


INTATRADE
MATERIAL SAFETY DATA SHEET
according to 1907/2006/EC, Article 31

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1. IDENTIFICATION OF SUBSTANCE AND OF THE COMPANY

Product name:	Tetrakis (dimethylamido)hafnium (IV)
Product code:	EO05007
Company:	INTATRADE Chemicals GmbH Am Winkel 5 06774 Muldestausee, Germany +49 34955 406944 +49 34955 406946 intatrade@intatrade.de
Phone:	
Fax :	
e-mail:	
REACH No.:	A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.
CAS No.:	19782-68-4

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture	Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP] Flammable solids (Category 1) Substances, which in contact with water, emit flammable gases (Category 2) Skin corrosion (Category 1B) Classification according to EU Directives 67/548/EEC or 1999/45/EC Highly flammable. Reacts violently with water. Causes burns.
Label elements	Labelling according Regulation (EC) No 1272/2008 [CLP]
Pictogram	
Signal word	Danger
Hazard statement(s)	H228 Flammable solid. H261 In contact with water releases flammable gases. H314 Causes severe skin burns and eye damage.
Precautionary statement(s)	P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking. P231 + P232 Handle under inert gas. Protect from moisture. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P310 Immediately call a POISON CENTER or doctor/ physician. P422 Store contents under inert gas.
Supplemental Hazard information (EUH 014)	Reacts violently with water. According to European Directive 67/548/EEC as amended

R-phrases(s)	R11 Highly flammable. R14 Reacts violently with water. R34 Causes burns.
S-phrases(s)	S 6 Keep under nitrogen. S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S36/37/39 Wear suitable protective clothing, gloves and eye/face protection. S43 In case of fire, use fire-fighting equipment on basis class D. S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
Other hazards	None

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms :	TDMAH
Formula :	$C_8H_{24}HfN_4$
Molecular Weight :	354,79 g/mol
CAS-No.:	19782-68-4

4. FIRST AID MEASURES

General advice	Consult a physician. Show this safety data sheet to the doctor in attendance.
If inhaled	If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
In case of skin contact	Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.
In case of eye contact	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
If swallowed	Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
Most important symptoms and effects, both acute and delayed	Cough, Shortness of breath, Headache, Nausea, Vomiting
Indication of any immediate medical attention and special treatment needed	no data available

5. FIREFIGHTING MEASURES

Suitable extinguishing media	Dry powder
Special hazards arising from the substance or mixture	Carbon oxides, nitrogen oxides (NOx), Hafnium oxide
Advice for firefighters	Wear self contained breathing apparatus for fire fighting if necessary.
Further information	no data available

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Avoid breathing dust.
Environmental precautions	Prevent further leakage or spillage if safe to do so. Do not let product enter drains.
Methods and materials for containment and cleaning up	Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Do not flush with water. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling	Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.
Conditions for safe storage, including any incompatibilities	Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Never allow product to get in contact with water during storage. Reacts violently with water. Handle and store under inert gas. Air sensitive.
Specific end use(s)	no data available

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters	Components with workplace control parameters
Exposure controls	
Appropriate engineering controls	Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
Personal protective equipment	
Eye/face protection	Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
Skin protection	Handle with 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. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.
Body Protection	Complete suit protecting against chemicals, Flame retardant antistatic protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Respiratory protection	Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) 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).

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance Form:	solid
Odour	no data available
Odour Threshold	no data available
pH	no data available
Melting point/freezing point	Melting point/range: 26 - 29 °C - lit.
Initial boiling point and boiling range	no data available
Flash point	43 °C - closed cup
Evaporation rate	no data available
Flammability (solid, gas)	The substance or mixture is a flammable solid with the category 1.
Upper/lower flammability or explosive limits	no data available
Vapour pressure	no data available
Vapour density	no data available
Relative density	1,098 g/mL at 25 °C

Auto-ignition temperature	no data available
Decomposition temperature	no data available
Viscosity	no data available
Explosive properties	no data available
Oxidizing properties	no data available
Other safety information	no data available

10. STABILITY AND REACTIVITY

Reactivity	no data available
Chemical stability	no data available
Possibility of hazardous reactions	Reacts violently with water.
Conditions to avoid	Heat, flames and sparks. Extremes of temperature and direct sunlight. Exposure to moisture.
Incompatible materials	Strong oxidizing agents
Hazardous decomposition products	Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects	
Acute toxicity	no data available
Skin corrosion/irritation	no data available
Serious eye damage/eye irritation	no data available
Respiratory or skin sensitization	no data available
Germ cell mutagenicity	no data available
Carcinogenicity	IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
Reproductive toxicity	no data available
Specific target organ toxicity – single exposure	no data available
Specific target organ toxicity – repeated exposure	no data available
Aspiration hazard	no data available
Potential health effects	
Inhalation	May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
Ingestion	May be harmful if swallowed. Causes burns.
Skin	May be harmful if absorbed through skin. Causes skin burns.
Eyes	Causes eye burns.
Signs and Symptoms of Exposure	Cough, Shortness of breath, Headache, Nausea, Vomiting
Additional Information	RTECS: Not available

12. ECOLOGICAL INFORMATION

Toxicity	no data available
Persistence and degradability	no data available
Bioaccumulative potential	no data available
Mobility in soil	no data available
Results of PBT and vPvB assessment	no data available
Other adverse effects	no data available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods	
Product	Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly

14. TRANSPORT INFORMATION

UN number	ADR/RID: 3396 IMDG: 3396 IATA: 3396
UN proper shipping name	
ADR/RID:	ORGANOMETALLIC SUBSTANCE, SOLID, WATER-REACTIVE, FLAMMABLE (Tetrakis(dimethylamido)hafnium(IV))
IMDG:	ORGANOMETALLIC SUBSTANCE, SOLID, WATER-REACTIVE, FLAMMABLE (Tetrakis(dimethylamido)hafnium(IV))
IATA:	Organometallic substance, solid, water-reactive, flammable (Tetrakis(dimethylamido)hafnium(IV))
Transport hazard class(es)	ADR/RID: 4.3 (4.1) IMDG: 4.3 (4.1) IATA: 4.3 (4.1)
Packaging group	ADR/RID: II IMDG: II IATA: II
Environmental hazards	ADR/RID: no IMDG Marine Pollutant: no IATA: no
Special precautions for user	no data available

15. REGULATORY INFORMATION

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

Safety, health and environmental regulations/legislation specific for the substance or mixture	no data available
Chemical Safety Assessment	no data available

16. OTHER INFORMATION**Warranty**

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Intatrade Chemicals GmbH shall not be held liable for any damage resulting from handling or from contact with the above product.