Titanium Raw Materials in Russia and Around the World

International Titanium Conference
October 1-3, 2006
Overview of Titanium

- Titanium naturally occurs as primarily either ilmenite ore (about 70% titanium) or rutile ore (about 95% titanium)
  - Sponge producers work with one of these two ore types to make titanium metal
- Titanium is the 4th most abundant metal in the earth, and the ninth most common element
  - Plenty of ore to supply overall demand
- Less than 10% of the ore that is mined is used in metals applications
  - balance is used as titanium dioxide (TiO2) in paints, pigments, inks, and other similar uses
Uses of Metallic Titanium

• Sacrificial Applications
  – Used as minor alloy addition or melt refining agent in carbon steel, aluminum, and superalloy manufacture
  – Accounts for 20 – 30% of global metal unit consumption

• Titanium Mill Products Industry
  – Either commercially pure or alloyed in melting, diverse applications include:
    • Aerospace, Chemical Plants, Power Generation, Desalination, Medical, Sporting Goods, Armor, Automotive, Energy Exploration and Production
Growth in all Market Segments Driving Cyclic Recovery in Mill Product Shipments

Peak shipments projected to reach 97,000 MT, up 94% from trough

Source: Company Estimates
Raw Material Prices at Historical High Levels

• Strong global steel shipments and increasing titanium mill product demand fueling strong demand for titanium metal units
• Lag in scrap recovery compared to mill product shipments, depletion of world stockpiles significantly reduced traditional supply
• Sponge production and capacity rising
• Supply and demand not yet in balance
• Raw material pricing remains at historical highs

Source: Metalprices.com
Titanium Sponge Manufacturing Locations

- Under Construction
- Current Operating Plants
Investment in Sponge Capacity at VSMPO Will Allow for Further Mill Product Volume Growth

- 13,000 MT of capacity being added in this cycle, bringing overall capacity to 39,000 MT
- Further growth beyond 2009 under study
- Will require large scale expansion
- Incremental investment in melting and mill product capacities to de-bottleneck downstream production under way
- Sponge remains one of the bottlenecks to increasing our production rates to meet demand
Investment in Machining Capability Adds Value and Increases Scrap Access
Long Term Outlook Needed in Evaluation Of Further Titanium Sponge Investment

– Sponge plants are very capital intensive, relative to the ability of the industry to finance, and have historically been very cyclical in utilization rates

– Return on capital invested in sponge is measured in decades, not quarters, and can be difficult for management to justify

– Individual company capital investment programs will be driven by customer commitments and market view
Planned Investment in Sponge Capacity Demonstrates Commitment to Meet Demand

Announced Capacity Increases Add Approximately 60,000 MT from 2004 to 2009

MT in 000’s


- China
- Ukraine
- Kazakh
- Russia
- Europe
- Japan
- United States
Continued Demand Growth in the Next Decade
Driven by Factors in Place Now

Shipments projected to reach 125,000 MT by 2013

Source: Company Estimates
Summary

• High raw material demand has created shortages
• Wave of sponge capacity expansion announced in response
• Increased scrap generation augmenting increased sponge production
• Metal units will likely continue to be tight through 2007
• Long term outlook suggests continued growth beyond 2009 supported largely by current capital investments