

PRODUCT DATA SHEET

Germanium Tetrachloride

Introduction

Germanium tetrachloride is a colorless liquid. It is used as an intermediate in the production of purified germanium dioxide and germanium metal, but more predominantly used as a reagent in fiber optic production.

In fiber optics, germanium tetrachloride is converted into germanium dioxide and then deposited, along with silicon dioxide, using vapor deposition techniques. Germanium dioxide provides a higher refractive index fiber core, which prevents signal loss during transmission.

Synonyms	Germanium (IV) Chloride; GeCl ₄
CAS Number	10038-98-9
EC Number	233-116-7
RTECS Number	LY5225000
Purity	> 99.999%
Appearance/ Form	Colorless fuming liquid
Formula Weight	214.45
Theoretical Germanium Content	33.873%
Specific Gravity	1.875 at 20°C
Boiling Point	83°C
Vapor Pressure	76mm Hg at 20°C
Solubility	<ul style="list-style-type: none"> • Reacts with water releasing toxic fumes • Soluble in ether, benzene, and chloroform • Insoluble in HCl, H₂SO₄

IR- Active Impurities	Typical ppm	Maximum ppm
O-H (3610cm ⁻¹)	< 1.0	2.0
C-Hx (2960 and 2930cm ⁻¹)	< 0.5	2.0
H-Cl (2840cm ⁻¹)	< 1.0	4.0

Metallic Impurities	Typical ppb	Maximum ppb
Chromium (Cr)	<1.0	10.0
Copper (Cu)	<1.0	10.0
Cobalt (Co)	<1.0	10.0
Aluminum (Al)	<1.0	10.0
Manganese (Mn)	<1.0	10.0
Vanadium (V)	<1.0	10.0
Iron (Fe)	<2.0	10.0
Nickel (Ni)	<1.0	10.0
Lead (Pb)	<1.0	10.0
Zinc (Zn)	<1.0	10.0
Total Combined Metals	<5.0	50.0

Packaging

- (1) Stainless steel container with Swagelok valve manifold arrangement with manual operation.
- (2) Glass bottle with Teflon manifold arrangement with manual operation packed in an overpack.
- (3) Other packaging and valve manifold options available on request.

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

Keep the container tightly closed in a dry, cool, and ventilated area. Avoid contact with water. Shelf life is 12 months after delivery.

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