

# Silver Square Single Crystal

**Formula:** Ag

**Percentage Purity:** 99.999%

**Thickness:** 1mm

**Size:** 4x4mm

**Orientation:** -100

**Orientation Accuracy:** = 1°

**Polish:** Unpolished

**CAS Number:** 7440-22-4

**UOM Code:** 889-547-14

**SKU:** 1000013122-group

**Product Code:** AG00-SC-000163

## Material Properties for Precious Metals

### Atomic Properties

| Element   | Value                               |
|---|-------------------------------------|
| Atomic number                                     | 47                                  |
| Crystal structure                                 | Face centred cubic                  |
| Electronic structure                              | Kr 4d <sup>10</sup> 5s <sup>1</sup> |
| Valences shown                                    | 1-2,2                               |
| Atomic weight( amu )                              | 107.8682                            |
| Thermal neutron absorption cross-section( Barns ) | 63.8                                |
| Photo-electric work function( eV )                | 4.7                                 |
| Natural isotope distribution( Mass No./% )        | 107/ 51.83                          |
| Natural isotope distribution( Mass No./% )        | 109/ 48.17                          |
| Atomic radius - Goldschmidt( nm )                 | 0.144                               |
| Ionisation potential( No./eV )                    | 2/ 21.5                             |
| Ionisation potential( No./eV )                    | 1/ 7.58                             |
| Ionisation potential( No./eV )                    | 3/ 34.8                             |

### Mechanical Properties

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

| <b>Element</b>                             | <b>Value</b> |
|--|--------------|
| Poisson's ratio                            | 0.367        |
| Poisson's ratio                            | 0.367        |
| Bulk modulus( GPa )                        | 103.6        |
| Bulk modulus( GPa )                        | 103.6        |
| Tensile modulus( GPa )                     | 82.7         |
| Tensile modulus( GPa )                     | 82.7         |
| Izod toughness( J m <sup>-1</sup> )        | 5            |
| Hardness - Vickers( kgf mm <sup>-2</sup> ) | 95           |
| Hardness - Vickers( kgf mm <sup>-2</sup> ) | 25           |
| Tensile strength( MPa )                    | 330          |
| Tensile strength( MPa )                    | 172          |

## **Electrical Properties**

| <b>Element</b>                                    | <b>Value</b>   |
|---|----------------|
| Electrical resistivity( $\mu\text{Ohmcm}$ )       | 1.63@20@20°C   |
| Temperature coefficient( K <sup>-1</sup> )        | 0.0041@0-100°C |
| Thermal emf against Pt (cold 0C - hot 100C)( mV ) | 0.74           |

## **Physical Properties**

| <b>Element</b>               | <b>Value</b> |
|------------------------------|--------------|
| Boiling point( C )           | 2212         |
| Density( gcm <sup>-3</sup> ) | 10.5@20°C    |

## **Thermal Properties**

| <b>Element</b>   | <b>Value</b> |
|--|--------------|
| Melting point( C )   | 961.9        |
| Latent heat of evaporation( J g <sup>-1</sup> )                      | 2390         |
| Latent heat of fusion( J g <sup>-1</sup> )                           | 103          |
| Specific heat( J K <sup>-1</sup> kg <sup>-1</sup> )                  | 237@25°C     |
| Thermal conductivity( W m <sup>-1</sup> K <sup>-1</sup> )            | 429@0-100°C  |
| Coefficient of thermal expansion( $\times 10^{-6}$ K <sup>-1</sup> ) | 19.1@0-100°C |