







AGENDA:

- ELG Utica Alloys in Words and Figures
- Why is Scrap so Important?
- The Current Situation
- Challenges
- Mission Statement of the Titanium Industry

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ELG Utica Alloys in Words and Figures



ELG Los Angeles/CA, USA



ELG Duisburg, Germany



ELG Lyon, France



ELG Frankfort/NY USA



ELG Sheffield, UK



ELG Utica Alloys •

- Scrap Services for Titanium and Superalloy Manufacturing Industries
- Scrap Revert Management of Titanium and Superalloys
- 12 facilities in six countries for processing of Titanium and Superalloys and on-site-service
- Another 34 facilities of the ELG Group in the US, Europe and China are utilized for service and logistic solutions







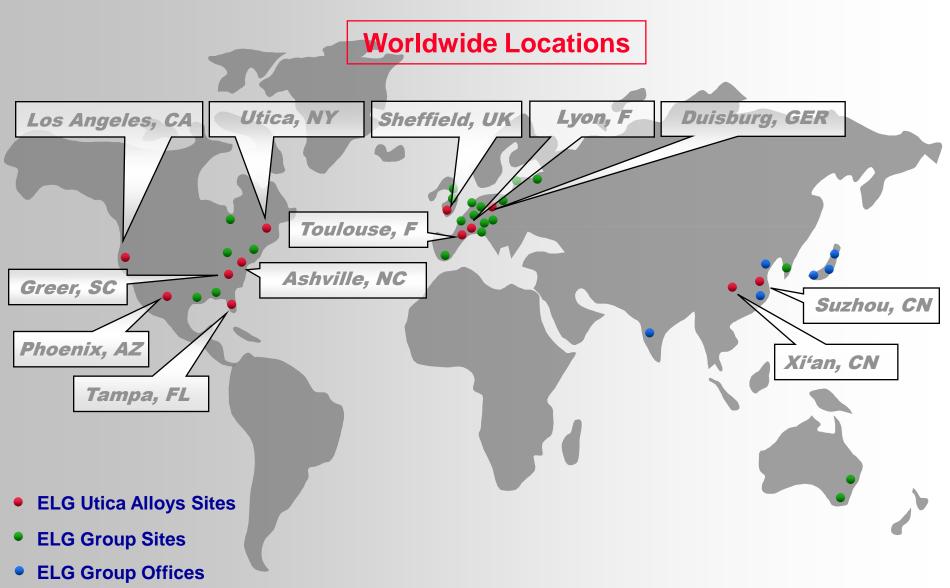














Mission

Activities

- Managing Scrap Revert
 Programs
 - In-house ScrapManagement
 - Mutilation of Life
 Limited Parts

Global Reach

- Utilization of the existing global ELG network
 - Development of new logistic networks if needed

Technology

Cost & Quality
 Leadership through
 constant development
 of processing
 Technology



- Why is Scrap so Important?
 - Long Term Cost Savings
 - Scrap is a crucial Factor in the Supply Chain
 - Energy Savings and Minimizing the Environmental Impact



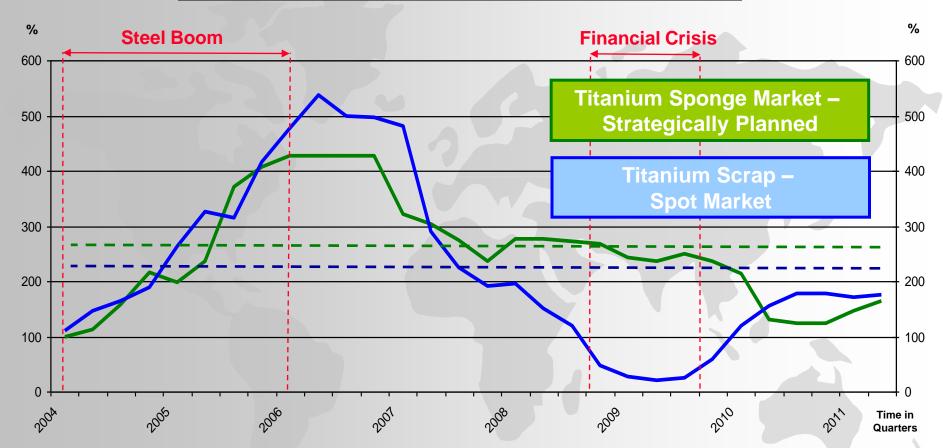








Price Trend for Scrap and Sponge 2004-2011

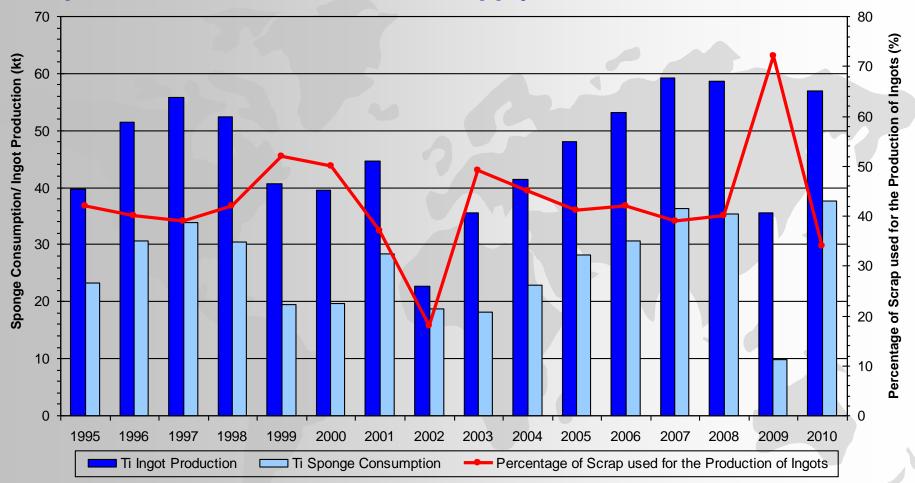


Although the price of Titanium scrap sometimes exceeds the price of Titanium sponge in a long term perspective scrap is a cheaper source of raw materials

^{*} Price history calculated using Q1/2004 level as 100%



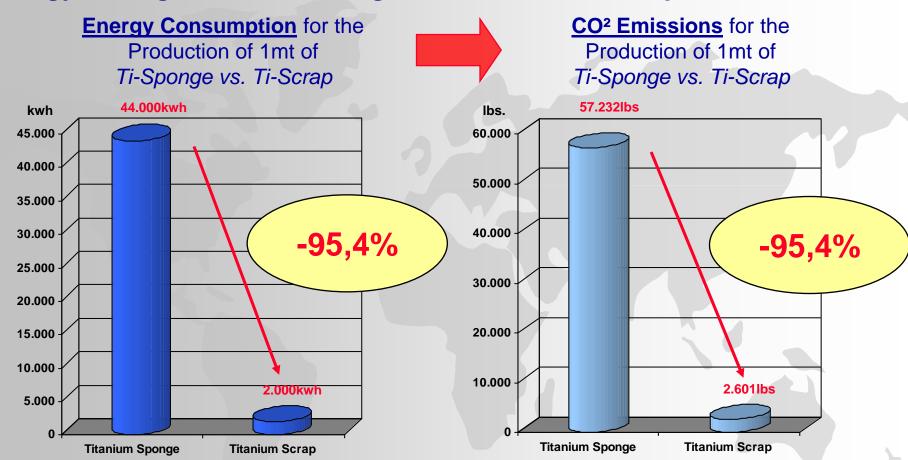
Scrap is a crucial Factor in the US Supply Chain



With an average input ratio of <u>43%</u> (highest worldwide) in the production of Titanium ingots scrap is already crucial for the supply chain of the US Titanium melters



Energy Savings and Minimizing the Environmental Impact



Using solely Scrap as the primary source of raw materials for the production of Titanium Ingots will reduce the energy consumption and the related CO² emissions by <u>95,4%</u>

Source: IWR



The Current Situation















The Current Situation

- Global Scrap Ratio = 20% (Scrap Ratio USA 43%)
 - → 80% of the raw materials used for Titanium production are Sponge
- Sales and Purchases of Titanium Sponge are planned strategically while scrap is predominantly sold and bought on a spot market
- Several companies have realized the strategic importance of scrap and have implemented their own scrap revert programs.
 - → Examples include: GE, Boeing, Aubert&Duval, PCC, Snecma, RollsRovce, Pratt & Whitney, Firth Rixson
- New scrap melting capacities have been developed in the last
 10 years



Challenges

- **Technical Restrictions**
- Globalization / International Logistics
- Attitude towards Scrap











Technical Restrictions



Technical Limitations for the Melting of Titanium Scrap

Available EB, PA and ISM Technology in Furnaces/Country

USA 14

US Scrap Ratio = 43%

Germany
Ukraine

Italy
Romania

Mazakhstan

1

Global Scrap Ratio = **20%**

China

Access to scrap melting technology is still limited outside the USA

Source: TIMET

<u>Japan</u>



Technical Limitations for the Processing of Titanium Scrap



- Processing capacities are still limited
- Processing technology has not yet matured
 - Intensive need of manual labor
 - Manual piece by piece testing
 - General exclusion of certain scrap types (cracks, holes, etc.)
 - Intensive processing needed for turnings
- Qualifying processes for potential suppliers are very time consuming and complicated
 - The qualification of a potential scrap supplier is not always the number one priority
 - This turns investments into capacity or technology into uncalculated risks

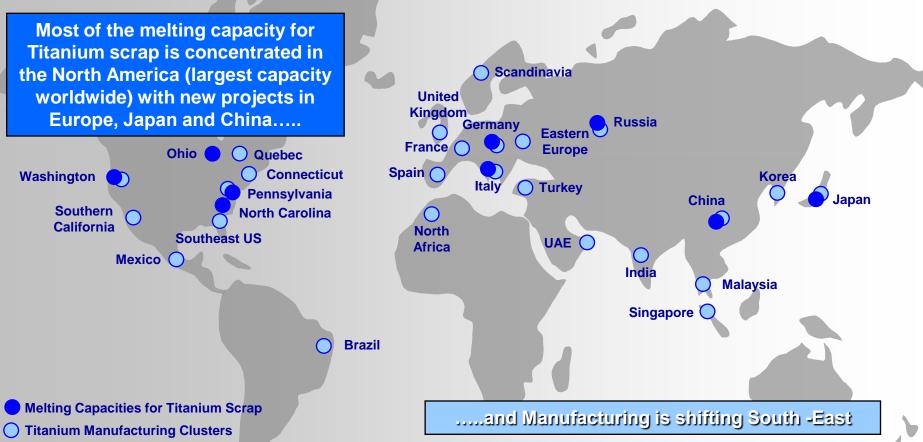


Globalization / International Logistics



Globalization / International Logistics

Global Titanium Manufacturing Clusters



Scrap has to be sourced globally but supplied locally – Sophisticated logistic solutions are needed to secure scrap volumes generated by the emerging manufacturing clusters all around the world.



Attitude towards Scrap



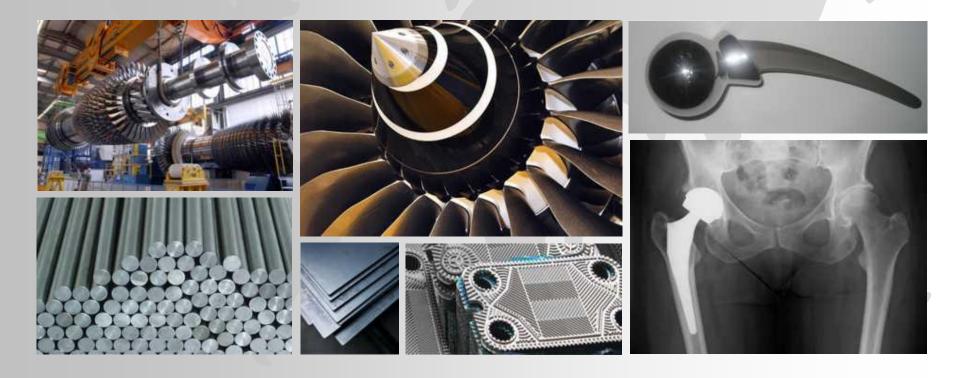
The Attitude towards scrap – Industry Shortfalls

- The purchase and sale of scrap is not always planned strategically but moved often on a spot market
- Scrap is sometimes considered a responsibility of the facility manager
- Titanium turnings and solids are treated and sold as a package deal with other materials like aluminum, steel, paper or plastic

Not all industries are ready yet...are you?



Mission Statement of the Titanium Industry





Mission Statement of the Titanium Industry

Titanium Melters

- Increase scrap melting capacities
- > Further development of scrap management
- > Intensive cooperation with scrap processors in order to increase the foreseeability of Titanium scrap demand

Titanium Scrap Processors

- > Increase scrap processing capacities
- Constant improvement of the processing technology

Titanium Scrap Generators

- > Define the strategic importance of Titanium scrap for your company

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Thank you for your attention

