Surging Global Industrial Markets
Put Pinch on Titanium Mill Products, Scrap, and Sponge

Article written by Michael C. Gabriele, Freelance Writer—Titanium consumption in the once-stagnant aerospace sector is soaring, but there are other key industry factors responsible for the current tight supply and strong demand for mill products, scrap and sponge.

The widespread misconception is that aerospace, with its sudden, steep rise in bookings for new jetliner programs, is swallowing available titanium stocks at the expense of other important industrial sectors. This notion was expressed numerous times by frustrated non-aerospace business executives to ITA officials throughout (Continued on page 4)

Technology and Applications for Beta Ti Expand
Article written by Ed Kraft, EHK Technologies

Attendees at the TMS Annual Meeting in San Francisco, California February 13 – 17, 2005, had the opportunity to hear about the progress being made in the technology and applications of beta titanium alloys during three days of “Beta Titanium Alloys in the ‘00’s.” As Rod Boyer of Boeing pointed out in the opening paper, these alloys have been available since the 50’s, but applications have been slow in developing. The SR-71 Blackbird contained 75-89% titanium, including significant use of beta alloys. However, difficulties with segregation, damage tolerance, weldability, forming of complex shapes, high density and low (Continued on page 3)

RTI Announces Titanium Howitzer Goes into Full Production

NILES, Ohio--(BUSINESS WIRE)--April 7, 2005 -- RTI International Metals, Inc., (NYSE:RTI) announced today that the M777A1 titanium howitzer program has begun full rate production. BAE Systems, the prime contractor, has received an $834 million contract to supply the Army and Marines with 495 M777A1 lightweight howitzers over the next four years. The award follows the development and production of 94 guns under a low rate initial production contract.

RTI is the principal titanium supplier to the program, providing not only mill products, but also kitted titanium (Continued on page 4)
What’s New In Titanium

**ITA New Members - Continued from page 1**


**CEFIVAL**
Manufacturing of rot extruded tubes, standard or special sections, according to customer’s sketch in all grades of steel and titanium.

**Form & Technik GmbH**
Form & Technik GmbH has been a leader in titanium precision investment casting and gravity casting since starting as one of the German’s first distributor for both technology to serve inner Europe customer’s with its products. Visit their website at www.Form-Technik.biz.

**I.C.E. Innovative Custom Engineering**
Design and fabrication of performance products for automobile and motorcycle industry. Project future expansion into other fields and uses of titanium as the company grows. Visit their website at www.ice-man.net.

**Pine Tree Castings**
Pine Tree Castings provides commercial investment steel, ductiler iron and titanium castings to a variety of industries including firearms, architectural hardware as well as other industrial and commercial applications. Visit their website at www.rugercom.

**Reading Alloys, Inc. Names Purchasing Manager**
Paul O. Jones, President, Reading Alloys, Inc. recently announced the addition of John A. Poslosky to the Reading Alloys, Inc. Team in the position of Purchasing Manager.

In this position, Mr. Poslosky has responsibility for all purchasing and purchasing systems at Reading Alloys, Inc. The primary focus of the position is to source high quality essential raw materials to support Company manufacturing. John works closely with Dennis Peloquin, Corporate Director - Procurement to source and purchase raw materials from both domestic and international suppliers.

Prior to joining Reading Alloys, Inc., John was Project Buyer - Capital Equipment for Dana Corporation, Reading, PA. Previously, he was Senior Buyer, Electronic Components, Fidelity Technologies, Reading, PA, Purchasing Administrator, Fabcon, LLC, Mahanoy City, PA, Materials Procurement Administrator (International and Domestic), Sony Electronics Corporation, Frackville, PA and Senior Buyer and Planner, Hexcel Corporation, Pottsville, PA.

(Continued on page 4)

**Dynamic Machine Works Modifies Its Name**
Dynamic Machine Works is proud to announce they are changing their name to Dynamic Flowform Corporation. For the past 32 years, people throughout the metalworking world have referred to them as “Dynamic” and have come to them to manufacture dimensionally precise parts made from unusual metals. During the past decades, Dynamic Machine Works has built a reputation as the “flowforming” people as they pioneer the flowforming technology in dozens of industries. As they look to the future, Dynamic Machine Works wants to ensure that everyone knows who they truly are and what their focus is.

They are “Dynamic Flowform”. They remain under the direction of Founder and President, Ven Fonte, and the strong managerial team he has formed. They continue to flowform in our plant in Billerica, Massachusetts where we have been located for the past 25 years. They are pioneering the flowforming technology, pushing it to new metallurgical and dimensional limits. Dynamic Flowform produces, seamless alpha-beta Titanium tubes with our flowform process. The matrix below will act as a guide line for the maximum wall thickness and lengths at different diameters. At Dynamic Flowform, they are eager to share the dynamic process of flowforming with you and discuss how you might benefit from applying this method of manufacturing to your projects. For more information, please contact Matt Fonte @ 978-667-0202 or info@flowform.com.

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(Continued on page 4)
**What’s New In Titanium**

**RathGibson Merger Announcement; New Company Logo Unveiled**

RathGibson Manufacturing, Inc. of Janesville, Wisconsin and Gibson Tube, Inc. of North Branch, New Jersey are merging. A new tubing company is being formed, and it will be known as RathGibson. The new logo reflects their renewed commitment to the tubing industry.

“The combination of our tremendous talents, energies, and resources gives our clients unparalleled products, service, and support,” said Harley Kaplan, President and CEO of Rath Gibson. “For years our clients have depended on our innovation, client service and quality. We helped establish tubing industry standards. Now, our mission is to raise the bar again.”

RathGibson’s logo of the company name surrounded by tubing shows its dedication to the industry. In order to get new products to their customers faster, RathGibson has implemented a new cooperative development process. Their vastly increased global network of sales offices and technical expertise will allow them to better concentrate on their clients and their needs.

RathGibson will continue to lead in markets such as nickel alloys, sub-sea umbilicals, high purity tubing, and oil field products tubing.


**GfE Materials Technology Inc., USA**

GfE Metalle und Materialien GmbH announces the creation of GfE Materials Technology, Inc. to better serve its increasing customer requirements in North and South America. With offices in Wayne, PA, GfE Materials Technology will be positioned to respond effectively to present and future specialty materials and alloy product needs for the Americas.

Cameron May has been appointed Vice President - Marketing & Sales to lead the GfE Materials Technology business expansion efforts. Mr. May has wide experience in specialty materials and alloys for the aerospace, automotive, medical device, glass and petrochemical industries. His background includes R&D, manufacturing, engineering, product development, sales and marketing responsibility.

GfE is headquartered in Nuremberg, Germany and is owned by Safeguard International Fund. GfE is continuing its global expansion as one of the world’s leading producers of unique high-performance specialty materials and products made from them. Such materials include PVD metallic and ceramic coating materials, metal powders as well as master alloys for titanium alloy and nickel based superalloy compositions. The core competencies include melting processes (e.g. aluminothermic reduction, vacuum metallurgy), production of metal and ceramic powders and competent manufacturing.

Together with their customers, GfE’s exceptional R&D team develops advanced solutions for new and existing industry-specific technology demands. Commercially available Gamma Titanium Aluminum alloys are the most recent example of this capability.

The Wayne, PA offices continue GfE’s culture of close customer collaboration providing optimal materials solutions for customer applications. For more information contact (610) 293-5811 or cameron.may@gfe.com.

**Technology & Applications - Continued from page 1**

use. Some of the processing and property advances reported at the Conference, however, have lead to increased use in many aircraft and non-aerospace applications such as forgings, castings, fasteners, torsion bars, springs and extrusions. Advances were reported in use of electron beam and plasma single melt technology by TIMET and RMI respectively, which improve both quality and reduce cost. Several papers discussed new alloys such as Ti-200 and Ti-5553 or improved processing of alloys such as Beta C and TIMETAl® LCB. Applications for springs, rotor forgings, ducting from strip, orthopedic and dental fields were discussed. Other sessions contained papers on processing, composites, mechanical properties and corrosion. The proceedings for this Symposium are expected to be available shortly in printed and CD format from TMS. The papers will be published as a group in the ASM Journal of Materials Engineering and Performance with availability expected in Fall 2005.
RTI Titanium Howlitzer—Continued from page 1

components utilizing its facilities in Houston and the U.K. With the majority of the gun's components made of titanium, the M777A1 is 7,000 pounds lighter than the system it replaces.

RTI International Metals®, headquartered in Niles, Ohio, is one of the world's largest producers of titanium. Through its various subsidiaries, RTI manufactures and distributes titanium and specialty metal mill products, extruded shapes, formed parts and engineered systems for aerospace, industrial, defense, energy, chemical and consumer applications for customers around the world. To learn more about RTI International Metals, Inc., visit our website at www.rtiintl.com or contact Richard Leone at telephone: 330-544-7622 or email: rleone@rtiintl.com

Surging Global Markets - Continued from page 1

virtually has exhausted its stockpile of sponge. Rising consumption of raw materials by the voracious global steel industry has put increased pressure on the availability of titanium metallics (sponge, ferrotitanium and mill-product scrap). Steve Giangiordano, Senior Vice President of RTI International Metals, Inc., said that sponge, along with the “higher pedigree” of scrap, typically goes into aerospace ingots, while contaminated scrap goes to ferrotitanium (composed of 70% titanium and 30% iron).

In order to satisfy their demand for raw materials, steel producers have increased the level of competition for sponge, Giangiordano said. Steel producers utilize ferrotitanium to produce interstitial-free sheet, which has the deep-draw forming characteristics needed for applications in the automotive industry.

Annual global consumption of titanium metallics currently registers 45,000 tonnes, according to RTI estimates, Giangiordano said. Five years ago global consumption was 40,000 tonnes.

China looms large in this scramble for titanium metallics, Mark Kamon, ITA President and the President of Dynamet Inc., Washington, PA., observed. He said China has put considerable strain on the supply of sponge and commercially pure titanium due to the Asian giant’s need for heat exchangers, anti-corrosion products, desalination facilities, and power and chemical plants.

Kamon said that while sponge is scarce, there will be new production coming on line during the next two years to balance supply concerns. For example, Timet plans to boost sponge capacity at its Henderson, Nev., facility by 4,000 tonnes—an increase of 42 percent over current annual capacity levels—by early 2007. Other major producers also have unveiled plans for incremental increases in sponge capacity.

Reading Alloys, Inc.—Continued from page 2

He attended the Pennsylvania State University.

Founded in 1953, Reading Alloys, Inc. is a wholly owned subsidiary of KB Alloys, Inc. and is an ISO 9001/2002 certified world leader in the development and manufacture of master alloys, aluminothermic smelting, high quality metal powder production, electron beam refining induction melting and advanced engineered materials.
TITANIUM 2005—21st Annual Conference & Exhibition
September 25-27, 2005

The TITANIUM 2005—21st Annual Conference & Exhibition will be held September 25-27, 2005 at Marriott’s Camelback Inn in Scottsdale, Arizona. The Conference will serve as a gathering for titanium related professionals. All facets of the titanium industry will be represented, providing an unprecedented opportunity for networking with both existing and new colleagues. Delegates will stay current on issues essential to successful titanium practices as well as gain valuable insight through exchanging experiences with your colleagues. The Conference is designed to provide attendees with the unique opportunity to learn about the advancement of titanium as well as staying current on issues essential to successful titanium practices. This conference also allows attendees to gain valuable insight through exchanging experiences with your colleagues.

TITANIUM 2005 Agenda
(Times are subject to change)

Sunday, September 25
7:15 am  Buses leave for 11th Annual Golf Classic
8:00 am  Shot Gun Start for 11th Annual Golf Classic
8:00 am  Registration Desk Open
8:00 am  Desert Storm Hummer Tour
5:00 pm  Welcome Reception in Exhibit Hall

Monday, September 26
7:00 am  Breakfast on Terrace
7:00 am  Registration Desk Open
8:00 am  Welcome/World Industry Trends Panel
10:00 am  Scottsdale Shopping Tour
11:00 am  Annual Luncheon with Keynote Speaker
          Annual Meeting of the Members
          Titanium Achievement Award Ceremony
12:00 pm  Frank J. Doerner, Boeing Phantom Works
           1:00 pm  Exhibition Open Networking Break
1:30 pm  Commercial Aerospace Panel
3:45 pm  Military Panel
5:00 pm  Exhibition Reception in Exhibit Hall

Tuesday, September 27
7:00 am  Breakfast on Terrace
8:00 am  John F. Walsh, Walsh Aviation, "Commercial Aircraft Markets -
Up or Down and for How Long?"
9:30 am  Emerging Technologies Panel
11:45 am Networking Luncheon in Exhibition Hall
1:15 pm  Raw Materials Panel
2:30 pm  Emerging Markets Panel
4:00 pm  Industrial Panel
5:30 pm  Gala Dinner - “Mummy Mountain Cookout”

Wednesday, September 28
8:30 am  Fundamentals of Titanium Workshop

For detailed information or to register online visit the ITA website at www.titanium.org.

Hotel Reservations

Marriott’s Camelback Inn
The ITA Room Block at the Camelback Inn is sold out. Although the hotel may still have availability, the ITA Room Block rate of $199/night is no longer guaranteed.

Hyatt Regency Scottsdale at Gainey Ranch
ITA has contracted overflow rooms for the upcoming TITANIUM 2005 Conference at the Hyatt Regency Scottsdale at Gainey Ranch. Rooms are available starting Friday, September 23rd at the discounted room rate of $199/night.

Shuttle Bus Transportation will be provided between the Hyatt and Camelback Inn for the Golf Tournament, Sightseeing Tours, and throughout the conference dates. Availability will not last long – please contact Hyatt reservation agents by telephone at 1-480-991-3388. Guest room rates are valid only until the room block is full or before August 22, 2005.

Advertising Opportunities

ITA invites member companies to utilize the advertising opportunity for the first “ITA Today” newsletter. The “ITA Today” newsletter will be a printed newsletter that will be distributed exclusively at the upcoming TITANIUM 2005 Conference and Exhibition.

All articles must be submitted either electronically or faxed directly to the ITA at (303)404-9111 no later than August 1, 2005.
## Upcoming Workshops:

**ITA Offers New Welding of Titanium Workshop**

Any individuals wishing to learn how to weld titanium correctly or wishing to learn how to weld titanium more effectively will benefit from this workshop.

Techniques will be discussed unique to titanium not readily apparent in other metal joining. The course will discuss various forms of titanium joining like Electron Beam, Laser, MIG, TIG and Plasma. Primary focus will be on the GTAW (Gas Tungsten Arc Welding) or Tungsten Inert Gas (TIG) method for joining titanium.

**Course Content**
- Historical Overview of Titanium
- Cleaning & Finishing
- Metallurgy & Metallography of Titanium
- Casting
- Mechanical Properties and Testing
- Powder Metallurgy
- Titanium Alloy Processing
- Joining
- Corrosion Resistance
- Heat Treating
- Machining & Chemical Shaping
- Applications Overview

**Cost:**
- The cost for the workshop is: $295 for ITA Members  $349 for Non-Members

**Upcoming Workshops:**
- September 28, 2005 Scottsdale, Arizona
- October 27, 2005 Chicago, Illinois

*For more information or to register, visit the Educational Workshops section of the ITA website at www.titanium.org.*

### Fundamentals of Titanium Workshop

The *Fundamentals of Titanium* will prepare you to present and work effectively with job-related functions that involve titanium. You will receive a complete overview of titanium and a thorough grounding in its metallurgy, characteristics, properties and uses. Detailed information on the types, uses, and properties of common titanium alloys are discussed. Attendees will leave with an understanding of applied titanium metallurgy fundamentals.

**Course Content**
- Historical Overview of Titanium
- Cleaning & Finishing
- Metallurgy & Metallography of Titanium
- Casting
- Mechanical Properties and Testing
- Powder Metallurgy
- Titanium Alloy Processing
- Joining
- Corrosion Resistance
- Heat Treating
- Machining & Chemical Shaping
- Applications Overview

**Cost:**
- The cost for the workshop is: $195 for ITA Members  $245 for Non-Members

**Upcoming Workshops:**
- September 28, 2005 Scottsdale, Arizona
- October 27, 2005 Chicago, Illinois

*For more information or to register, visit the Educational Workshops section of the ITA website at www.titanium.org.*

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## Upcoming Conferences & Exhibitions:

### June 2005
- 13-19 46th International Paris Air Show, Paris, France
- 13-15 MD&M East, New York, NY USA
- 16-18 Gulf Coast ISRI 2005, Grapevine, TX USA
- 19-23 International Conference on Powder Metallurgy & Particulate Materials, Montreal, Quebec, Canada
- 21-22 Orthopaedic Industry Supplier Exhibition, Rosemont, IL USA
- 28-30 Power Gen 2005 Europe, Milano, Italy

### July 2005
- 10 - 14 CHEMAMERICA 2005, Mexico City, Mexico

### August 2005
- 21-25 Sea Horse Institute Meeting Marine Corrosion Conference, Wrightsville Beach, NC USA

### September 2005
- 11 - 15 Corrosion Solutions, Sunriver, Oregon USA
- 25-27 TITANIUM 2005—21st Annual Conference & Exhibition, Camelback Inn, Scottsdale, AZ USA
- 28 Fundamentals of Titanium Workshop, Scottsdale, AZ
- 28 Welding of Titanium Workshop, Scottsdale, AZ USA

### October 2005
- 19-21 Reactive Metals Welding Seminar, Albany, Oregon USA

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**PUBLISHED BY THE INTERNATIONAL TITANIUM ASSOCIATION**

**PAGE 6**
ITa Classified Ads/Calendar

ITA On-line Classified Ads

ITA members rely on the ITA website for the latest news & upcoming events. The website reaches more qualified personnel for titanium related operations.

Advertise:
- Equipment, Materials,
- Products,
- or Business Opportunities.

The Classified’s section of the ITA Web Site is located at www.titanium.org. Simply click on ITA E-News & Classified’s icon from the Home Page. When you submit a classified ad, ITA will proof your advertisement, process your payment, and post it to the website within 2-3 business days. ITA is not liable for confidentiality in classified advertising at any time and reserves the right to reject any advertising not in compliance with ITA standards.

Equipment For Sale:

Titanium Casting Furnaces For Sale
Contact: Dave via e-mail: dowar35@aol.com
Two (2) induction skull melting (cold wall crucible) and precision casting systems available on an as-is, where-is basis. The systems were originally designed to melt and centrifugally cast 25 lbs of titanium and titanium alloys. The furnace systems can be adapted to Zirconium & other reactive alloys. The equipment is in very good condition and was originally manufactured by ALD Vacuum Technologies in 1996/97.

High Quality 6-4 sheets, AMS4911, ASTM B265, Mil-T-9046
Affinity International has the following material in high quality and at a very competitive price: 6-4 sheets, AMS4911, ASTM B 265, and Mil-T-9046.
- 0.032" x 36 x 96
- 0.040" x 36 x 96
- 0.050" x 36 x 96
- 0.063" x 36 x 96
- 0.071" x 36 x 96
- 0.090" x 36 x 96
Contact: john1098@adelphia.net Web: www.china-Ti.com
Phone: 626-935-5588 Fax: 626-912-3578
Affinity International, 1961 Clear River Ln, Hacienda Heights, CA 91745 USA

Materials For Sale:

Looking To Buy
North American Alloys is looking to buy excess useable inventory, remnants, scrap or recycle in all titanium alloys. Call today for a prompt and competitive bid. Contact Michael Shulimson, Tel: 818-890-2250, Email: m.shulimson@att.net or Steven Meredith Tel: 509-586-8848, Email: steve@northamericanalloys.com or visit their website at www.northamericanalloys.com

Services:

International Drawback Services (IDS) is one of the largest companies specializing in duty drawback. Duty Drawbacks are among the most valuable, yet most overlooked resource in the import/export industries.

- Any duty-rated material is eligible for Drawback recovery.
- IDS can recover refunds on duties you paid up to 5 years ago.
- Even companies with no direct import or export activity can benefit from Drawback recovery.
- As a neutral third party, IDS is bound by strict confidentiality agreements.
- IDS is compensated by commissions based solely on the recovery of duties.

Call 281-395-6633 or visit our website at www.idrawback.com for more information.

Metals Sales Professional
Titanium Industries, Inc., a leading international titanium distributor, is seeking a senior inside sales person with experience in titanium and/or stainless alloys for its Southern California operation. Metals distribution experience in the aerospace, medical, &/or industrial market required. Successful candidate will have college degree and ability to grow into management position. Compensation commensurate with experience and qualifications. Bonus program & full benefit package including 401k with match. Submit resume to info@titanium.com.

Engineer Wanted
International Titanium Powder, LLC has developed the Armstrong Process for the commercial production of titanium/titanium alloy powders. The company is in a scale-up phase to substantially increase production levels to meet expanding Dept. of Defense & commercial markets. Engineers’ responsibilities include, but not limited to, detailed piping & instrumentation diagram preparation, facilities permitting, chemical plant construction, working within budgets & time schedules.

Metallurgical Engineer
International Titanium Powder has developed the Armstrong Process for the commercial production of titanium/titanium alloy powders. At the company’s research & development facility, Lockport, IL; metallurgists are responsible for activities related to the direct production of Armstrong Process advanced titanium alloy powders. The work includes extensive interaction with Government agency (DoD, DOE), academic, and industry partners developing process methodology to transition Armstrong titanium for applications in modern component fabrication processes.

Visit the ITA website at www.titanium.org for a complete listing of the skills required as well as other job details. Or Email Introduction Letter and Resume to: Lisa Billapando, lisab@itponline.com at 815-831-2113.
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Founded in 1984 the International Titanium Association is a nonprofit networking trade association for the titanium industry. Current membership includes 111 organizations.