TITANIUM METALS CORP
Form 8-K
October 14, 2003

SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, DC 20549

FORM 8-K

CURRENT REPORT

Pursuant to Section 13 or 15(d) of the Securities
Exchange Act of 1934

October 13, 2003

(Date of Report, date of earliest event reported)

TITANIUM METALS CORPORATION

(Exact name of Registrant as specified in its charter)

Delaware	0-28538	13-5630895
(State or other jurisdiction of incorporation)	(Commission File Number)	(IRS Employer Identification Number)

1999 Broadway, Suite 4300, Denver, CO	80202
(Address of principal executive offices)	(Zip Code)

(303) 296-5600

(Registrant's telephone number, including area code)

Not Applicable

(Former name or address, if changed since last report)

Item 9: Regulation FD Disclosure

The following information is furnished under Item 9, "Regulation FD Disclosure." The information in this Form 8-K and the Exhibits attached hereto shall not be deemed to be "filed" for purposes of Section 18 of the Securities

Exchange Act of 1934 (the "Exchange Act"), nor incorporated by reference into any filing under the Exchange Act or the Securities Act of 1933, except as shall be expressly identified in such filing.

On October 13, 2003 Registrant's Chairman, President and Chief Executive Officer delivered a speech with an accompanying visual presentation to the 2003 Annual International Titanium Association ("ITA") meeting. A copy of this presentation is attached hereto as Exhibit 99.1 and Exhibit 99.2 and is hereby incorporated by reference.

Item No. 9	Exhibit List
99.1	Speech of Registrant's Chairman, President and Chief Executive Officer dated October 13, 2003
99.2	Presentation of Registrant's Chairman, President and Chief Executive Officer dated October 13, 2003

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

TITANIUM METALS CORPORATION
(Registrant)

By: /s/ Joan H. Prusse
Joan H. Prusse
Vice President, General Counsel and Secretary

Date: October 13, 2003

EXHIBIT 99.1

LOW-COST TITANIUM PROCESS DEVELOPMENT

SLIDE 1: COVER PAGE

Good morning ladies and gentlemen. I'm pleased to be with you here today to spend just a few minutes talking about several exciting advances in titanium process development that we believe may have the potential to positively shape the future of our industry by lowering, hopefully substantially lowering, the cost to produce titanium products.

SLIDE 2: FORWARD-LOOKING INFORMATION

Let me just start by giving the normal SEC caution that some of the statements made in this presentation may represent forward-looking statements that carry associated risks and uncertainties.

SLIDE 3: LOWER COST MUST CONTINUE TO BE A PRIMARY INDUSTRY GOAL

As most of you in this room know, titanium's well established physical properties have been highly attractive to design engineers in many industries since the metal first became commercially available in the 1950's.

Unfortunately for all of us, the cost of the metal has limited its application to a comparatively small marketplace to date. Consequently, the quest for lower-cost production methods has been a primary goal of the titanium industry since its inception.

The history of titanium is replete with efforts focused on reducing the cost of producing titanium to make it a more attractive material alternative, but with relatively limited exception to date, the cost of producing most forms of titanium today has not changed fundamentally since its commercialization over 50 years ago.

Basic research into lowering the cost of producing refined titanium metal, as well as lowering downstream processing costs, remains just as, or even more, critical to the industry today as we continue to seek out new ways to expand the marketplace for our products.

While there continue to be a variety of research efforts in this area today, including work in the area of titanium extraction by Dr. Marco Ginatta and International Titanium Powder, LLC and work by a number of other prominent titanium industry experts in the area of titanium production processes, including Dr. Sam Froes of the University of Idaho, I want to focus particular attention today to two current initiatives in this pursuit of lower-cost titanium: the ongoing study of the FFC Cambridge, or Fray, Process under the auspices of the US Department of Defense and recent advancements in electron beam, cold hearth melting.

SLIDE 4: DEFENSE VISION FOR TITANIUM

SLIDE 5: [NO TITLE]

The US Department of Defense is one of the key end-users driving the search for lower-cost titanium today. As you know, titanium has long played a critical role in the production of military aircraft, both from a structural and engine standpoint. However, as other speakers in recent years have discussed, titanium is playing an ever-increasing role in the development of ground-based weapons systems as well.

Central to current notions of weapons design, both in terms of developing new systems for the future, as well as retrofitting existing systems, are reductions in weight, size and cost of fuel. This means that future vehicles are being designed to retain at least the same degree of fire power and endurance as today's vehicles, but with considerably less weight to make equipment mobilization via cargo aircraft more efficient and less costly.

With its high strength-to-weight ratio and excellent damage-tolerance properties, titanium plays a pivotal role in the design of these newer, more mobile, ground-based weapons systems.

New weapons systems, such as the Stryker and the Lightweight Towed Howitzer have made extensive use of titanium in their design.

In addition, retrofit armor has been procured in large quantities for existing vehicles such as the Abrams tank and the Bradley Fighting Vehicle.

However, despite recent press about the price tag associated with the ongoing military effort in Iraq, military budget constraints are a very real consideration and stand to adversely impact titanium's potential in these programs. While titanium may fit the bill in terms of weight reduction and technical capabilities, at its current procurement costs titanium may not achieve its full potential as a material alternative in armor and other defense-related applications, either because alternate materials are selected over titanium based on cost or because the higher cost of titanium simply means that fewer vehicles are ultimately built.

SLIDE 6: DARPA TITANIUM INITIATIVE

Consequently, in support of these critical military needs in future systems, the Defense Department through the Defense Advanced Research Projects Agency, or DARPA, has initiated several research programs under the auspices of the DARPA Titanium Initiative designed to lower the cost of producing titanium and, therefore, its acquisition cost to the Government, both for these emerging ground-based weapons systems, as well as more traditional military aerospace applications.

These programs are designed to foster critical technologies in titanium extraction and to link with various other initiatives targeting low-cost conversion and processing technologies. The goal of these initiatives is to lower acquisition costs in order to create more affordable weapons systems designs.

SLIDE 7: FFC CAMBRIDGE PROCESS

In 2003, as part of the DARPA Titanium Initiative, TIMET was awarded a significant grant to study the commercialization of the FFC Cambridge Process for the low-cost extraction of titanium from titanium-bearing minerals.

The FFC Cambridge process, which is sometimes referred to in the literature as the Fray Process, was invented by Derek Fray, Tom Farthing and George Chen at Cambridge University. This is a unique, patented process in which titanium oxide is reduced through an electrochemical de-oxidation process to produce elemental titanium.

SLIDE 8: SCHEMATIC OF FFC CAMBRIDGE REDUCTION

Simplistically, a cathode made from an oxide of titanium, such as natural or synthetic rutile or pigment-grade titanium dioxide, is placed in a bath of molten calcium chloride together with a graphite anode. In an electrolytic process, oxygen is removed from the titanium oxide in the form of oxygen, carbon monoxide or carbon dioxide, leaving pure titanium at the cathode.

SLIDE 9: POTENTIAL ADVANTAGES OF FFC CAMBRIDGE REDUCTION

One obvious advantage that can be foreseen is that by simply modifying the chemistry and form of the titanium oxide input, the chemistry and form of the reaction product can be tailored to meet the precise requirements of the down stream processes and ultimate end use.

Thus, utilizing this single extraction process, one might be able to produce feedstock for melting conventionally in a VAR or electron beam furnace or, alternatively, to produce feedstock such as powder for utilization in various novel consolidation processes.

By taking the current multi-step approach of refining elemental titanium and turning it into a single step, continuous process, we believe that the FFC Cambridge Process currently represents one of the most meaningful cost-reduction opportunities the industry has ever seen. While it is still a bit early to judge, both in terms of the likelihood of ultimate success and probably cost reduction potential, we hold out hope that those who have said that the FFC Cambridge Process could reduce the cost of titanium extraction by as much as 50% will ultimately prove to be right (or wrong because they underestimated the savings potential).

SLIDE 10: TIMET/DARPA INITIATIVE

Currently, with the support of DARPA funding of approximately 12 million dollars, TIMET is focused on evaluating and demonstrating the technical and commercial viability of the FFC Cambridge process. This work is being carried out at TIMET's Henderson, Nevada technical laboratory.

The program is set up in three phases, each with its own go/no-go milestones. The first phase of the program is expected to take roughly 18 months. This initial phase is essentially designed to demonstrate feasibility on a small pilot scale of approximately 50 lbs. per day and to satisfy certain technical milestones relating to chemistry and uniformity of the product. The principle goal during the second phase, also intended to last approximately 18 months, is to demonstrate the viability of the process at a scale of approximately 500 lbs per day and provide evidence that the process has the potential to meet certain cost targets. Finally, in Phase 3, intended to be a 12 month program, the objective is to demonstrate an operational pilot facility producing product that meets the same technical and financial milestones. There is an additional goal during Phase 3 to prove out the unique capabilities of the process by demonstrating a novel alloy and/or a novel processing route to produce a unique combination of product properties. Today, the program is still in Phase 1 and the process has been successfully demonstrated only on a very small laboratory scale.

Obviously, we anticipate several years and significant hurdles before the process may prove itself to be commercially viable.

SLIDE 11: INTEGRATED PROCESS DEVELOPMENT TEAM

With financial and governmental backing through DARPA, TIMET has adopted an integrated team approach to this significant project.

This includes participation by several major US defense contractors, in order to provide a rapid route to market once this new extraction technology has, hopefully, proven itself commercially viable. TIMET's industry partners in this program include Boeing, GE, Pratt and Whitney, and United Defense who are focused on the applications and implementation issues.

In addition, the team also includes Cambridge University and the University of California at Berkeley, who are providing support on the fundamental scientific research aspects of the process.

SLIDE 12: ELECTRON BEAM SINGLE MELT

Now, let me turn now to one specific development in the area of melting technology and, in particular, in the area of electron beam, cold hearth melting.

Cold hearth melting technology has brought significant benefits to the titanium industry, from its capability to utilize high percentages of scrap as raw material, to its ability to remove potential defects in the refining hearth.

In addition, the process allows for the manufacture of either round electrodes for re-melting in traditional VAR furnaces or direct cast rectangular slabs that replace traditional forged slab from multiple-melt, round VAR ingots.

The direct cast slab process has long been recognized as offering significant potential for lowering the cost of commercially pure plate, sheet, strip and tube because of the reduced process steps and resulting increased yield.

SLIDE 13: NEXT STEP: ALLOY EBSM

More recently, the electron beam, single melt process has been further refined and is now being used for producing direct cast slabs and ingots of titanium alloy material, particularly the commonly used 6-4 alloy.

Applications include casting electrodes for aerospace, industrial, and consumer parts, as well as small diameter cast billet for industrial alloy bar manufacture.

In addition, over 500 MT of 6-4 alloy armor plate has been successfully manufactured using this process at TIMET. In order to prove equivalency with the traditional multiple VAR melt and forged slab process, all of the armor plate produced has been tested to aerospace specifications and all of it has met the physical requirements of those specifications.

On the basis of these results, electron beam cold hearth single melt 6-4 titanium alloy has now been approved for use in primary structure on a military aircraft and will be undergoing full-scale component and flight-testing in 2004 and 2005. Applications for a wide range of aircraft applications are expected to follow in the same time frame. Military aerospace programs are under intense budget pressure, as are the ground force projects, and will certainly benefit from the cost reductions associated with this less expensive manufacturing process.

The data from these test results has also been submitted to industry standard bodies such as AMS, and electron beam cold hearth material is currently being evaluated as an acceptable and equivalent alternative to titanium produced through more traditional multiple VAR melting. Based on current results, it is expected that this approval will be received within the next year.

Other alloys are also being produced using the single melt electron beam process for industrial applications as well. Particular success has been found in manufacturing valve stock for motorcycle engines, where using the single melt to cast a small diameter round product saves multiple melt steps plus eliminates initial forging cost and the associated yield loss, thereby lowering the cost of manufacturing the product.

The success of this project represents a significant step forward in titanium melting technology, showing that innovation in process development continues to thrive in the industry helping an effort to produce ever more cost-competitive titanium products.

SLIDE 14: MARKET EXPANSION

It is generally accepted that many industries would either expand the use of titanium or adopt it for initial use if the procurement costs could be significantly lowered.

The basic premise is that while titanium outperforms many competing materials in the design and procurement decision process, titanium's acquisition cost often tips the balance in favor of other, cheaper material alternatives.

This is what makes these potential cost breakthroughs so exciting. The opportunity to grow the market and our businesses is tremendous if we can fundamentally alter the cost structure of the metal for the better.

Beyond the growth in military applications already noted, opportunities for increased penetration exist in many markets.

These include general chemical applications in equipment used for the manufacture of agricultural chemicals and pharmaceuticals, chimney linings for fossil fuel flue gas de-sulfurization systems, as well as food processing equipment and water heater liners are all examples of areas that hold good potential for lower-cost titanium to displace manufacturing components and systems currently designed in various grades of stainless steel or other materials.

In emerging markets for titanium that have frequently been discussed in this forum, where use is still small but the potential is great, lower cost material can be a catalyst for significant growth in demand for titanium.

The automotive market, for example, where titanium applications such as connecting rods, valve train components, suspension springs, and exhaust systems all have high levels of interest in the engineering community, provides a great potential for industry growth with lower cost titanium.

Another market in which the engineering community has shown a high level of interest in titanium is in energy exploration, where applications in riser systems, including pipe and stress joints, sub-sea transmission pipes, well casing, and production tubing are all viable applications for lower cost titanium.

Consumer applications such as cell phones, personal data assistants, and computer cases may become commonplace with lower cost titanium. Architecture, marine, and naval uses all represent further areas of potential expansion for the titanium industry.

And beyond all of these identified opportunities, new markets that we have not even considered could become consumers of titanium if we can reach the right price point.

SLIDE 15: LOWER COSTS = MARKET GROWTH

In closing, let me just emphasize the continued importance of finding lower cost means of producing titanium, both in extraction and in processing. The potential for lower costs to expand the market and grow the overall industry is clear.

Titanium possesses superior physical properties to many competing materials that see far greater utilization than titanium in the world today.

The single greatest disadvantage for titanium is its high cost compared to these competing materials, a disadvantage that frequently offsets titanium's clear engineering advantages in many of these situations.

Just as other metals, such as aluminum, have had cost breakthroughs that have dramatically expanded their use, lower production costs will increase the scope of titanium's usage, possibly dramatically.

As the most likely pathway for our industry to achieve significant growth and long-term prosperity, continued funding of basic research in both extraction and processing technologies is vital to this very important effort.

Thank you very much for your attention this morning.

EXHIBIT 99.2

[TIMET Logo]

Low-Cost Titanium Process Development

J. Landis Martin
International Titanium Association
2003 Annual Meeting
Monterey, California
October 13, 2003

Forward-Looking Information

Certain of the statements made during this presentation that are not historical facts may represent forward-looking statements that involve risks and uncertainties, including but not limited to, the technical, financial and timing risks associated with process development activities and the risks and uncertainties associated future market conditions and potential market opportunities, future global economic conditions, global productive capacity, changes in product pricing, and other risks and uncertainties associated with TIMET's business that are described more fully in TIMET's filings with the Securities & Exchange Commission.

Lower Cost Must Continue to Be a Primary Industry Goal

Titanium's physical properties are highly attractive

However, cost limits applications to smaller markets

Basic research into lower cost refining and processing remains critical

Defense Vision for Titanium

Lighter weight, high damage-tolerant designs

Increased mobility

Reduce support requirements

[picture]
Stryker

[picture]
M1 A2 Tank

However, titanium's potential into existing and future programs may be limited at current acquisition cost levels

DARPA
Titanium Initiative [DARPA Titanium Initiative Logo]

FOSTER CRITICAL TECHNOLOGIES IN TITANIUM EXTRACTION
+
LINK WITH OTHER INITIATIVES TARGETING LOW-COST CONVERSION AND PROCESSING
=
LOWER ACQUISITION COSTS TO CREATE MORE AFFORDABLE WEAPONS SYSTEMS DESIGNS

FFC Cambridge Process

[Diagram]

Schematic of FFC Cambridge Reduction

[Diagram]

Potential Advantages of FFC Cambridge Process

Potential to tailor chemistry of output to downstream requirements

Output could be used for conventional VAR or potentially powder applications

Potential for single step, continuous process

TIMET / DARPA Initiative

Evaluate and scale up FFC Cambridge Process to demonstrate technical and commercial viability

Project timeline is four years, with specific technical and financial milestones at 1.5, 3 and 4 years

Significant hurdles anticipated

Integrated Process Development Team

[TIMET Logo]

Industry leader
Broad expertise
Production facilities

[DARPA Logo]

Financial and governmental support

[University of Cambridge Logo]
[University of California, Berkeley Logo]

Academic and research excellence for basic understanding of the science

[Boeing Logo]
[General Electric Logo]
[Pratt and Whittney Logo]
[United Defense Logo]

End-user focus to provide rapid route to market

Electron Beam Single Melt

High scrap usage; low defect rate

Direct cast slabs replace forged VAR ingots

Benefits of reduced process steps and increased yields long recognized in CP flat products

[picture]
As-Cast Jumbo Slab

[picture]
As-Rolled Intermediate Slab

Next Step: Alloy EBSM

Process now in place for EBSM alloy products

Casting electrodes approved for aerospace, industrial, and commercial applications Single melt billet for industrial bar manufacture

Armor plate

Initial approval received for use in primary physical structure on a military aircraft

Significant step forward in melting technology

Market Expansion

Lower acquisition costs likely to expand existing market applications and spur first time adopters

Displace competing materials such as stainless steels in process applications

(general chemical, food processing, pharmaceutical, flue gas desulfurization)

Meet price targets in new markets where adoption has been slower (auto, energy, consumer)

Lower Costs = Market Growth

Titanium outperforms many competing materials

Cost differential outweighs engineering advantages

Significant cost breakthroughs will change the scope of applications for titanium

Basic research into new technologies is the only way to achieve dramatic growth