

Aluminum Top Hat Single Crystal

Formula: Al

Percentage Purity: 99.999%

Top Section Thickness: 1mm

Bottom Section Thickness: 1mm

Outside Diameter: 10mm

Inside Diameter: 8mm

Orientation: -100

Orientation Accuracy: = 1°

Polish: Unpolished

CAS Number: 7429-90-5

UOM Code: 846-869-89

SKU: 1000030885-group

Product Code: AL00-SC-000178

Material Properties for Metals

Atomic Properties

| Element | Value |
|---|------------------------------------|
| Atomic number | 13 |
| Crystal structure | Face centred cubic |
| Electronic structure | Ne 3s ² 3p ¹ |
| Valences shown | 3 |
| Atomic weight(amu) | 26.98154 |
| Thermal neutron absorption cross-section(Barns) | 0.232 |
| Photo-electric work function(eV) | 4.2 |
| Atomic radius - Goldschmidt(nm) | 0.143 |
| Ionisation potential(No./eV) | 4/ 120 |
| Ionisation potential(No./eV) | 5/ 154 |
| Ionisation potential(No./eV) | 6/ 190 |
| Ionisation potential(No./eV) | 1/ 5.99 |
| Ionisation potential(No./eV) | 3/ 28.4 |
| Ionisation potential(No./eV) | 2/ 18.8 |

Mechanical Properties

| Element | Value |
|---|--------------|
| Material condition | Soft |
| Material condition | Hard |
| Poisson's ratio | 0.345 |
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| Bulk modulus(GPa) | 75.2 |
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| Tensile modulus(GPa) | 70.6 |
| Tensile modulus(GPa) | 70.6 |
| Hardness - Vickers(kgf mm ²) | 21 |
| Hardness - Vickers(kgf mm ²) | 35-48 |
| Tensile strength(MPa) | 130-195 |
| Tensile strength(MPa) | 50-90 |
| Yield strength(MPa) | 110-170 |
| Yield strength(MPa) | Oct-35 |

Electrical Properties

| Element | Value |
|---|----------------|
| Electrical resistivity(μOhmcm) | 2.67@20@20°C |
| Superconductivity critical temperature(K) | 1.175 |
| Temperature coefficient(K ⁻¹) | 0.0045@0-100°C |
| Thermal emf against Pt (cold 0C - hot 100C)(mV) | 0.42 |

Physical Properties

| Element | Value |
|-----------------------------|--------------|
| Boiling point(C) | 2467 |
| Density(gcm ³) | 2.7@20°C |

Thermal Properties

| Element | Value |
|--|--------------|
| Melting point(C) | 660.4 |
| Latent heat of evaporation(J g ⁻¹) | 10800 |
| Latent heat of fusion(J g ⁻¹) | 388 |
| Specific heat(J K ⁻¹ kg ⁻¹) | 900@25°C |
| Thermal conductivity(W m ⁻¹ K ⁻¹) | 237@0-100°C |
| Coefficient of thermal expansion($\times 10^{-6}$ K ⁻¹) | 23.5@0-100°C |