



## Material Safety Data Sheet

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### SECTION 1: Product Identification

<b>Product name</b>	Tris(dimethylamino)cyclopentadienylhafnium, 98%
<b>CAS #</b>	Not available
<b>Catalog #</b>	0722000
<b>Chemical family</b>	Cyclopentadienyl metal amides

### SECTION 2: Composition, Information on Ingredients

<b>Component</b>	<b>%</b>	<b>CAS #</b>	<b>EINECS #</b>	<b>Hazard Symbol</b>	<b>R-Phrase</b>
Tris(dimethylamino)cyclopentadienylhafnium	98	Not available	none	F Xi	11 14 36/37/38

### SECTION 3: Hazard Identification

<b>Emergency overview</b>	Highly flammable. Reacts violently with water. Irritating to eyes, respiratory system and skin.
<b>Eye contact</b>	Causes severe irritation of the eyes.
<b>Skin contact</b>	Causes severe irritation of the skin.
<b>Inhalation</b>	Causes irritation of the nose, mucous membranes and respiratory tract. Harmful if inhaled.
<b>Ingestion</b>	No information is available on the physiological effects of ingestion. Harmful if swallowed.
<b>Chronic health effects</b>	Chronic health effects have not been fully investigated.

### SECTION 4: First Aid Measures

<b>Eye exposure</b>	Flush eyes with water for at least 10-15 minutes, get medical aid immediately.
<b>Skin exposure</b>	Wash the affected area with water. Remove contaminated clothes if necessary. Get medical aid.
<b>Inhalation</b>	Remove the victim from exposure to fresh air. Closely monitor the victim for signs of respiratory problems, such as difficulty in breathing, pain, etc. In such cases seek immediate medical assistance.
<b>Ingestion</b>	Do NOT induce vomiting without medical consultation. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Seek medical attention.

### SECTION 5: Fire Fighting Measures

<b>General information</b>	If this material is involved in a fire, fire fighters should be equipped with a NIOSH approved positive pressure self-contained breathing apparatus and full protective clothing. Under reacting with water material may release flammable toxic gas. Flammable liquid.
<b>Extinguishing media</b>	Dry chemical, carbon dioxide, or chemical foam. DO NOT USE WATER!

### SECTION 6: Accidental Release Measures

<b>Spill and leak procedures</b>	Small spills can be mixed with vermiculite or sodium carbonate or other inert material and swept up.
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<b>SECTION 7: Handling and Storage</b>	
<b>Handling</b>	Avoid breathing vapor or gas. Avoid contact with skin, eyes and clothing. Don't allow contact with water. Handling under inert atmosphere of nitrogen and in an efficient fume hood.
<b>Storage</b>	Store in a cool, dry place. Store in a tightly closed container under inert atmosphere of nitrogen. Don't allow contact with water. Avoid contact with heat and flame sources.
<b>SECTION 8: Exposure Controls and Personal Protection</b>	
<b>Eye protection</b>	Always wear approved safety glasses when handling a chemical substance in the laboratory.
<b>Skin protection</b>	Wear protective gloves.
<b>Ventilation</b>	Obligatory handle the material in an efficient fume hood.
<b>Respirator</b>	If ventilation is not available a respirator should be worn. The use of respirators requires Respirator Protection Program to be in compliance with 29CFR 1910.134.
<b>SECTION 9: Physical and Chemical Properties</b>	
<b>Appearance</b>	very pale yellow liq.
<b>Odor</b>	No data
<b>Melting point</b>	No data
<b>Boiling point</b>	No data
<b>Flash point</b>	No data
<b>Solubility in water</b>	React violently with water
<b>Specific gravity</b>	1.5 g/cm <sup>3</sup>
<b>Molecular formula</b>	C <sub>11</sub> H <sub>23</sub> HfN <sub>3</sub>
<b>Molecular weight</b>	375.81
<b>SECTION 10: Stability and Reactivity</b>	
<b>Stability</b>	Air and moisture sensitive liquid.
<b>Hazardous polymerization</b>	No hazardous polymerization.
<b>Conditions to avoid</b>	Contact with water, moist air, heating and flame sources.
<b>Incompatibilities with other materials</b>	Strong oxygen agents, halogens, water, heat
<b>Hazardous decomposition products</b>	Carbon dioxide, carbon monoxide, nitrogen oxides, hafnium oxide.
<b>SECTION 11: Toxicological Information</b>	
<b>RTECS Data</b>	No information available in the RTECS files.
<b>Carcinogenic effects</b>	No data available.
<b>Mutagenic effects</b>	No data available.
<b>Tetragenic effects</b>	No data available.
<b>SECTION 12: Ecological Information</b>	
<b>Ecological information</b>	No information available.

### SECTION 13: Disposal Considerations

Dispose of in a manner consistent with federal, state, and local regulations.

### SECTION 14: Transport Information

<b>Shipping name (CFR)</b>	Organometallic substance, liquid, water-reactive, flammable
<b>Hazard class (CFR)</b>	4.3
<b>Additional hazard class (CFR)</b>	3
<b>Packing group (CFR)</b>	II
<b>UN ID number (CFR)</b>	3399
<b>Shipping name (IATA)</b>	Organometallic substance, liquid, water-reactive, flammable
<b>Hazard class (IATA)</b>	4.3
<b>Additional hazard class (IATA)</b>	3
<b>Packing group (IATA)</b>	II
<b>UN ID number (IATA)</b>	3399

### SECTION 15: Regulatory Information

<b>TSCA</b>	Not listed in the TSCA inventory
<b>SARA</b>	Not reportable under SARA Title 313.

### SECTION 16: Other Information

<b>Preparation date</b>	23.05.07
<b>Revision date</b>	23.05.07

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