

MATERIAL SAFETY DATA SHEET

24 HR. EMERGENCY PHONE # CHEM-TREC 1-800-424-9300

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SECTION 1 Product Identification

CHEMICAL NAME: Hafnium (IV) chloride, anhydrous
CAS #: 13499-05-3
FORMULA: HfCl₄
SYNONYM: Hafnium tetrachloride

SECTION 2 Composition and Information on Ingredients

INGREDIENT:	CAS #	%	ACGIH (TWA)	OSHA (PEL)
Title Compound	13499-05-3	100	0.5mg/m ³ (as Hf)	0.5mg/m ³ (as Hf)

SECTION 3 Hazards Identification

EMERGENCY OVERVIEW: Severe irritant to skin and eyes. Material hydrolyzes in contact with moisture releasing toxic and corrosive fumes of hydrogen chloride and aqueous hydrochloric acid.

PRIMARY ROUTES OF EXPOSURE: Contact with skin and eyes. Inhalation of dust.

EYE CONTACT: May be a severe irritant to the eyes.

SKIN CONTACT: May cause severe irritation of the skin.

INHALATION: Forms hydrogen chloride in the presence of moisture. Inhalation can lead to irritation of the respiratory tract.

INGESTION: No information is available on the acute physiological effects of ingestion.

CHRONIC HEALTH EFFECTS: No information available on long-term chronic effects.

ACUTE HEALTH EFFECTS: May be irritating to skin, eyes and respiratory tract and cause eye, skin burns, dyspnea (breathing difficulty), and pulmonary edema

SECTION 4 First Aid Measures

EYE EXPOSURE: Immediately flush the eyes with copious amounts of water for at least 15 minutes. Assure flushing under eyelids. A victim may need assistance in keeping their eyelids open. Get immediate competent medical attention.

SKIN EXPOSURE: Wash affected area with water. Remove contaminated clothes if necessary. Seek medical assistance if irritation persists.

INHALATION: Remove the victim to fresh air. Closely monitor the victim for signs of respiratory problems, such as difficulty in breathing, coughing, wheezing, or pain. In such cases seek immediate medical assistance.

INGESTION: Seek medical assistance immediately. Keep the victim calm. Give the victim water (only if conscious). Induce vomiting only if directed by medical personnel.

SECTION 5 Firefighting Measures

FLASH POINT: not applicable

AUTO IGNITION TEMPERATURE: none

EXPLOSION LIMITS: none

EXTINGUISHING MEDIUM: None. Material is non-flammable

SPECIAL FIREFIGHTING PROCEDURES: If involved in a fire, fire fighters should be equipped with a NIOSH approved positive pressure self-contained breathing apparatus and full protective clothing.

HAZARDOUS COMBUSTION AND DECOMPOSITION PRODUCTS: If involved in a fire this material may emit toxic fumes of hydrogen chloride.

UNUSUAL FIRE OR EXPLOSION HAZARDS: No unusual fire or explosion hazards.

SECTION 6 Accidental Release Measures

SPILL AND LEAK PROCEDURES: Small spills can be mixed with powdered sodium bicarbonate, lime, or calcium carbonate and swept up. Avoid raising

SECTION 7 Handling and Storage

HANDLING AND STORAGE: Store material in a tightly sealed container away from moisture. Handle in a fume hood under a dry atmosphere of air or nitrogen. Prolonged exposure to the atmosphere may degrade the product.

SECTION 8 Exposure Controls and Personal Protection

EYE PROTECTION: Always wear approved safety glasses w/side shields, or safety goggles, face shield when handling a chemicals substance in the laboratory.

SKIN PROTECTION: Chemical-resistant.

VENTILATION: If possible, handle the material in an efficient fume hood.

RESPIRATOR: If in form of fine dust and ventilation is not available a respirator should be worn. The use of respirators requires a Respirator Protection Program to be in compliance with 29 CFR 19-10.134.

SECTION 9 Physical and Chemical Properties

COLOR AND FORM: white powder

MOLECULAR WEIGHT: 320.3

MELTING POINT (DEG. C.): none

BOILING POINT: no data

VAPOR PRESSURE: no data

SPECIFIC GRAVITY: no data

SOLUBILITY IN WATER: reacts with water

SECTION 10 Stability and Reactivity

STABILITY: moisture sensitive

HAZARDOUS POLYMERIZATION: no hazardous polymerization

CONDITIONS TO AVOID: contact with moisture
INCOMPATIBILITY: water, mineral acids and active metals
DECOMPOSITION PRODUCTS: Hafnium oxychloride, hydrogen chloride

SECTION 11 Toxicological Information

RTECS DATA: No information available in the RTECS files.
MUTAGENIC EFFECTS: no data
TETRATOGENIC EFFECTS: no data
CARCINOGENIC EFFECTS: no data

To the best of our knowledge the toxicological effects of this compound have not been fully investigated.

SECTION 12 Ecological Information

ECOLOGICAL INFORMATION: No information available

SECTION 13 Disposal Considerations

DISPOSAL: Dispose of in according to local state and federal regulations.

SECTION 14 Transportation Information

Corrosive solid, n.o.s., Class 8, UN 1759, PG II

SECTION 15 Regulatory Information

TSCA: Listed in the TSCA inventory
SARA (TITLE 313): Title compound not listed

SECTION 16 Other Information

DISCLAIMER: The information herein is believed to be accurate and reliable as of the date compiled. However, ProChem, Inc. makes no representation, warranty, or guarantee of any kind with respect to the information in this document or any use of the product based on the information.

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