



SAFETY DATA SHEET

Section 1. Identification

Product Name:	Tris(dimethylamido)cyclopentadienyl hafnium
Product Type:	Liquid
CAS Number:	941596-80-1
Product Number:	HF6801
Recommended Use:	Laboratory chemicals, synthesis of substances.
Uses Advised Against:	This product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by Ereztech LLC.
Product Manufacturer:	Ereztech LLC 11555 Medlock Bridge Road, Suite 100 Johns Creek, GA 30097
Product Information:	(888) 658-1221
<u>In Case of an Emergency:</u>	CHEMTREC: 1-800-424-9300 (USA); +1 703-527-3887 (International); CCN836180 *** Contact manufacturer for all non-emergency calls.

Section 2. Hazards Identification

Appearance/Odor:	Colorless liquid, color and odor not determined.
Classification:	FLAMMABLE LIQUIDS – Category 2, H225 SUBSTANCE AND MIXTURES, WHICH IN CONTACT WITH WATER, EMIT FLAMMABLE GASES – Category 2, H261 ACUTE TOXICITY, ORAL – Category 4, H302 SKIN CORROSION/IRRITATION – Category 1B, H314 SERIOUS EYE DAMAGE/EYE IRRITATION – Category 1, H318 ACUTE TOXICITY, INHALATION – Category 4, H332 SPECIFIC ORGAN TOXICITY, SINGLE EXPOSURE; RESPIRATORY TRACT IRRITATION – Category 3, H335

Tris(dimethylamido)cyclopentadienyl hafnium

Safety Data Sheet

Section 2. Hazards Identification

GHS Label Elements

Hazard Pictograms:



Signal Word:

Hazard Statements:

DANGER

H225: Highly flammable liquid and vapor.

H261: In contact with water releases flammable gas.

H302: Harmful if swallowed.

H314: Causes severe skin burns and eye damage.

H318: Causes serious eye damage.

H332: Harmful if inhaled.

H335: May cause respiratory irritation.

Precautionary Statements

Prevention:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P223: Do not allow contact with water.

P231 + P232: Handle and store contents under inert gas. Protect from moisture.

P233: Keep container tightly closed.

P240: Ground and bond container and receiving equipment.

P241: Use explosion-proof electrical/ventilating/lighting/handling equipment.

P242: Use non-sparking tools.

P243: Take action to prevent static discharges.

P260: Do not breathe sprays, mists, vapors or gases.

P264 + P265: Wash hands and exposed skin thoroughly after handling. Do not touch eyes.

P270: Do not eat, drink or smoke when using this product.

P271: Use only outdoors or with adequate ventilation.

P280: Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.

Response:

P301 + P317: IF SWALLOWED: Get medical help.

P301 + P330 + P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P302 + P335 + P334: IF ON SKIN: Brush off loose particles from skin and immerse in cool water.

P302 + P361 + P354: IF ON SKIN: Take off immediately all contaminated clothing. Immediately rinse with water for several minutes.

Tris(dimethylamido)cyclopentadienyl hafnium

Safety Data Sheet

Section 2. Hazards Identification

Response (cont.):	P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water. P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P305 + P354 + P338: IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P316: Get emergency medical help immediately. P319: Get medical help if you feel unwell. P330: Rinse mouth. P363: Wash contaminated clothing before reuse. P370 + P378: In case of fire: Use dry chemical or carbon dioxide to extinguish. DO NOT USE FOAM OR WATER.
Storage:	P402 + P404: Store in a dry place. Store in a closed container. P403 + P233 + P235: Store in a well ventilated place. Keep container tightly closed. Keep cool.
Disposal:	P405: Store locked up. P501: Dispose of contents/container in accordance with federal, state and local regulations.
OSHA/HCS Status:	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Hazards Not Otherwise Classified (HNOC):	None identified.

Section 3. Composition/Information on Ingredients

Substance Type:	Mono-constituent.
Synonyms:	Cyclopentadienyl trimethoxy Hafnium (IV); Tris(dimethylamino)cyclopentadienylhafnium; Cyclopentadienyl Tris(dimethylamino) Hafnium; (Cyclopentadienyl)tris(dimethylamido)hafnium; Cyclopentadienyl Tris(dimethylamino) Hafnium; CpHf(NMe ₂) ₃ .
Formula:	C ₁₁ H ₁₈ HfN ₃
Molecular Weight:	370.78 g/mol.
EC-No. :	826-032-2

Component Name	%	CAS Number
Tris(dimethylamido)cyclopentadienyl hafnium	≥ 97	941596-80-1

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Tris(dimethylamido)cyclopentadienyl hafnium

Safety Data Sheet

Section 4. First Aid Measures

Description of Necessary First Aid Measures

- General Advice:** Move out of dangerous area. Get emergency medical help immediately. Show this safety data sheet to the doctor in attendance. If unconscious, place in recovery position and get medical help immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Eye Contact:** Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses if easy to do. Continue rinsing. Get emergency medical help immediately.
- Skin Contact:** Take off contaminated clothing and shoes immediately. Wash off contaminated skin with plenty of water. Get emergency medical help immediately.
- Inhalation:** Get emergency medical help immediately. Rescuer should wear a mask or self-contained breathing apparatus if it is suspected that fumes or gases are still present. Remove person to fresh air and keep comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Do not use the mouth-to-mouth method of resuscitation if victim ingested or inhaled the product; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical devices.
- Ingestion:** Get emergency medical help immediately. Rinse mouth, and then give water to drink (two glasses at most). Do NOT induce vomiting. Remove dentures if any. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If person is not breathing, if breathing is irregular or if respiratory arrest occurs, see the "Inhalation" first aid measures noted above.

Most Important Symptoms/Effects, Acute and Delayed Potential Acute Health Effects

- Eye Contact:** Causes serious eye damage. Symptoms may include watering, redness, pain, swelling of the eyelids, inability to keep eye open, blurred vision and temporary/permanent loss of vision.
- Inhalation:** Product is extremely corrosive to mucous membranes and tissues of the upper respiratory tract. Symptoms may include a burning sensation, coughing, coughing up blood (hemoptysis), wheezing, laryngitis, shortness of breath/difficulty in breathing (dyspnea), blueness (cyanosis) of lips and skin, nausea, headaches, disorientation, general weakness and loss of consciousness.
- Skin Contact:** Skin contact with this product may be expected to cause (severe) chemical burns. Symptoms may include reddening of skin, a burning or itching sensation, pain, blistering and tissue necrosis.
- Ingestion:** Ingestion may be expected to result in burns of the mouth and throat and potential perforation of the esophagus and stomach. Symptoms may include pain when swallowing (odynophagia), difficulty swallowing (dysphagia), fever, nausea, recurrent vomiting (emesis) and vomiting of blood (hematemesis).

Tris(dimethylamido)cyclopentadienyl hafnium

Safety Data Sheet

Section 4. First Aid Measures

Ingestion (cont.): Severe burns which may be accompanied by perforation of the esophagus and stomach may present additional symptoms of abdominal pain/rigidity, chest and/or back pain.

Indication of Immediate Medical Attention and Special Treatment Needed, If Necessary

Notes to Physician: Treat symptomatically.
Specific Treatments: No specific treatment.
Protection of First Responders: No action taken shall be taken involving any personal risk without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See Toxicological Information (Section 11)

Section 5. Fire Fighting Measures

General Hazards: Product reacts with water to release highly flammable gases.

Suitable Extinguishing Media: THE MOST EFFECTIVE FIRE EXTINGUISHING AGENT IS DRY CHEMICAL POWDER PRESSURIZED WITH NITROGEN. Carbon dioxide (CO₂) may also be used.

Unsuitable Extinguishing Media: DO NOT USE WATER OR FOAM.

Unusual Fire and Explosion Hazards: Product reacts with water and protic solvents to release highly flammable gases which may form explosive mixtures with air at elevated temperatures. Product runoff to sewer may create a fire or explosion hazard. Gases released when product is exposed to water are heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to an ignition source and flashback.

Product of Combustion: Carbon oxides (CO_x), nitrogen oxides (NO_x) and hafnium oxides. Irritating fumes and organic acid vapors may be generated during exposure to elevated temperatures or open flame.

Protection of Firefighters: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Prevent contact with skin or eyes. Prevent the formation and inhalation of mists, sprays, vapors and gases.
Eliminate all local and distant ignition sources. Move containers from fire area if process can be accomplished without risk to firefighters. To reduce the possibility of explosion, use a water spray or fog to reduce direct vapors and to cool unopened containers.

Tris(dimethylamido)cyclopentadienyl hafnium

Safety Data Sheet

Section 5. Fire Fighting Measures

- Protection of Firefighters (cont.):** Do not apply water directly to product. Do not cut, grind, drill or weld on or near product containers (even empty) of this product because an explosion may result.
- Fire-fighters should wear appropriate protection equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in a positive pressure mode.
- Additional Information:** Prevent fire extinguishing materials and runoff from contaminating surface waters or ground water systems.

Section 6. Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures

- For Non-Emergency Personnel:** No action shall be taken involving any personal risk or without suitable training. Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Take action to prevent static discharges. Use non-sparking tools and equipment. Beware of vapors accumulating in low areas to form explosive concentrations. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment. Prevent contact with skin, eyes or clothing. Prevent the formation and inhalation of sprays, mists, vapors and gases. Provide adequate ventilation or wear respiratory protection.
- For Emergency Responders:** If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For Non-Emergency Personnel".
- Environmental Precautions:** Prevent spilled material and firefighting runoff from entering the surrounding environment (soil contact, entry into drains, sewers and waterways). Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods for Containment

- General:** Spilled material will likely give off smoke and fumes. Eliminate all local and distant ignition sources. Stop leakage and move containers from spill area if safe to do so. Prevent the formation and inhalation of sprays, mists, vapors and gases. Avoid allowing the spilled material to get wet or using water to clean up spillages or residues. Use spark-proof tools and explosion-proof equipment.

Tris(dimethylamido)cyclopentadienyl hafnium

Safety Data Sheet

Section 6. Accidental Release Measures

General (cont.):

In the event of combustion: use extinguishing materials/methods noted above or cover spillage with a dry, extinguishing material (e.g. dry sand, dry chemical, graphite powder) and allow time for decomposition or for fire to burn out (see Section 5 Firefighting Measures). Collect and place inert spillage in a dry, sealed container for disposal. Dispose of collected spillage in accordance with federal, state and local regulations. Contaminated absorbent material may pose the same hazard as the spilled product.

Small Spill:

Collect spillage with a dry, non-combustible, absorbent material (e.g. dry sand, vermiculite or diatomaceous earth) and place in dry, sealed container for disposal.

Large Spill:

Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Contain and collect spillage with a dry, non-combustible, absorbent material (e.g. dry sand, vermiculite or diatomaceous earth) and place in dry, sealed container for disposal.

Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and Storage

Precautions:

Product reacts with water and moisture in the air to release highly flammable gases; handle under a dry, inert gas. Nitrogen with less than 5 ppm each of moisture and oxygen is recommended. Keep away from all sources of ignition – NO SMOKING. Keep container tightly sealed. Prevent contact with skin, eyes and clothing. Prevent the formation and inhalation of sprays, mists, vapors and gases. Do not ingest. Avoid prolonged exposure. Ensure adequate ventilation or wear respiratory protection.

Protective Measures:

Protect against electrostatic discharges. Use explosion-proof electrical/ventilating/lighting/handling equipment. Use non-sparking tools and equipment. Put on appropriate personal protective equipment (see Section 8). Keep in the original container kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

General Occupational Hygiene:

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking.

Tris(dimethylamido)cyclopentadienyl hafnium

Safety Data Sheet

Section 7. Handling and Storage

General Occupational Hygiene:
(cont.)

Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Safe Storage Conditions:

Product is moisture sensitive; store under an inert gas. Nitrogen with less than 5 ppm each of moisture and oxygen and a temperature range of 2 -8 °C is recommended. Keep away from all sources of ignition – NO SMOKING. Store in original container protected from direct sunlight in a dry and well-ventilated area, away from incompatible materials and food and drink. Keep container tightly closed and sealed until ready for use. Store locked up.

Section 8. Exposure Controls/Personal Protection

Introductory Remarks:

These recommendations provide general guidance for handling this product. Because work environments and material handling practices vary, safety procedures should be developed for each intended application. While developing safe handling procedures, do not overlook the need to clean equipment and conduct regular repairs. Waste from these procedures should be handled in accordance with Section 13.

Occupational Exposure Limits:

Product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region-specific regulatory bodies.

Engineering Controls:

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute. Provide an eyewash/shower station.

Environmental Exposure Controls:

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual Protection Measures

Hygiene Measures:

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Remove all soiled and contaminated clothing immediately. Do not inhale sprays, mists, vapors or gases. Prevent contact with eyes and skin. Ensure that eyewash stations and safety showers are close to the workstation location.

Tris(dimethylamido)cyclopentadienyl hafnium

Safety Data Sheet

Section 8. Exposure Controls/Personal Protection

Eye/Face Protection:

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, sprays or mists. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles, faceshield (8-inch minimum). Refer to 29 CFR 1910.133, ANSI Z87.1, or European Standard EN166.

Skin Protection

Hand Protection:

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: Chemical-resistant gloves.

Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. For full contact, use Neoprene or nitrile rubber.

Other Skin Protection:

Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity discharges, wear anti-static, flame retardant protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

Respiratory Protection:

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multipurpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Tris(dimethylamido)cyclopentadienyl hafnium

Safety Data Sheet

Section 9. Physical and Chemical Properties

Physical State:	Liquid.
Color:	Colorless.
Odor:	No data available.
Odor Threshold:	No data available.
pH:	No data available.
Melting Point:	No data available.
Boiling Point:	No data available.
Flash Point:	No data available.
Auto-ignition Temperature:	No data available.
Specific Gravity:	No data available.
Vapor Pressure:	No data available..
Vapor Density:	No data available.
Water Solubility:	Reacts to release highly flammable gases.
Evaporation Rate:	No data available.
Viscosity:	No data available.

Section 10. Stability and Reactivity

Reactivity:	This product reacts with water and protic solvents to release highly flammable gases.
Chemical Stability:	This product is stable when stored under a dry, inert atmosphere and away from heat. Nitrogen containing less than 5 ppm each moisture and air and a temperature range of 2 – 8 °C is recommended.
Conditions to Avoid:	Exposure to water/moisture, sources of ignition (heat, flames, sparks, electrostatic discharges), extremes of temperature and direct sunlight.
Incompatible Materials:	Strong oxidizing agents.
Hazardous Decomposition Products:	Hazardous decomposition products formed under fire conditions: carbon oxides (CO _x), nitrogen oxides (NO _x), and hafnium oxide fumes. Irritating fumes and organic acid vapors may be generated during exposure to elevated temperatures or open flame. In the event of a fire: see Section 5.
Possibility of Hazardous Reactions:	Under normal conditions of storage and use noted above, hazardous reactions will not occur. Hazardous reactions or instability may occur under certain conditions of storage or use. In contact with water, product releases highly flammable gases.

Tris(dimethylamido)cyclopentadienyl hafnium

Safety Data Sheet

Section 11. Toxicological Information

Information on Toxicological Effects

- Acute Toxicity:** No specific data available. Product is harmful in ingested or inhaled.
- Irritation/Corrosion:** No specific data available. Product may be expected to cause thermal and/or chemical burns to the skin, eyes and exposed mucous membranes.
- Sensitization:** No specific data available.
- Germ Cell Mutagenicity:** No specific data available.

Carcinogenicity

Component	CAS No	ACGIH	IARC	NTP	OSHA
Tris(dimethylamido)cyclopentadienyl hafnium	941596-80-1	Not listed	Not listed	Not listed	Not listed

- Reproductive Toxicity:** No specific data available.
- Teratogenicity:** No specific data available.
- Specific Target Organ Toxicity: (Single Exposure)** Respiratory tract irritation/damage through thermal and chemical burns.
- Specific Target Organ Toxicity: (Repeated Exposure)** No specific data available.
- Aspiration Hazard:** No specific data available.

Information on the Likely Routes of Exposure: Common routes of exposure: inhalation, dermal (failure to use skin protection), eye (failure to use safety eyewear).
Less common: ingestion (failure to employ recommended hygiene measures (e.g. smoking or eating after handling product without washing hands or using hand protection)).

Additional Information: Ingestion will result in burns of the mouth, throat, esophagus and digestive tract.
To the best of our knowledge, the chemical, physical and toxicological properties of this product have not been thoroughly investigated.

Section 12. Ecological Information

Ecotoxicity: When exposed to water, product releases a substance which is harmful aquatic organisms and may cause long-term adverse effects in the aquatic environment.

Tris(dimethylamido)cyclopentadienyl hafnium

Safety Data Sheet

Section 12. Ecological Information

Aquatic Toxicity (Acute)

Component	CAS No	Test	Species	Dose	Exposure
Dimethylamine	124-40-3	LC50	Fish (Rainbow trout)	120 mg/l	96 h
		EC50	Water flea	88.7 mg/l	48 h
		EC50	Algae	9 mg/l	96 h

Persistence and Degradability

Biodegradability:

No specific data available.

Bioaccumulative Potential:

No specific data available.

Mobility in Soil:

No specific data available.

Results of PBT and vPvB Assessment:

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

Endocrine Disrupting Properties:

No specific data available.

Other Adverse Effects:

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Section 13. Disposal Considerations

Waste Treatment Methods

Product:

Dispose of in accordance with local, state, and federal regulations. Refer to 40 CFR 260-299 for complete waste disposal regulations. Consult your local, state, or federal agency before disposing of any chemicals.

Contaminated Packaging:

Empty containers retain product residue (liquids, vapors, gases) and can be dangerous. Dispose of as unused containers. DO NOT EXPOSE SUCH CONTAINERS TO AIR, MOISTURE, HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

Tris(dimethylamido)cyclopentadienyl hafnium

Safety Data Sheet

Section 14. Transport Information

	DOT	IMDG	IATA
UN Number	UN3398	UN3398	UN3398
UN Proper Shipping Name	Organometallic substance, liquid, water-reactive (Tris(dimethylamido)cyclopentadienyl hafnium)	ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE (Tris(dimethylamido)cyclopentadienyl hafnium)	Organometallic substance, liquid, water-reactive (Tris(dimethylamido)cyclopentadienyl hafnium)
Transport Hazard Classes	4.3	4.3	4.3
Packing Group	II	II	II
Environmental Hazards	-	-	-
Additional Information	-	EMS-No: F-G, S-M	-

Special Precautions for User: Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Section 15. Regulatory Information

TSCA (Toxic Substance Control Act):

This product is not listed on the U.S. Toxic Substances Control Act Chemical Inventory (TSCA Inventory). Use of this product is restricted to research and development only. This product must be used under the supervision of a technically qualified individual as defined by the TSCA. This product must not be used for commercial purposes or in formulations for commercial purposes.

This product as supplied is not subject to the TSCA Significant New Use Rule.

This product as supplied is not subject to TSCA 12(b) export notification requirements.

SARA 302 Components

This product does not contain any components which are subject to the reporting requirements of SARA Title III, Section 302 EHS TPO.

SARA 304 Components

This product does not contain any components which are subject to the reporting requirements of SARA Title III, Section 304 RQ.

SARA 311/312 Hazards

Fire Hazard (Flammable liquid), Reactivity Hazard (In contact with water emits flammable gas), Acute Health Hazard (Acute toxicity (ingestion, inhalation); Skin corrosion or irritation; Serious eye damage or eye irritation; Specific Target Organ Toxicity (STOT), single exposure: respiratory irritation).

Tris(dimethylamido)cyclopentadienyl hafnium

Safety Data Sheet

Section 15. Regulatory Information

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Clean Water Act

Not applicable.

Clean Air Act

Not applicable.

CERCLA Reportable Quantity

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

US Department of Homeland Security (DHS)

This product does not contain any DHS chemicals.

US Department of Transportation (DOT)

Component	Reportable Quantity	DOT Marine Pollutant	DOT Severe Marine Pollutant
Tris(dimethylamido)-cyclopentadienyl hafnium	No	No	No

US State Right-to-Know Listings

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Tris(dimethylamido)-cyclopentadienyl hafnium	-	-	-	-	-

"X" – Listed.

US State Chemicals of High Concern Listings

Component	Maine	Vermont	Washington
Tris(dimethylamido)cyclopentadienyl hafnium	-	-	-

"X" – Listed.

California Proposition 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

Tris(dimethylamido)cyclopentadienyl hafnium

Safety Data Sheet

Section 16. Other Information

National Fire Protection Association (U.S.A.)



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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

HMIS Rating

HEALTH	3
FLAMMABILITY	3
PHYSICAL HAZARD	2

History

Date of Issue/Date of Revision: 10/23/2025.

Date of Previous Issue: 4/28/2025.

References: None available

Abbreviations and Acronyms

- ACGIH : American Conference of Governmental Industrial Hygienists.
- AIHA : American Industrial Hygiene Association.
- ATE : Acute Toxicity Estimate (per Chapter 3.1 of GHS 10 standard).
- BEI : Biological Exposure Indices (ACGIH).
- CAS : Chemical Abstracts Service (division of the American Chemical Society).
- CHRIS : Chemical Hazards Response Information System (US DOT).
- CLP : Classification, Labeling and Packaging (European Union (EU)).
- DOT : US Department of Transportation.
- EC-No. : The EC Inventory (EINECS, ELINCS and the NLP-list is the source of the seven digit EC number, an identifier of substances commercially available with the EU (European Union)).

Tris(dimethylamido)cyclopentadienyl hafnium

Safety Data Sheet

Section 16. Other Information

Abbreviations and Acronyms (cont.)

EINECS	: European Inventory of Existing Commercial Chemical Substances.
EHS	: Extremely Hazardous Substance.
ELINCS	: European List of Notified Chemical Substances.
GHS	: Globally Harmonized System of Classification and Labeling of Chemicals.
HAP	: Hazardous Air Pollutants (Clean Air Act).
HMIS	: Hazardous Materials Identification System.
HNOC	: Hazards Not Otherwise Classified.
IARC	: International Agency for Research on Cancer.
IATA	: International Air Transport Association.
IATA-DGR	: Dangerous Goods Regulations by the "International Air Transport Association" (IATA).
IDLH	: Immediately Dangerous to Life or Health (US National Institute for Occupation Health and Safety (NIOSH)).
IMDG	: International Maritime Code for Dangerous Goods.
IP	: Intraperitoneal.
IV	: Intravenous.
NFPA	: National Fire Protection Association.
NIOSH	: National Institute of Occupational Safety and Health.
NSRL	: No Significant Risk Levels.
NTP	: National Toxicology Program.
ODS	: Ozone Depleting Substances (US Clean Air Act).
OECD	: Organization for Economic Co-Operation and Development.
OEL	: Occupational Exposure Limit.
OSHA	: Occupational Safety and Health Administration.
PBT	: Persistent Bioaccumulative and Toxic.
PEL	: Permissible Exposure Limits.
REL	: Recommended Exposure Limits.
RQ	: Reportable Quantity.
SARA	: Superfund Amendments and Reauthorization Act.
STEL (ST)	: Short Term Exposure Limit (ACGIH/NIOSH)
STOT	: Specific Target Organ Toxicity.
TLV	: Threshold Limit Values (ACGIH).
TPQ	: Threshold Planning Quantity.
TWA	: Time Weighted Average.
VOC	: Volatile Organic Compound.
vPvB	: Very Persistent and Very Bioaccumulative.
WEEL	: Workplace Environmental Exposure Level (AIHA).

Disclaimer

The information herein is believed to be accurate and is presented in good faith; however, no warranties or representations are made by Ereztech LLC regarding the accuracy or completeness of the information. Ereztech LLC shall not be liable for any damages resulting from the handling, or from the contact with the above product.

Tris(dimethylamido)cyclopentadienyl hafnium Safety Data Sheet

Section 16. Other Information

Disclaimer (cont.)

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

