

# Tantalum Plain Weave Gauze

**Formula:** Ta

**Thickness:** 0.15mm

**Length 1:** 40mm

**Length 2:** 40mm

**Product Shape:** Plain Weave

**Open Area:** 72%

**Nominal Aperture:** 0.43

**Wires/Inch:** 50x50

**Wire Diameter:** 0.075mm

**CAS Number:** 7440-25-7

**UOM Code:** 020-199-56

**SKU:** 1000002396-group

**Product Code:** TA00-MS-000100

## Material Properties for Metals

### Atomic Properties

| Element   | Value   |
|---|---|
| Atomic number                                     | 73  |
| Crystal structure                                 | Body centred cubic                                  |
| Electronic structure                              | Xe 4f <sup>14</sup> 5d <sup>3</sup> 6s <sup>2</sup> |
| Valences shown                                    | 2,3,4,5   |
| Atomic weight( amu )                              | 180.9479  |
| Thermal neutron absorption cross-section( Barns ) | 22  |
| Photo-electric work function( eV )                | 4.1   |
| Natural isotope distribution( Mass No./% )        | 180/ 0.012  |
| Natural isotope distribution( Mass No./% )        | 181/ 99.988   |
| Atomic radius - Goldschmidt( nm )                 | 0.147   |
| Ionisation potential( No./eV )                    | 1/ 7.88   |
| Ionisation potential( No./eV )                    | 2/ 16.2   |

### Mechanical Properties

| Element            | Value |
|--------------------|-------|
| Material condition | Hard  |

| <b>Element</b>                            | <b>Value</b> |
|---|--------------|
| Material condition                        | Soft         |
| Poisson's ratio                           | 0.342        |
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| Bulk modulus( GPa )                       | 196.3        |
| Bulk modulus( GPa )                       | 196.3        |
| Tensile modulus( GPa )                    | 185.7        |
| Tensile modulus( GPa )                    | 185.7        |
| Hardness - Vickers( kgf mm <sup>2</sup> ) | 200          |
| Hardness - Vickers( kgf mm <sup>2</sup> ) | 90           |
| Tensile strength( MPa )                   | 760          |
| Tensile strength( MPa )                   | 172-207      |
| Yield strength( MPa )                     | 705          |
| Yield strength( MPa )                     | 310-380      |

## **Electrical Properties**

| <b>Element</b>                                    | <b>Value</b>   |
|---|----------------|
| Electrical resistivity( $\mu\text{Ohmcm}$ )       | 13.5@20@20°C   |
| Superconductivity critical temperature( K )       | 4.47           |
| Temperature coefficient( K <sup>-1</sup> )        | 0.0035@0-100°C |
| Thermal emf against Pt (cold 0C - hot 100C)( mV ) | 0.33           |

## **Physical Properties**

| <b>Element</b>              | <b>Value</b> |
|-----------------------------|--------------|
| Boiling point( C )          | 5425         |
| Density( gcm <sup>3</sup> ) | 16.6@20°C    |

## **Thermal Properties**

| <b>Element</b>   | <b>Value</b> |
|--|--------------|
| Melting point( C )   | 2996         |
| Latent heat of evaporation( J g <sup>-1</sup> )                      | 4165         |
| Latent heat of fusion( J g <sup>-1</sup> )                           | 174          |
| Specific heat( J K <sup>-1</sup> kg <sup>-1</sup> )                  | 140@25°C     |
| Thermal conductivity( W m <sup>-1</sup> K <sup>-1</sup> )            | 57.5@0-100   |
| Coefficient of thermal expansion( $\times 10^{-6}$ K <sup>-1</sup> ) | 6.5@0-100°C  |