: Diagram Showing the Electrochemical Cell of the MER Process
- Figure 25: Diagram of the Peruke Process with the Two Options: Al(Mg) or NaCl
- Figure 26: Diagram and Basic Layout of the Fluidized Bed Reactor
- Figure 27: Use of Titanium Dioxide through the Value Chain
- Figure 28: Global Demand for TiO2 Pigment
- Figure 29: Correlation between TiO2 Demand & Real GDP
- Figure 30: Titanium Feedstock Supply/Demand Outlook
- Figure 31: Global Average TiO2 Prices
- Figure 32: Zircon, Rutile and Ilmenite, Quarterly Price 1987-2014F in Real (2011) Terms
- Figure 33: Location of Mineral Sand Deposits, Mines & Occurrences in Australia
- Figure 34: Application of Titanium Processing Material in China's Domestic Market in 2010
- Figure 35: Hierarchical Overview of the South Africa's Titanium related Initiatives and Strategies
- Figure 36: Titanium Mill Product Net Shipments in the US by Market, 2010
- Figure 37: Producer Price Index for Titanium Mill Products, 1971 to 2008, with
- Estimated Values up to 2020
- Figure 38: Volume Market Comparison of Structural Metals in Million Tons, 2010
- Figure 39: Estimated Demand for Titanium Sponge till 2015
- Figure 40: Mineral Sand Deposits around the World
- Figure 41: Titanium Sponge
- Figure 42: Titanium Production Process



- Figure 43: Titanium Usage on Boeing Aircraft
- Figure 44: Feedstock Export Destinations from Ukraine in Percentage of Total Export
- Figure 45: Titanium Feedstock Supply Majors in 2010
- Figure 46: Independent Titanium Mines in Ukraine
- Figure 47: Historical Producer Price Index Trend for Titanium Mill Products, 1971–2006
- Figure 48: Emerging Technologies of Titanium Production
- Figure 49: Titanium Feedstock Processing Routes
- Figure 50: Historical Rutile and Synthetic Rutile Nominal FOB Prices



List Of Tables

LIST OF TABLES

- Table 1: Comparison of the Various Costs during the Production Stages of Steel,
- Aluminum & Titanium, in Volumes and per Ton
- Table 2: Global Metals & Mining Industry Value (\$ Billion) 2006-2010
- Table 3: Global Metals & Mining Industry Volume (in million metric tons) 2006-2010
- Table 4: Global Metals & Mining Industry Segmentation (%), 2010
- Table 5: Production of Global Titanium & Titanium Dioxide
- Table 6: Production of Global Titanium Mineral Concentrates
- Table 7: Cost Comparison of the Stages of Metal Production
- Table 8: Selected Alternatives, Filtered by Means of the Filtering Stage A
- Table 9: New Projects from Titanium Dioxide Producers
- Table 10: Major Producers of Titanium Sponge: Production Capacity and Output in 2010
- Table 11: US Titanium Supply & Demand Scenario
- Table 12: US Exports of Titanium Products
- Table 13: US Imports for Consumption of Titanium Metal
- Table 14: US Imports for Consumption of Titanium Concentrates
- Table 15: US Imports for Consumption of Titanium Pigments
- Table 16: Potential of Emerging Cost-Saving Technologies



I would like to order

Product name: Analyzing the Global Titanium Industry

Product link: https://marketpublishers.com/r/A4C3E42FC77EN.html

Price: US\$ 500.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer

Service:

info@marketpublishers.com

Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page https://marketpublishers.com/r/A4C3E42FC77EN.html