?? Titanium Revert in 2015 ??

World Titanium Industry Supply Trends

International Titanium Association Conference

Chicago, IL
September 2014

Andrew Bayne
Disclaimer

Certain of the information presented herein relates to matters that are not historical facts but are forward-looking projections/statements that involve risks and uncertainties associated with TIMET’s business that are described more fully in TIMET’s filings with the United States Securities & Exchange Commission. Actual future results could differ materially from these projections. You rely on these projections and other information in this presentation at your own risk, and TIMET assumes no duty to update any of this information should expectations change.
# Presentation Outline

- **Review of History**
  - USGS Data – 2006 through 2013
  - Metalprices.com Data
  - 2007-2008 versus 2012-2013

- **Changes over a Five-Year Period**
  - Technology
  - Geography
  - Cost Consciousness
  - Consolidations
  - Emerging Countries
  - Other Materials Markets

- **Implications for 2015 and Beyond**
  - Build rates and titanium intensity
  - Supply-Demand Balance & Role of Sponge
• Ingot Production in 2012-2013 finally above 2006-2008 levels
• Scrap Consumption declined from 2006 thru 2008, then increased steadily on tonnage basis starting in 2009
• Ignoring anomaly of 2009, scrap percentage has steadily increased
12-Year scrap market trend shows extreme volatility
During 2008-09 GFC, scrap was extremely low
• Scrap market recovered from GFC during 2009-2010
• Decline into 2013 has reversed in 2014
2007-2008 versus 2012-2013

<table>
<thead>
<tr>
<th></th>
<th>2007</th>
<th>2008</th>
<th>2012</th>
<th>2013</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingot Production</td>
<td>59,200</td>
<td>58,600</td>
<td>68,800</td>
<td>62,500</td>
<td>6,750</td>
</tr>
<tr>
<td>Average</td>
<td>58,900</td>
<td></td>
<td>65,650</td>
<td></td>
<td>11.5%</td>
</tr>
<tr>
<td>Scrap Consumption</td>
<td>23,800</td>
<td>23,200</td>
<td>38,700</td>
<td>36,900</td>
<td>14,300</td>
</tr>
<tr>
<td>Average</td>
<td>23,500</td>
<td></td>
<td>37,800</td>
<td></td>
<td>60.9%</td>
</tr>
<tr>
<td>Scrap Consumption / Ingot Production</td>
<td>40%</td>
<td>40%</td>
<td>56%</td>
<td>59%</td>
<td>18%</td>
</tr>
<tr>
<td>Average</td>
<td>40%</td>
<td></td>
<td>58%</td>
<td></td>
<td>44%</td>
</tr>
</tbody>
</table>

Numbers behind earlier USGS chart reveals:
- 2012-2013 Ingot Production up ~11.5% from 2007-2008
- Scrap Consumption was 40% in 2007-2008, up to ~58% in 2012-2013
- Increase in scrap consumption of > 60% and more than 14,000 mts

What changed over the 5-year horizon?
What do these changes mean for the future?
## Technology Changes

**North American CHM Furnaces since 2007-2008**

- TIMET Morgantown, PA EB started 2007-08
- TIMET Morgantown, PA EB started 2008-09
- Perryman Houston, PA EB started 2007-08
- ATI Monroe, NC PAM started 2011
- RTI Canton, OH EB started 2013-14
- TIMET Morgantown, PA PAM started 2014

- Six CHM furnaces, capable of high scrap incorporation rates, have started since 2007-2008
- Added 25,000-30,000 mts / 75-80% to CHM capacity
Geography Changes

- Fabrication and machining operations being conducted in Japan, Singapore, Italy, Mexico, etc
- Additional logistical and economic challenges returning revert to melting locations
Cost Consciousness Changes

Buy-to-Fly Improvement Emphasis:
• Near Net Shape
• Closed Die Forgings
• Castings
• Powder

Closed Loop Scrap Emphasis:
• Boeing
• Engine OEMs / Melters / Forgers

Ultra Clean, Highly Spherical Metal Powders

Supply chain is responding to demands with new technologies
# Supply Chain Consolidation Changes

<table>
<thead>
<tr>
<th>Melter ties with generators</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCC Model</td>
<td></td>
</tr>
<tr>
<td>• Recent ATI and RTI acquisitions</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Melter ties with scrap companies</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCC revert group (Caledonian Alloys)</td>
<td></td>
</tr>
<tr>
<td>• VSMPO US scrap initiative</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Scrap companies consolidations</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Caledonian / SOS</td>
<td></td>
</tr>
<tr>
<td>• ELG / Metal Management</td>
<td></td>
</tr>
</tbody>
</table>

- Lower % of scrap available for market purchase
- Uncertain impact on volatility
Emerging Countries Changes

What role will the emerging Chinese titanium industry have on the revert market?
Other Materials Markets Impacts

Will developments over the next 3 to 5 years in other materials markets impact the ti revert market?
Build Rates and Titanium Intensity

• Uncertainty exists as to future demand as well as supply
By definition, supply always equals demand

In “Steady-State” what will value proposition be vis-à-vis sponge?
Thank-You!