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Tantalum Price Increases 2010 / 2011

Purpose:

The purpose of this document is to explain the reason for the drastic increase in the price and delivery of tantalum in late 2010 / 2011.

Background on tantalum:

Tantalum consumption can be divided into five main sectors as follows:

- **Tantalum Powder**

Tantalum powder is the largest sector representing approximately 60-65% of total tantalum consumption. Tantalum powder is used in the manufacture of tantalum capacitors.

- **Tantalum Alloys**

The use of tantalum as an alloy additive. The use of tantalum in this application permits resistance to corrosive gases at high temperatures with specific application in the construction of combustion turbines used in the generation of electricity, and for the fabrication of components for aircraft engines.

- **Tantalum Chemicals**

In the oxide form, tantalum sees significant consumption in electronics, medical applications, optics, and as a sputtered film for use in integrated circuitry. Lithium tantalate is used in the fabrication of SAW filters and yttrium tantalate is used in ultra sensitive X-ray films.

- **Tantalum Carbides**

Tantalum is also used as an additive in cemented carbide formulations for the preparation of tool steels.

- **Tantalum Mill Products**

Mill products mainly used in:

- Sputtering as target materials
- Chemical processing for equipment (TITAN Metal Finishing, Inc. fits into this category)
- Cathodic protection for steel structures such as bridges, water tanks
- Medical industry as suture clips and prosthetic devices for human implant
- High temperature areas as furnace parts and alloys for air and land based turbines

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METAL FINISHING

After tantalum powder, mill products represent the 2nd largest consumer of tantalum. A large portion of the mill products material is used for sputtering targets for the electronics industry. A secondary sector of mill products is used to address the requirement for tantalum products in chemical processing equipment such as tank liners, heat exchange tubing, rupture disks, piping and valves. In addition, tantalum wire is utilized in the fabrication of tantalum anodes for capacitors; plus tantalum trays and heat shields used in furnaces for anode sintering.

In a basic sense the tantalum powder used for the manufacture of capacitors is an electronics grade that is a much higher purity than is required for the tantalum used in mill products that are used for the CPI industries. This makes the electronics grade tantalum considerably more expensive than the mill products grade of tantalum used in the CPI industry.

The main direct short term contributor to the price of mill products grade tantalum is the scrap prices of tantalum. These prices for scrap are usually controlled by the supply and demand of tantalum but metal speculation also can contribute to the increase in the prices of tantalum scrap.

Below are two charts that show the prices of scrap prices for the tantalum over the last several years. This information shows that the scrap price of tantalum increased from approximately \$ 85.00 Lb January 2010 to \$ 205 Lb December 31, 2010.



*Tantalum Scrap prices for <http://www.metalprices.com> - 2/3/11.

These increases in the price of tantalum scrap are a direct result in the drastic price increases that we have had to pass on to our customers in the last several months. In the last year, the price of the tantalum materials we use for fabrication has increased between 200 - 250%. We understand the implications of these price increases on our customers and we are doing what we can to keep prices as low as possible and delivery to a minimum.

Please feel free to contact me with any questions regarding this matter:

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