

GHS Safety Data Sheet

SDS No. : HFR02GAEG

Date Issued: 2016/02/26

Section 1. Identification of the substance or mixture and of the supplier

1.1 Product Information

Product name: Hf(O-i-C₃H₇)₄ Hafnium tetra-i-propoxide

Product number:	Purity	Form
HFR10GB	99.9%(3N)	solid

1.2 Company Information:

Manufacturer : Kojundo Chemical Laboratory Co., Ltd.

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Section 2. Hazards identification

GHS Classification

Health Hazards	Environmental Hazards	Physical Hazards
Skin corrosion/ irritation: Category 2 Serious eye damage/ eye irritation: Category 2 Specific target organ toxicity, single exposure: Category 3	No data available	Flammable solids: Category 2

GHS Label: F, W



Pictograms or symbols

Warning word: DANGER

Hazard information	Description of precaution
Flammable solid. Causes skin irritation. Causes serious eye irritation. May cause respiratory irritation.	Keep away from sources of ignition(e.g.; heat/sparks /open flames/hot surfaces).-No smoking. Take precautionary measures static discharge. Use explosion-proof equipment(e.g.:electrical /lighting/ventilating). Wear protective gloves/protective clothing/eye protection /respiratory protection/face protection during handling. Avoid breathing dust/mist/gas/fume/vapors/spray. Do not eat, drink or smoke when using this product, and wash hands thoroughly after handling. Take off the contaminated clothing and wash before reuse.

	<p>IN CASE OF FIRE: Use Carbon dioxide, Dry chemical powder, Water fog or foam for extinction.</p> <p>IF ON SKIN: Remove immediately all contaminated clothing and rinse skin with water/shower. Then wash skin with plenty of soap and water. If skin irritation occurs, get medical advice/attention.</p> <p>IF IN EYES: Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a POISON CENTER or doctor/physician if you feel unwell.</p> <p>Protect from sunlight. Store in a cool, dry and well ventilated place.</p> <p>Keep container tightly closed. Store locked up.</p> <p>Dispose of contents/ container in accordance with local/national regulations.</p>
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Additional hazard information :See Section 11 for additional hazard information.

Section 3. Composition / information on ingredients

Chemical or common name:	Hafnium(IV) isopropoxide
Chemical formula:	Hf[OCH(CH ₃) ₂] ₄
Single Substance or Mixture:	Single substance
Composition:	100%
CAS #:	2171-99-5
RTECS#:	Not listed
TSCA inventory :	Not listed
EINECS:	Not listed

(See Section 8 for Exposure Limits)

Section 4. First aid measures

Eye contact:	Promptly rinse eyes with plenty of water while lifting the eye lids. Continue to rinse for at least 15 minutes and get medical attention.
Skin contact:	Remove immediately all contaminated clothing. Wipe off the product immediately by tissue or soft cloth, etc. Promptly flush contaminated skin with soap or mild detergent and water. Contact physician if irritation continues.
Ingestion:	Rinse mouth and throat with water. Get medical attention immediately.
Inhalation:	Remove the exposed person immediately and provide fresh air. Get medical attention.

Section 5. Fire fighting measures

Extinguishing agents:	Carbon dioxide, Dry chemical powder, Water fog or foam. Dry sand. DO NOT use a direct water stream.
Fire fighting:	Flammable material. Burning material releases toxic organic fumes. Remove containers to safe place if possible.

Use water spray to Cool down nearby structures and containers.
Self-contained breathing apparatus and full protective clothing should be used, if the material is involved in fire.

Section 6. Accidental release measures

Personal Precaution:	Workers should use protective wears to prevent contact with the spilt adhesive and inhalation of its vapor.
Environmental hazard precaution:	Shut off leak if without risk. Prevent flow out to river, etc. so as not to badly affect.
Methods for containment and cleaning up:	Wear respirator,chemical safety goggles,rubber boots and heavy rubber gloves. Wear disposable coveralls and discard them after use. Remove all sources of ignition. Avoid unnecessary contacts with spills. Indoor leakage: Ventilate as much as possible until the cleaning is completed. Outdoor leakage: Work from the windward and evacuate the leeward crowd. Absorb or cover with vermiculite or other suitable absorbent,and dispose of DOT-approved waste containers as much as possible. Carefully wash spill site with plenty of water after material pick up.

Section 7. Handling and storage

Precautions to be taken in handling:

Safe handling:	Handle the material in a dry inert gas atmosphere, utilizing glove bag or glove box. Keep container or bottle tightly closed when not in use. Avoid prolonged or repeated exposure. Handling worker wears suitable protective clothing. Keep away from heat, sparks and naked flame. Electrically ground all equipment when handling this material and use only non-sparking tools.
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Precautions to be taken in storage:

General precautions:	Store the material in a sealed container. Store in a cool, dry, well ventilated and dark place away from incompatible materials. Keep away from any heat, sparks, and flames.
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Section 8. Exposure controls / personal protection

Exposure guideline:	ACGIH (2013): No data available OSHA (2006): No data available
Facility measures:	Local ventilation of closed work room or total proper ventilation to prevent inhalation.
Protective ware:	Wear appropriate NIOSH/MSHA-approved respirator, safety goggles, protective gloves.

Section 9. Physical and chemical properties

Color and Form:	White solid.
Chemical formula:	Hf[OCH(CH ₃) ₂] ₄
Formula weight:	414.5
Melting point:	No data available
Boiling point:	No data available
Solubility:	Water: Decomposes
Flammability:	Combustible substance
Oxidation:	None

Section 10. Stability and reactivity

Stability:	<ul style="list-style-type: none"> • Stable in an inert gas under room temperature. • Hydrolyzed.
Reactivity: Incompatibility;	<ul style="list-style-type: none"> • Acids, oxidizing agents • Heat, sparks and flames.
Conditions to avoid;	<ul style="list-style-type: none"> • Moisture, water
Hazard decomposition products:	Carbon monoxide, carbon dioxide, metallic oxide of hafnium, and toxic fumes.

Section 11. Toxicological information

Acute toxicity:	GHS ; No data available
Skin corrosive / irritation:	GHS ; Category 2 ; Causes skin irritation.
Serious eye damage / irritation:	GHS ; Category 2 ; Causes serious eye irritation.
Respiratory sensitization:	GHS ; No data available
Skin sensitization:	GHS ; No data available
Germ cell mutagenicity:	GHS ; No data available
Carcinogenicity:	GHS ; No data available
Reproductive toxicity:	GHS ; No data available
Specific target organ toxicity — single exposure:	GHS ; Category 3 ; May cause respiratory irritation.
Specific target organ toxicity — repeated exposure:	GHS ; No data available
Aspiration hazard:	GHS ; No data available

Section 12. Ecological information

Ecotoxicity:

Hazards to the aquatic

environment – acute toxicity: GHS : No data available

Hazards to the aquatic

environment – chronic toxicity: GHS : No data available

Hazardous to the ozone layer: GHS : No data available

No Freon or Halon

Fish toxicity: No data available

Degradability: No data available

Bioaccumulative potential: No data available

Mobility in soil: No data available

Section 13. Disposal considerations

Disposal method: User of the product should contract with the local government or licensed 'Industrial Waste Haulers' for disposal of waste.

Section 14. Transport information

UN number: 1325

IATA shipping name: FLAMMABLE SOLID, ORGANIC, N.O.S.

IATA classification: Hazardous Class 4.1

IATA packing group: III

HS code: 2905.12

Marine pollution: None.

Section 15. Regulatory information

TSCA inventory : Not listed

Please refer to any other local / national measures that may be relevant.

Section 16. Other information

The information described above is believed to be correct. However, Kojundo Chemical Lab. makes no representation, warranty nor guarantee of any kind with respect to the information on this data sheet or any use of the product based upon this information.