Titanium scrap has once again played the role of friend and foe during the current “up” cycle which has lasted close to 4 years. The industry has found itself in what may someday be considered the best run ever. This run successfully funded much needed capital investments to ensure ample raw material production, scrap processing and product manufacturing capability/capacity to allow for the future growth of our industry.

It is always interesting to reflect on the availability and supply side of Titanium scrap since the start of the cycle but one must not lose sight of what appears to be ahead. My presentation is an attempt to summarize what the supply and demand scenario for Titanium scrap is as we move forward.
Global Market Assessment for Titanium Scrap

- General Comments
  - Scrap and sponge are always linked for product mix in our industry
  - Capital investments in additional hearth melt capacity have come on stream lately at yearly intervals
  - Chip washing and feedstock preparation capacity is substantially under utilized at present
Global Market Assessment for Titanium Scrap

- General comments
  - Today the percentage of scrap in world ingot production is around 35%
  - World steel demand continued to consume titanium units at strong levels
Charts

• The two major scrap types experienced a wild ride over the past several years. The trend has stabilized and adequate units are forecasted to be in place moving forward.
Global Market Assessment for Titanium Scrap

6-4 Turnings


6-4 Turnings
A BRIEF LOOK BACK TO THE RECENT CYCLE UPTURN

- Scrap generation low at start
- Demand high
- Mill generated captive scrap utilized to the fullest
- Steel industry usage at record levels
Global Market Assessment for Titanium Scrap

**CURRENT OR SHORT TERM VIEW**

- Supply has exceeded demand
- Sponge availability has increased to a comfortable level
- Some captive mill scrap is now going into Steel
- Steel industry remains steady
Global Market Assessment for Titanium Scrap

A LOOK AHEAD

- Inventory in place to support start of increased build rates which is different than previous cycles
- Supply will increase rather quickly as build rates emerge
- Steel demand is expected to stay steady
Global Market Assessment for Titanium Scrap

PRIMARY INDUSTRY GLOBAL SCRAP
CONSUMPTION IN METRIC TONS

- 2004
- 2006
- 2008
- 2010
- 2012

Metric Tons

0
20,000
40,000
Global Market Assessment for Titanium Scrap

Titanium Raw Material Supply vs. Demand

- RAW MATERIAL DEMAND
- RAW MATERIAL SUPPLY

Yearly data for 2008 to 2015 showing increasing demand and supply trends.
Global Market Assessment for Titanium Scrap

World Titanium Sponge Supply MT

- 2004: 75,000 MT
- 2006: 100,000 MT
- 2008: 150,000 MT
- 2010: 250,000 MT
- 2012: 300,000 MT
SPONGE A LOOK AHEAD 2010-2012

• More new capacity comes on line early this decade

• Supply will increase as build rate demand for both legacy and new generation commercial aircraft materialize

• Some raw materials could remain a concern for sponge production

• Initially the Titanium Sponge supply appears to be adequate for the anticipated growth being discussed today
Global Market Assessment for Titanium Scrap

SUMMARY

- Record levels of titanium scrap will be generated in the coming years driven by composite rich aircraft design for fuel economy.
- The industry has adequate capacity of hearth melting, chip processing and feedstock preparation in place and ready to perform.
- Scrap usage in world ingot melt will approach 50% during the decade.
THANK YOU