



## Safety Data Sheet

### 1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: **Hafnium Nitride Coating**

Supplier: Ultramet

12173 Montague St, Pacoima California 91331

Telephone: +1 818-899-0236 Fax: +1- 818-890-1946

www.ultramet.com

### 2. HAZARDS IDENTIFICATION

#### Emergency Overview

#### OSHA Hazards

No known OSHA hazard

Not a dangerous according to GHS

#### HMIS Classification

Health hazard: 0

Flammability: 0

Physical hazards: 0

#### NFPA Rating

Health hazard: 0

Fire: 0

Reactivity Hazard: 0

#### Potential Health Effects

**Inhalation** Powder or dusts may irritate the respiratory tract and mucus membrane.

**Skin** May be harmful if absorbed through skin. May cause skin irritation.

**Eyes** May cause eye irritation.

**Ingestion** May be harmful if swallowed.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Formula: HfN

Molecular Weight: 192.50 g/mol

Component		Concentration
<b>Hafnium nitride</b>		
CAS-No.	25817-87-2	-
EC-No.	247-282-3	-

## **4. FIRST AID MEASURES**

### **General advice**

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

### **If inhaled**

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

### **In case of skin contact**

Wash off with soap and plenty of water. Consult a physician.

### **In case of eye contact**

Flush eyes with water as a precaution.

### **If swallowed**

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

## **5. FIREFIGHTING MEASURES**

### **Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

### **Special protective equipment for firefighters**

Wear self-contained breathing apparatus for firefighting if necessary.

### **Hazardous combustion products**

Hazardous decomposition products formed under fire conditions. – Hafnium oxides, Ammonia, Nitrogen Oxide (NOx)

### **Further information**

Use water spray to cool unopened containers.

## **6. ACCIDENTAL RELEASE MEASURES**

### **Personal precautions**

Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas.

### **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. 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 - Nonsmoking. Take measures to prevent the buildup of electrostatic charge.

### **Conditions for safe storage**

Store in cool place. Keep container tightly closed in a dry and well-ventilated place.  
Keep in a dry place.

## **8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

Components	CAS-No.	Value	Control parameters	Basis
Hafnium nitride	25817-87-2	TWA	0.5 mg/m <sup>3</sup>	USA. ACGIH Threshold Limit Values (TLV)
Remarks	Eye & Upper Respiratory Tract irritation Liver damage			
		TWA	0.5 mg/m <sup>3</sup>	USA. NIOSH Recommended Exposure Limits

### **Personal protective equipment**

#### **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).

#### **Hand 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.

#### Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

#### Splash protection

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an Industrial Hygienist familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

#### **Eye protection**

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Skin and body protection**

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.

**Hygiene measures**

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

**9. PHYSICAL AND CHEMICAL PROPERTIES****Appearance**

Form solid coating  
Color: no data available

**Safety data**

pH no data available

Melting point/freezing point Melting point/range: no data available

Boiling point no data available

Flash point no data available

Ignition temperature no data available

Auto-ignition temperature no data available

Lower explosion limit no data available

Upper explosion limit no data available

Vapor pressure no data available

Density: no data available

Water solubility no data available

Partition coefficient: n-octanol/water no data available

Relative vapor density no data available

Odor no data available

Odour Threshold no data available

Evaporation rate no data available

**10. STABILITY AND REACTIVITY****Chemical stability**

Stable under recommended storage conditions.

**Possibility of hazardous reactions**

no data available

**Conditions to avoid**

no data available

**Materials to avoid**

Strong oxidizing agents,

**Hazardous decomposition products**

Hazardous decomposition products formed under fire conditions. – Hafnium oxides, NO<sub>x</sub>, Ammonia

Other decomposition products - no data available

## **11. TOXICOLOGICAL INFORMATION**

**Acute toxicity**

**Oral LD50** no data available

**Inhalation LC50** no data available

**Dermal LD50** no data available

**Other information on 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 components of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity** no data available

**Teratogenicity** no data available

**Specific target organ toxicity - single exposure (Globally Harmonized System)** no data available

**Specific target organ toxicity - repeated exposure (Globally Harmonized System)** no data available

**Aspiration hazard** no data available

**Potential health effects**

**Inhalation** May be harmful if inhaled. May cause respiratory tract irritation.

**Ingestion** May be harmful if swallowed.

**Skin** May be harmful if absorbed through skin. May cause skin irritation.

**Eyes** May cause eye irritation.

**Signs and Symptoms of Exposure** To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Synergistic affects** no data 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

**PBT and vPvB assessment** no data available

**Other adverse affects** no data available

## **13. DISPOSAL CONSIDERATIONS**

**Product**

Offer surplus and non-recyclable solutions to licensed disposal company

**Contaminated packaging** Dispose of as unused product.

## **14. TRANSPORT INFORMATION**

**DOT (US)**

Not dangerous goods

**IMDG**

Not dangerous goods

**IATA**

Not dangerous goods

## **15. REGULATORY INFORMATION**

**OSHA Hazards** No known OSHA hazards

**SARA 302 Components** SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components** SARA 313: 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.

**SARA 311/312 Hazards** No SARA Hazard

**Massachusetts Right To Know Components** No components are subject to the Massachusetts Right to Know Act.

**Pennsylvania Right To Know Components**

Hafnium Nitride CAS-No 25817-87-2

**New Jersey Right To Know Components**

Hafnium Nitride CAS-No 25817-87-2

**California Prop. 65 Components**

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

## **16. OTHER INFORMATION**

**Further information**

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.