

## TECHNICAL DATA

### TITANIUM SPONGE

#### General Description

Titanium is the 21<sup>st</sup> century metal with high strength to weight ratio, superior corrosion and erosion resistance having atomic number 22, atomic weight 47.867. It has a melting point of 1668°C and its density is 4.51 g/cm<sup>3</sup>. Titanium Sponge is the intermediate product to the production of titanium metal having silvery metallic colour.

#### Application:

Titanium's metallurgical characteristics makes it the metal of choice for many diverse applications including aerospace, industrial, chemical processing, marine, medical, sporting, and consumer goods. The original application for this metal was in the military aerospace industry specifically because of its efficiencies in structural qualities, a result of titanium's strength and density.

Because titanium, when exposed to oxygen, creates a layer of ceramic like oxide film, it lends itself to applications where corrosion and erosion resistance are a concern. Should the metal get scratched, as long as it is exposed to oxygen, the scratch will re-heal itself with the oxide film.

Due to the biocompatibility of titanium, the metal is used extensively in the human body, as hip and knee implants, pacemaker cases, dental implants, and craniofacial plates to name a few specific medical applications.

Other properties that make titanium a "metal of choice" is its unique "look", the fact that it is nonmagnetic, has the ability to hold strength at high temperatures, and it has a relatively high melting point. Besides a high strength to weight ratio, corrosion resistance in many oxidizing environments including brackish and salt water and biocompatibility include its low modulus of elasticity which gives it flexibility and good thermal conductivity

#### Typical Properties:

Titanium %	>99.6
Hardness BHN	85 - 110
Iron (Fe) %	< 0.050
Carbon %	< 0.050
Oxygen %	< 0.015
Average particle size (mm)	2-25
Bulk density (g/cc)	<1.3
Electrical Resistivity ( $\mu\Omega$ -cm)	55
Thermal Conductivity(W/m <sup>o</sup> K)	17
Coefficient of thermal Expansion	8.4x10 <sup>-6</sup> /°C

#### Packing:

Ti Sponge is available in 250 Kg Drums and Ti fines in 250 Kg steel drums; both filled with Argon gas only