

Cristal US, Inc.

ITP
2008

International Titanium Powder

WHO WE ARE

International Titanium Powder (ITP) was formed in 1997 to develop and commercialize Armstrong Process™ patented and proprietary technology to produce high-purity metal and alloy powders with specific emphasis on titanium.

We are passionate about pursuing perfection in our work, transforming the titanium metals industry, and providing for our family of employees. By building the capability to produce lower cost titanium materials through Armstrong Process™ technology, protecting the environment, and giving back to the communities where we work, ITP strives to be a model corporate citizen.

STRATEGIC OWNERSHIP

In 2008, ITP was acquired by Cristal US, Inc. (a wholly owned subsidiary of Cristal Global). Cristal Global has extensive experience in the titanium dioxide market. At eight plants around the world, Cristal Global takes titanium ore through either the sulfate or chloride process and extracts the titanium for the production of titanium intermediates, pigments and catalyst products. Cristal Global has over 20 years experience in the supply of titanium tetrachloride (TiCl₄) to titanium sponge producers. Together, ITP and Cristal Global are bringing the science of chemistry to traditional metallurgical processes.

ARMSTRONG PROCESS™ TECHNOLOGY

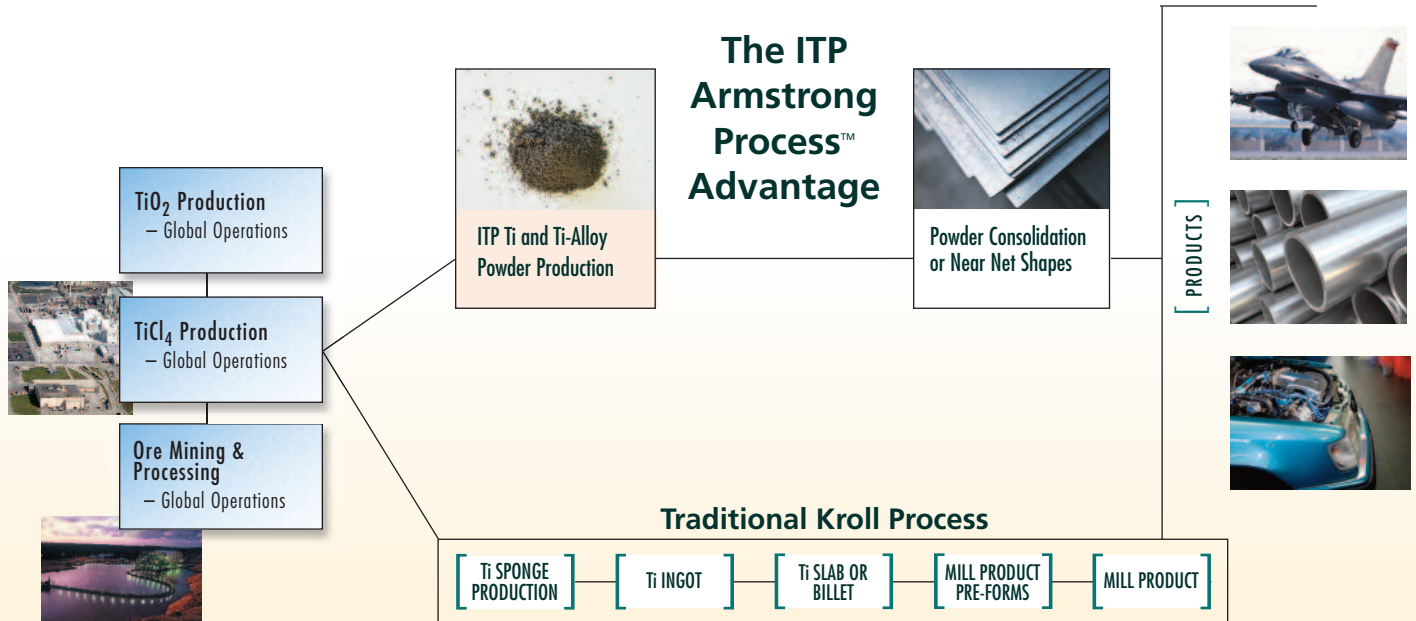
Armstrong Process™ technology is intended to lower the production cost of powders suitable for non-melt direct consolidation of titanium to enable low-cost manufacturing of titanium products, and to reduce the environmental impact of titanium production.

The process begins with titanium tetrachloride that is reacted to form solid titanium powder and sodium chloride (common table salt). This powder could be used in traditional melt-to-billet processes, allowing use of the product in the current value chain. However, the powder is better utilized in direct non-melt consolidation to final end product. ITP owns all rights to the Armstrong Process™ technology, which can be used for production of a wide range of metals, alloys and ceramics.

The Armstrong Process™ technology eliminates the need to process sponge, thereby reducing supply chain cycle time, energy consumption, manufacturing costs and environmental impact.

Titanium Metal Value Chain

■ Cristal Global ■ ITP



Cristal US, Inc.



International Titanium Powder

PRODUCTION CAPABILITY

ITP operates a R&D facility and pilot plant in Lockport, Illinois, USA. This site provides limited quantities of materials necessary to successfully complete solid-state consolidation development and certification activities.

Additionally, ITP has broken ground on a four million pound per year production facility in Ottawa, Illinois. The full-scale facility is expected to ramp-up production throughout 2010.

OUR PRODUCTS

ITP is the exclusive producer of high purity, Armstrong Process™ titanium powders and alloy metals. Today our products are available in batch quantities. Upon completion of our new Ottawa manufacturing facility, they will be available in commercial quantities (2010).

PRODUCT TYPES/FORMS

- Commercially Pure Titanium Powder
- Ti 6-4 Alloys
- Ti Cake
- Titanium Powder wetted
- Brine

PRODUCT BENEFITS

- High purity
- Controllable oxygen content
- Cost effective
- Uniform grain structure
- Reduces value chain waste and recycle
- Enables low cost part manufacture
- Enables manufacture of higher performing parts
- Consistent end product properties

APPLICATIONS

- Aerospace
- Defense
- Automotive
- Electronics
- Chemicals and corrosives containment
- Marine hardware
- Oil and gas production
- Power generation
- Extractive metallurgy
- Electroplating equipment
- Architecture
- Consumer and sports equipment

OUR COMMITMENT TO SAFETY, HEALTH AND THE ENVIRONMENT

Our commitment as a socially responsible company means that we operate our facilities in a manner that protects people and the environment and preserves our world for future generations. We are committed to continuous improvement in safety, security, environmental performance, reliability and open communication.

ITP is continuously assessing our environmental footprint in every facet of our production—from acquiring and shipping raw materials all the way through to delivery, product life cycle and package disposal. Through the Armstrong Process™ technology, we are dramatically reducing, nearly eliminating, the amount of waste typically associated with the manufacture of titanium-based products.



815-834-2112

HEADQUARTERS

940 S. Frontage Road, Suite 2000
Woodridge, Illinois 60517

PILOT PLANT AND R&D FACILITY

20634 Gaskin Drive
Lockport, Illinois 60441

PRODUCTION PLANT

1501 Titanium Drive
Ottawa, Illinois 61350

