PRODUCT DATA SHEET

Germanium Metal

Introduction

Germanium is a hard, brittle, grayish-white metalloid with important semiconductor and optical properties. Its transparency to infrared radiation makes it useful in infrared optics and thermal imaging systems. **Germanium** is also used in silicon-germanium (SiGe) devices, high-efficiency GaAs/Ge multijunction solar cells, and high-mobility channel materials in advanced electronics.

In photonics, **Germanium** is increasingly used in Ge-on-Si photodetectors and integrated silicon-photonics devices for high-speed optical communications and datacenter interconnects. **Germanium** also serves as a raw material to produce **Germanium** compounds and **Germanium**-containing alloys used in brazing and electronic packaging.

Properties

Symbol	Ge
CAS Number	7440-56-4
EC Number	231-164-3
RTECS Number	LY5200000
Purity	99.999%
Appearance/Form	Silvery-grey brittle metalloid
Formula Weight	72.61
Density/Specific Gravity	5.323g.cm^{-3} at 25°C
Electrical Resistivity (Intrinsic)	≥50 Ohm.cm at RTP
Melting Point	937.4°C
Boiling Point	2830°C
Specific Heat	23.2 J.mol^{-1}.k^{-1}
Heat of Vaporization	334.0 kJ.mol^{-1}
Heat of Fusion	36.9 kJ.mol^{-1}

Technical Support

Indium Corporation sets the industry standard in providing rapid response, onsite technical support for our customers worldwide. Indium Corporation's team of Technical Support Engineers can provide expertise in all aspects of Materials Science.

Impurities

Impurities	Typical (ppm)	Maximum (ppm)
Chromium (Cr)	< 0.1	1.0
Copper (Cu)	< 0.1	1.0
Cobalt (Co)	< 0.1	1.0
Aluminum (Al)	< 0.1	1.0
Magnesium (Mg)	< 0.1	1.0
Iron (Fe)	< 0.1	1.0
Nickel (Ni)	< 0.1	1.0
Antimony (Sb)	< 0.1	1.0
Selenium (Se)	< 0.1	1.0
Titanium (Ti)	< 0.1	1.0
Zinc (Zn)	< 0.1	1.0
Total Combined Metals	< 1.0	10.0

Packaging

Ingots are packed in plastic bags and securely cushioned with foam before being placed in a cardboard box. For larger quantities, wooden crates are used instead of cardboard boxes to ensure safe handling and transport. Other packaging options may be available upon request.

Contact us for slices, chips, and other dimensional requirements.

Material is shipped in packaging compliant with the United Nations/Department of Transportation (UN/DOT), the International Air Transportation Association (IATA), and the International Maritime Dangerous Goods (IMDG) code.

Storage and Shelf Life

Germanium should be stored at room temperature in a tightly sealed container. When maintained under the recommended storage conditions, no specific shelf life is assigned to the product.

Safety Data Sheets

Please refer to the SDS document within the product shipment or contact our local team to receive a copy.

This product data sheet is provided for general information only. It is not intended, and shall not be construed, to warrant or guarantee the performance of the products described which are sold subject exclusively to written warranties and limitations thereon included in product packaging and invoices. All Indium Corporation's products and solutions are designed to be commercially available unless specifically stated otherwise.

All of Indium Corporation's solder paste and preform manufacturing facilities are IATF 16949:2016 certified.
Indium Corporation is an ISO 9001:2015 registered company.

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