

Heegermaterials

SAFETY DATA SHEET

Revision Date 18-Nov-2024

Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product Name: ZrMoCrNb Alloy

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

Recommended Use Laboratory chemicals, Synthesis of substances

Uses advised against

1.3. Details of the supplier of the safety data sheet

Manufacturer Address

Heeger Materials Inc. 230 Steele St Denver, CO 80206, United States
Tel: 925-385-8104

Section 2: HAZARDS IDENTIFICATION

This product is an article and, as such, does not present a hazard to human health by inhalation or ingestion

2.1. Classification of the substance or mixture

Hazard Classification:

Solid metal alloy, generally stable under normal conditions.

Dust or fine particles generated during machining or processing may pose respiratory and fire hazards.

2.2. Label elements

Emergency Overview



Signal Word: Warning

Hazard statements

H315: Causes skin irritation.

H319: Causes serious eye irritation.

H335: May cause respiratory irritation.

Precautionary Statements

Prevention:

Avoid breathing dust/fume/gas/mist/vapours/spray.

Wash thoroughly after handling.

Wear protective gloves/protective clothing/eye protection/face protection.

Response:

If on skin: Wash with plenty of soap and water. If skin irritation occurs, get medical advice/attention.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice/attention.

If inhaled: Remove person to fresh air and keep comfortable for breathing. If feeling unwell, call a poison centre or doctor/physician.

Storage:

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

Disposal:

Dispose of contents/container in accordance with local regulations.

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances**Synonyms**

Chemical Name	CAS No.	Content (%)
Zirconium (Zr)	7440 - 67 - 7	20-30%
Molybdenum (Mo)	7439 - 98 - 7	20-30%
Chromium (Cr)	7440 - 47 - 3	20-30%
Niobium (Nb)	7440 - 03 - 1	20-30%

Section 4: FIRST AID MEASURES

4.1. Description of first aid measures**Inhalation**

Immediately move the patient to an area with fresh air and keep the airway open.
If the patient has difficulty breathing, give oxygen.
If breathing stops, immediately perform artificial respiration and seek medical help.

Skin Contact

Immediately remove contaminated clothing and wash the affected area with plenty of running water for at least 15 minutes.
If skin irritation or allergic symptoms occur, seek medical treatment.

Eye contact

Immediately lift the eyelids and rinse the eyes thoroughly with plenty of running water or normal saline for at least 15 minutes.
Seek medical advice.

Ingestion

Do not induce vomiting. Seek immediate medical attention.

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

May cause allergic skin reaction. May cause acute gastrointestinal effects if swallowed.

4.3. Indication of any immediate medical attention and special treatment needed**Note to doctors**

Treat symptomatically.

Section 5: FIRE FIGHTING MEASURES

5.1. Extinguishing media

Suitable extinguishing media

Dry powder, carbon dioxide, sand.

Unsuitable extinguishing media

Avoid using water to extinguish the fire, as water may cause the target powder to fly, increasing the risk of explosion.

5.2. Special hazards arising from the substance or mixture

The target itself is generally non - flammable. However, under high - temperature or specific conditions, its powder may form an explosive mixture with air.

It may react violently with strong oxidants.

5.3. Advice for firefighters

Wear self-contained breathing apparatus and protective suit. Use personal protective equipment as required.

Section 6: ACCIDENTAL RELEASE MEASURES**6.1. Personal precautions, protective equipment and emergency procedures****Personal precautions**

Use personal protective equipment as required.

For emergency responders

Use personal protective equipment as required.

6.2. Environmental precautions

Not applicable to massive product.

6.3. Methods and material for containment and cleaning up

Methods for containment Not applicable to massive product.

Methods for cleaning up Not applicable to massive product.

6.4. Reference to other sections

See Section 12: ECOLOGICAL INFORMATION.

Section 7: HANDLING AND STORAGE**7.1. Handling Precautions**

Operations should be carried out in a well - ventilated area. It is best to use local exhaust ventilation equipment.

Avoid generating dust. Operators should wear self - absorbing filter dust masks, chemical safety goggles, rubber gloves and other protective equipment.

Handle with care during operation to prevent damage to the target and generation of powder.

Keep away from fire sources and heat sources. Smoking is strictly prohibited in the workplace.

7.2. Storage Precautions

Store in a cool, dry and well - ventilated warehouse.

Keep away from fire and heat sources.

Should be stored separately from oxidants and food chemicals. Do not store them together.

The storage area should be equipped with suitable materials to contain leaks.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Exposure controls

Engineering Controls	Use local exhaust ventilation to control dust levels.
Personal protective equipment	
Eye/face protection	When airborne particles may be present, appropriate eye protection is recommended. For example, tight-fitting goggles, foam-lined safety glasses or other protective equipment that shield the eyes from particles.
Skin and body protection	Wear fire/flame resistant/retardant clothing. Cut-resistant gloves and/or protective clothing may be appropriate when sharp surfaces are present.
Respiratory protection	When the dust concentration in the air exceeds the standard, wear a self - absorbing filter dust mask. In case of emergency rescue or evacuation, wear an air respirator.
Other protection	Smoking, eating and drinking are prohibited in the workplace. Take a shower and change clothes after work. Maintain good hygiene habits.
Environmental exposure controls	Section 6: ACCIDENTAL RELEASE MEASURES.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical state	Solid		
Appearance	Block or sheet target	Odour	Odourless
Colour	Metallic grey silver	Odour threshold	Not applicable
Property	Values	Remarks • Method	
pH	-		
Melting point/freezing point		Not applicable	
Boiling point / boiling range	-	Not applicable	
Flash point	-	Not applicable	
Evaporation rate	-	Not applicable	
Flammability (solid, gas)	-	None in massive form, flammable as finely divided particles	
Flammability Limit in Air			
Upper flammability limit:		-	
Lower flammability limit		-	
Vapour pressure	-	Not applicable	
Vapour density	-	Not applicable	
Specific Gravity	-		
Water solubility	-	Not applicable	
Solubility(ies)		Not applicable	
Partition coefficient	-	Not applicable	
Autoignition temperature	-	Not applicable	
Decomposition temperature	-	Not applicable	
Kinematic viscosity	-	Not applicable	
Dynamic viscosity	-	Not applicable	
Explosive properties	Not applicable		
Oxidising properties	Not applicable		

9.2. Other information

Softening point	-
Molecular weight	-
VOC Content (%)	Not applicable
Density	-
Bulk density	-

Section 10: STABILITY AND REACTIVITY

10.1. Reactivity

Not applicable

10.2. Chemical stability

Stable under normal conditions.

Explosion data

Sensitivity to Mechanical Impact	None.
Sensitivity to Static Discharge	None.

10.3. Possibility of hazardous reactions

Hazardous polymerisation

Hazardous polymerisation does not occur.

Possibility of Hazardous Reactions

None under normal processing.

10.4. Conditions to avoid

Dust formation and dust accumulation.

10.5. Incompatible materials

Strong oxidants, strong acids, strong alkalis, etc.

Section 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Product Information

Inhalation	Not an expected route of exposure for product in massive form.
Eye contact	Not an expected route of exposure for product in massive form.
Skin Contact	May cause sensitisation by skin contact.
Ingestion	Not an expected route of exposure for product in massive form.

Information on toxicological effects

Symptoms	May cause sensitisation by skin contact. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause acute gastrointestinal effects if swallowed.
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Delayed and immediate effects as well as chronic effects from short and long-term exposure

Acute oxicity	Harmful if swallowed.
Skin corrosion/irritation	Product not classified.
Serious eye damage/eye irritation	Product not classified.
Sensitization	Product not classified.
Germ cell mutagenicity	Product not classified.
Carcinogenicity	May cause cancer by inhalation.

Section 12: ECOLOGICAL INFORMATION

12.1. Ecotoxicity

May be toxic to aquatic organisms, especially heavy metal components such as chromium.

12.2. Persistence and Degradability

The target is not easily degradable in the environment and may exist for a long time.

12.3. Bioaccumulation

Some metal components such as chromium and molybdenum may have a certain bioaccumulation in organisms.

12.4. Mobility in Soil

Due to its insolubility, its mobility in soil is relatively low, but it may migrate to a certain extent with rainwater under specific conditions.

12.5. Other adverse effects

May have a certain impact on the soil ecosystem and plant growth.

Section 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from residues/unused products	Disposal should be in accordance with applicable regional, national and local laws and regulations.
Contaminated packaging	None anticipated.

Section 14: TRANSPORT INFORMATION

IMDG

14.1 UN/ID no	Not regulated
14.2 Proper shipping name	Not regulated
14.3 Hazard Class	Not regulated
14.4 Packing Group	Not regulated
14.5 Marine pollutant	Not applicable
14.6 Special Provisions	None
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable

RID

14.1 UN/ID no	Not regulated
14.2 Proper shipping name	Not regulated
14.3 Hazard Class	Not regulated
14.4 Packing Group	Not regulated
14.5 Environmental hazard	Not applicable
14.6 Special Provisions	None

ADR

14.1 UN/ID no	Not regulated
14.2 Proper shipping name	Not regulated
14.3 Hazard Class	Not regulated
14.4 Packing Group	Not regulated
14.5 Environmental hazard	Not applicable
14.6 Special Provisions	None

ICAO (air)

14.1 UN/ID no	Not regulated
14.2 Proper shipping name	Not regulated
14.3 Hazard Class	Not regulated
14.4 Packing Group	Not applicable
14.5 Environmental hazard	Not applicable
14.6 Special Provisions	None

IATA

14.1 UN/ID no	Not regulated
14.2 Proper shipping name	Not regulated
14.3 Hazard Class	Not regulated
14.4 Packing Group	Not regulated
Description	Not applicable
14.5 Environmental hazard	Not applicable
14.6 Special Provisions	None

Section 15: REGULATORY INFORMATION

15.1. Applicable Regulations

Regulations on the Safety Management of Hazardous Chemicals
 Classification and Labelling of Chemicals (GB 30000 series)
 Occupational Exposure Limits for Hazardous Agents in the Workplace (GBZ 2 series)
 Other relevant national and local environmental protection and safety regulations.

15.2. Chemical safety assessment

No chemical safety assessment has been performed for this product.

Section 16: OTHER INFORMATION

Revision Date 18-Nov-2024

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

Note:

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet