

SAFETY DATA SHEET

according to Regulation (EC) No. 453/2010

Date Issued : 4/3/2012
SDS No : M-1000-195

Niobium metal pieces

SECTION 1 : Identification of the substance/preparation and of the company/undertaking

1.1. Product identifier

Product name : Niobium metal pieces

1.2. Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses : Physical vapor deposition of thin films

1.3. Details of the supplier of the safety data sheet

Manufacturer

Kurt J Lesker Company
United States
1925 Route 51
Jefferson Hills, PA 15025

Service Number : 412-387-9200

E-Mail : msds@lesker.com

Kurt J Lesker Company LTD
United Kingdom
15-16 Burgess Road
Hastings, East Sussex, TN35 4NR
England

Customer Service : +44 (0) 1424 458100

1.4. Emergency telephone number

24-Hour Emergency Response provided by
3E Global Incident Response Hotline

When calling, refer to Kurt J Lesker Company
Global Response Access Code: 333594

North America [USA, Canada, Mexico]: 1-866-519-4752

Mainland China: (+) -86- 4001 2001 74

Europe: {+}-1-760-476-3961

Asia Pacific: {+}-1-760-476-3960

Middle East & Africa: {+}-1-760-476-3959

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Directive 67/548/EEC

Classification according to Regulation (EC) No 1272/2008 [CLP]

Health : This substance or mixture is not hazardous and is not classified under GHS.

2.2. Label elements

R&S statement(s) : This material is not classified as hazardous according to Directive 67/548/EEC.

2.3. Other hazards

Immediate concerns : Negligible fire or explosion hazard in bulk form. Powdered material may form explosive dust-air mixtures.

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- Physical hazards** : This substance is not considered hazardous in the form supplied. Dusts at sufficient concentrations can form explosive mixtures with air.
- Additional information** : The physical and toxicological properties of this material have not been thoroughly investigated.

SECTION 3: Composition / information on ingredients

3.1. Substances

Chemical Name	CAS	EINECS No.	Wt. %
Niobium	7440-03-1	231-113-5	100

3.2. Mixtures

Not Applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

- Following eyes** : Immediately flush eyes with plenty of water. Get medical attention, if irritation persists.
- Following skin** : Wash with soap and water. Get medical attention if irritation develops or persists.
- Following ingestion** : Rinse mouth. Get medical advice/attention.
- Following inhalation** : Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate medical attention.

4.2. Most important symptoms and effects, both acute and delayed

4.3. Indication of any immediate medical attention and special treatment needed

SECTION 5: Fire fighting measures

5.1. Extinguishing media

- Extinguishing media** : Use a Class D dry powder extinguisher, dolomite, dry sand, graphite, or soda ash.

5.2. Special hazards arising from the substance or mixture

- Explosion hazards** : Dusts at sufficient concentrations can form explosive mixtures with air.

5.3. Advice for firefighters

- Fire fighting procedures** : As in any fire, wear self-contained breathing apparatus pressure-demand, (MSHA/NIOSH approved or equivalent) and full protective gear.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

- General procedures** : Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Eliminate all ignition sources if safe to do so. Avoid formation of dust. Provide appropriate exhaust ventilation where dust is formed. Avoid breathing (dust, vapor, mist, gas). Practice good chemical hygiene during and after use. Avoid release to the environment.

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6.2. Environmental precautions

6.3. Methods and material for containment and cleaning up

- Small spill** : Clean up spills immediately, observing precautions in Protective Equipment section.
- Large spill** : Collect spilled material in appropriate container. Spill may be reportable . Consult section 15 for Reportable Quantities.

6.4. Reference to other sections

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- General procedures** : To avoid risks to human health and the environment, comply with the instructions for use.
- Handling** : Keep away from heat and flame. Keep container closed when not in use. Remove contaminated clothing and wash before reuse. Wash hands before eating and wash before reuse. Wash thoroughly after handling.
- Storage** : Keep container closed when not in use. Store in a cool dry place.

7.2. Conditions for safe storage, including any incompatibilities

7.3. Specific end use(s)

SECTION 8: Exposure controls / personal protection

8.1. Control parameters

8.2. Exposure controls

- Engineering controls** : Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.
- Eye/face protection** : Wear safety glasses.
- Skin protection** : Wear protective gloves.
- Respiratory protection** : If ventilation is inadequate and this material is handled at elevated temperatures or dusts/fumes/mists are generated a NIOSH/MSHA approved air purifying respirator with a manufacturers approved cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.
- Work hygienic practices** : Practice good chemical hygiene during and after use.
- Additional information** : There are no established workplace exposure limits for components of this product.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

- Physical state** : Solid

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Colour	: Grey
Odour	: None
pH	: NA = Not Applicable
Melting temperature	: 2477°C
Boiling temperature	: 4744°C
Flash point	: NA = Not Applicable
Flammable limits	: NA = Not Applicable
Vapor pressure	: NA = Not Applicable
Vapor density	: NA = Not Applicable
Density	: 8.57 at 25°C
Solubility in water	: Insoluble
Auto-ignition temperature	: Not Available
Molecular weight	: 92.90638

9.2. Other information

Percent volatile	: NA = Not Applicable
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SECTION 10: Stability and reactivity

10.1. Reactivity

Stable	: Yes
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10.2. Chemical stability

10.3. Possibility of hazardous reactions

Hazardous decomposition	: No
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10.4. Conditions to avoid

10.5. Incompatible materials

Incompatible materials	: Strong acids, Oxidizing materials, Halogens.
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10.6. Hazardous decomposition products

Hazardous decomposition products	: Toxic metal fumes
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SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute

Dermal LD₅₀	: Not Available
Skin absorption	: Not Available
Oral LD₅₀	: Not Available
Inhalation LC₅₀	: Not Available
Mutagenicity	: Not Available
Reproductive effect	: Not Available

SECTION 12: Ecological information

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12.1. Toxicity

Aquatic toxicity (acute) : Not Available

12.2. Persistence and degradability

Persistence and degradability : Not Available

12.3. Bioaccumulative potential

Bioaccumulative potential : Not Available

12.4. Mobility in soil

12.5. Results of PBT and vPvB assessment

12.6. Other adverse effects

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product disposal : Contact a licensed waste disposal company.

Disposal method : Dispose of according to applicable federal, state, provincial, and local regulations.

Empty container : Follow all MSDS/label precautions even after container is emptied because it may retain product residues.

SECTION 14: Transport information

14.1. UN number

14.2. UN proper shipping name

UN proper shipping name : Not Regulated

14.3. Transport hazard class(es)

14.4. Packing group

14.5. Environmental hazards

14.6. Special precautions for user

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulations (Germany)

(WGK) classification : Not listed

15.2. Chemical safety assessment

SECTION 16: Other information

Approved by : EHS DEPT

Prepared by : E Bolton

Information contact : msds@lesker.com

General statements : The physical and toxicological properties of this material have not been thoroughly investigated.

Manufacturer disclaimer : Kurt J. Lesker Company ("KJLC") believes the information contained in this Material Safety Data Sheet is accurate as of the "Date of Last Revision" specified. The information relates only to typical properties of the product. Do

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