Titanium Sponge Production in China

Benson Quan
President
Wellmet International Inc
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Introduction

• Wellmet International, Inc.
• Exclusive US representative of Zunyi Titanium Co. Ltd, China
• Zunyi is the largest titanium sponge producer in China with full capacity of 34000mt, sponge are used in aerospace and other industries in China.
Main talking points

• Product Details
• Pre-2005: Developmental Stage
• Post-2006: Increasing Supply
• 2008: Financial crisis in the US
• 2013: Sponge production
• Conclusion
Product Details

- **The Kroll Process**

  \[ 2\text{FeTiO}_3 + 7\text{Cl}_2 + 6\text{C} \rightarrow 2\text{TiCl}_4 + 2\text{FeCl}_3 + 6\text{CO} \]

  \[ \text{TiCl}_4 + 2\text{Mg} \rightarrow 2\text{MgCl}_2 + \text{Ti} \]

- **ZunYi**: only producer to actively recycle used Mg.
Pre-2005: Developmental Stage

Total production: about 8000 MTS

ZunYi, GuiZhou
Established 1964
about 6000 metric tons

FuShun, LiaoNing
Established 1958
about 2000 metric tons

About 8000 metric tons of total production.
Post-2006: Potential Capacity

Titanium Production (mt) per plant

Total Planned Capacity: about 150,000 MTS
2008: Global Recession

- **Chinese landscape**
  - GDP growth ~ 9.6%
  - Stimulus plan boosts economy
  - New projects mostly in developmental stage

- Decreased world demand
- Chinese sponge surplus
- Market become difficult

Market showed some recovery post 2011

Investment on sponge Projects initially unaffected
2013 Sponge Production

Titanium Production (mt) per plant

Total Production: 80,000 MTS

<table>
<thead>
<tr>
<th>Plant</th>
<th>Metric tonnes</th>
</tr>
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<tbody>
<tr>
<td>Zunyi</td>
<td>20,000</td>
</tr>
<tr>
<td>2</td>
<td>8,000</td>
</tr>
<tr>
<td>3</td>
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<tr>
<td>10</td>
<td>6,000</td>
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Current State of Sponge Production

Difficult overseas conditions
- Overcapacity resulted from high investment
- Difficult overseas market
- Ti sponge producers not profitable

Difficult domestic conditions
- 2013 GDP growth 7.7%
- Smaller and uncompetitive producers closed
- Major producers cutting productions
Conclusion

• Volatility in the Titanium sponge market
  – Pre-2006 are very low production of sponge
  – 2006-2012 high investment resulted over capacity
  – Post-2012 producers forced to make cuts
• GDP chasing is not very popular now in China
• Over capacity of some industries addressed
• The market features will play more roles in deciding the production or capacity of the sponge.