

MATERIAL SAFETY DATA SHEET

Manufacturer: Strem Chemicals, Inc
7 Mulliken Way
Newburyport, MA 01950-4098 U.S.A.
www.strem.com

Strem Customer Service (978) 499-1600
CHEMTREC (Emergency Only) (800) 424-9300
Poison Center (800) 562-8236

Section 1: Product Identification

Chemical Name: Tetrakis(dimethylamino)hafnium, 98+% (99.99+%-Hf, <0.2%-Zr) TDMAH, PURATREM, 72-8000, contained in 50ml Swagelok® cylinder (96-1070) for CVD/ALD
Product Number: 98-4021
CAS Registry Number: 19962-11-9
Formula: $\text{Hf}(\text{N}(\text{CH}_3)_2)_4$
EINECS Number: none
Chemical Family: metal amide complex
Synonym: none

Section 2: Composition and Information on Ingredients

Ingredient	CAS Number	Percent	ACGIH (TWA)	OSHA (PEL)
Title Compound	19962-11-9	100%	no data	no data

Section 3: Hazards Identification

Emergency Overview: Corrosive to eyes, skin and respiratory tract.
Primary Routes of Exposure: Ingestion, inhalation, skin, eyes
Eye Contact: Causes burns to the eyes
Skin Contact: Causes burns to the skin.
Inhalation: Causes burns to the nose, mucous membranes and respiratory tract.
Ingestion: No information on the physiological effects of ingestion.
Acute Health Affects: Corrosive to skin, eyes and respiratory tract.
Chronic Health Affects: No information available on long-term chronic effects.
NTP: No
IARC: No
OSHA: No

SECTION 4: First Aid Measures

Eye Exposure: Immediately flush the eyes with copious amounts of water for at least 10-15 minutes. A victim may need assistance in keeping their eye lids open. Get immediate medical attention.
Skin Exposure: Wash the 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 attention immediately. Keep the victim calm. Give the victim water (only if conscious). Induce vomiting only if directed by medical personnel.

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SECTION 5: Fire Fighting Measures

Flash Point: none
Autoignition Temperature: no data
Explosion Limits: no data
Extinguishing Medium: carbon dioxide, foam or dry powder
Special Fire Fighting Procedures: If this product is 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 irritating organic fumes.
Unusual Fire or Explosion Hazards: No unusual fire or explosion hazards.

SECTION 6: Accidental Release Measures

Spill and Leak Procedures: Small spills can be absorbed into vermiculite or other suitable adsorbent. Sweep up the solid and dispose of.

SECTION 7: Handling and Storage

Handling and Storage: Store cold, in freezer, in a tightly sealed container. Keep away from heat and direct sunlight. Handle and store under an inert atmosphere of nitrogen or argon.

SECTION 8: Exposure Controls and Personal Protection

Eye Protection: Always wear approved safety glasses when handling a chemical substance in the laboratory.
Skin Protection: Wear protective clothing and gloves.
Ventilation: Handle the material in an efficient fume hood.
Respirator: If 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 1910.134.
Ventilation: Handle the material in an efficient fume hood.
Additional Protection: No additional protection required.

SECTION 9: Physical and Chemical Properties

Color and Form: colorless to pale yellow xtl
Molecular Weight: 354.79
Melting Point: 38-41°
Boiling Point: 85°C /0.1mm
Vapor Pressure: 0.1mm/60?
Specific Gravity: no data
Odor: slight amine odor
Solubility in Water: reacts violently with water

SECTION 10: Stability and Reactivity

Stability: moisture sensitive (store cold)
Hazardous Polymerization: no hazardous polymerization
Conditions to Avoid: contact with water
Incompatibility: strong oxidizing agents, water, halogens
Decomposition Products: Carbon dioxide, carbon monoxide, organic fumes and hafnium oxide.

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SECTION 11: Toxicological Information

RTECS Data: No information available from the RTECS files.
Carcinogenic Effects: no data
Mutagenic Effects: no data
Tetratogenic Effects: no data

SECTION 12: Ecological Information

Ecological Information: No information available.

SECTION 13: Disposal Considerations

Disposal: Dispose of this material according to local, state and federal regulations.

SECTION 14: Transportation

Shipping Name (CFR): Water-reactive solid, Corrosive, N.O.S.
Hazard Class (CFR): 4.3
Additional Hazard Class (CFR): 8
Packaging Group (CFR): II
UN ID Number (CFR): UN# 3131
Shipping Name (IATA): Water-reactive solid, Corrosive, N.O.S.
Hazard Class (IATA): 4.3
Additional Hazard Class (IATA): 8
Packaging Group (IATA): II
UN ID Number (IATA): UN# 3131

SECTION 15: Regulatory Information

TSCA: Not listed in the TSCA inventory
SARA (Title 313): Not reportable under SARA Title 313.
Second Ingredient: none
Third Ingredient: none

SECTION 16: Other Information

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