SAFETY DATA SHEET

Neodymium Iron Boron (NdFeB) Magnet

Section 1: Identification

1.1. Product Identifier

Product Form: Mixture

Product Name: : Neodymium Iron Boron (NdFeB) Magnet, AKA: Rare Earth Magnet

1.2. Intended Use of Product: Permanent magnet for various uses.

1.3. Name, Address, and Telephone of the Responsible Party:

Allstar Magnetics
15100 NE 65th Street, Suite 170
Vancouver, WA 98682
1-800-949-8950
https://allstarmagnetics.com

1.4 Emergency Telephone Number: Within USA and Canada 1-800-424-9300 or +1 703-527-3887 (collect calls accepted)

Section 2: Hazard(s) Identification

2.1. Classification of the Substance or Mixture Classification (GHS-US)

Not classified

2.2. Label Elements GHS-US Labeling

No labeling applicable

2.3. Other Hazards

Under normal conditions of use and handling in the solid form, harmful substances cannot be released, nor is the solid metal piece considered flammable. Much of the information provided in this SDS is for situations of use in which hazardous exposures may occur, such as in welding applications or for metals in powder form.

Magnets have very strong magnetic forces which make them attract to other magnets and other ferromagnetic materials such as iron or steel. This may result in injury during handling of magnets.

Strong magnets may affect the operation of pacemakers or other implanted medical devices.

2.4. Unknown Acute Toxicity (GHS-US)

No data available

Section 3: Composition/ Information on Ingredients

3.1. Substance

Neodymium iron boron

3.2. Chemical Formula: Nd2Fe14B

Section 4: First-Aid Measures

4.1. Description of First Aid Measures

First-aid Measures General: If medical advice is needed, have product SDS at hand.

First-aid Measures After Inhalation: If inhaled, move to fresh air and keep at rest in a position comfortable for breathing. Obtain medical attention if breathing difficulty persists.

First-aid Measures After Skin Contact: Wash immediately with plenty of soap and water. Rinse with plenty of water. Remove contaminated clothing. Wash contaminated clothing before reuse. Obtain medical attention if irritation develops or persists.

First-aid Measures After Eye Contact: Immediately rinse with water for a prolonged period (at least 15 minutes) while holding the eyelids wide open. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if irritation develops or persists.

First-aid Measures After Ingestion: If swallowed, do not induce vomiting: seek medical advice immediately and show this SDS.

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

Symptoms/Injuries: The primary acute health hazard associated with this product would be the potential for exposure to fumes during metal processing operations. Under normal conditions of use not expected to present a significant hazard. During processing or physical alteration, flakes or powder cause irritation of the respiratory tract, eyes, skin, and are harmful. Molten

material may release toxic, and irritating fumes.
Symptoms/Injuries After Inhalation: During processing, inhalation of fumes may cause lung inflammation and injury with symptoms of chest pains, chills, cough, headache, and diarrhea. Inhalation of dusts and fumes can cause metal fume fever. Symptoms can include a metallic or sweet taste in the mouth, sweating, shivering, headache, throat irritation, fever, chills, thirstiness, muscle aches, nausea, vomiting, weakness, fatigue, and shortness of breath.
Symptoms/Injuries After Skin Contact: During metal processing, . Dust may cause irritation in skin folds or by contact in combination with tight clothing.
Symptoms/Injuries After Eye Contact: Dust generated from material cutting may cause a slight irritation. Slivers may be generated, which could cause mechanical irritation or injure the eye.
Symptoms/Injuries After Ingestion: If a large quantity has been ingested: Gastrointestinal irritation.
Indication of Any Immediate Medical Attention and Special Treatment Needed
If medical advice is needed, have product SDS at hand.
Information for Doctors: Ingestion of multiple magnets can pose a serious risk. Consider consulting the algorithm presented in, "Management of Ingested Magnets in Children," (Hussain et al., 2012). Strong magnetic fields found near neodymium magnets can interfere with the operation of implanted medical devices such as pacemakers and ICDs.

Section 5: Fire-Fighting Measures

5.1. Extinguishing Media
Suitable Extinguishing Media: Earth, sand, Class D dry powder extinguishing agent, without oxygen compounds.
Unsuitable Extinguishing Media: Do not use Halon agents or water.
5.2. Special Hazards Arising From the Substance or Mixture
Fire Hazard: Dry powders or neodymium magnets will oxidize, smolder, and burn rapidly in the presences of air or oxygen. Maintain powders in water slurry or in inert atmospheres of nitrogen or argon to prevent spontaneous combustion. Magnets may spark on impact. Handle carefully in explosive atmospheres.
Explosion Hazard: Product itself is not explosive but if dust is generated, dust clouds suspended in air can be explosive.
Reactivity: Hazardous reactions will not occur under normal conditions.
5.3. Advice for Firefighters
Firefighting Instructions: Do not breathe fumes from fires or vapors from decomposition. Keep upwind.
Protection During Firefighting: Firefighters must use full-face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes to protect against potential hazardous combustion and decomposition products.

Section 6: Accidental Release Measures

6.1. Personal Precautions, Protective Equipment and Emergency Procedures
6.1.1. For Non-emergency Personnel
Protective Equipment: Wear eye protection.
Emergency Procedures: Avoid creating or spreading dust. Eliminate ignition sources.
6.1.2. For Emergency Responders
Protective Equipment: Safety glasses.
Emergency Procedures: Ventilate area. Eliminate ignition sources. Evacuate unnecessary personnel.
6.2. Environmental Precautions
Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.
6.3. Methods and Material for Containment and Cleaning Up
For Containment: Contain and collect as any solid.
Methods for Cleaning Up: Avoid generation of dust during clean-up of spills. Take up mechanically (sweeping, shoveling) and collect in suitable container for disposal. Vacuum must be fitted with HEPA filter to prevent release of particulates during clean-up. Use only non-sparking tools. Use explosion-proof equipment.
6.4. Reference to Other Sections
See heading 8, Exposure Controls and Personal Protection.

Section 7: Handling and Storage

7.1. Precautions for Safe Handling
Large magnets can attract to one another. Strong attractive forces can cause injury. Impacts of magnets can eject chips or bits of magnet material at speed - eye protection should be used. Strong magnetic fields may affect the operation of implanted medical devices such as pacemakers and ICDs.

Additional Hazards When Processed: Do not handle until all safety precautions have been read and understood. Fine dust dispersed in air may ignite. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration.
Precautions for Safe Handling: Do not breathe dust. Do not get in eyes, on skin, or on clothing. Avoid creating or spreading dust. Always wash hands after handling the product. Do not eat, drink or smoke when using this product. Ensure there is adequate ventilation. Wear recommended personal protective equipment.
Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures. Always wash your hands immediately after handling this product, and once again before leaving the workplace. Wash contaminated clothing before reuse. Do not eat, drink or smoke in areas where product is used. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.
Information about protection against Explosions/Fires: No particular measures are required in the provided form.

7.2. Conditions for Safe Storage, Including Any Incompatibilities

Storage Conditions: Store in dry location free of corrosive atmosphere. Keep away from magnetic objects such as iron, cobalt or nickel and high energy magnetic fields.
Incompatible Materials: Avoid contact with: Strong acids. Mineral acids. Corrosive substances in contact with metals may produce flammable hydrogen gas.

7.3. Specific End Use(s) Cast and Sintered Permanent Magnets

Section 8: Exposure Controls/Personal Protection

8.1. Control Parameters

Exposure Limits: Neodymium
OSHA/PEL: No exposure limit established
ACGIH/TLV: No exposure limit established

8.2. Exposure Controls

Appropriate Engineering Controls: Handle in a humidity controlled atmosphere. Handle in an enclosed, controlled process under dry argon when possible. Ensure adequate ventilation to maintain exposures below occupational limits. Whenever possible the use of local exhaust ventilation or other engineering controls is the preferred method of controlling exposure to airborne dust and fume to meet established occupational exposure limits. Use good housekeeping and sanitation practices. Do not use tobacco or food in work area. Wash thoroughly before eating or smoking. Do not blow dust off clothing or skin with compressed air.

Personal Protective Equipment: Not generally required. The use of personal protective equipment may be necessary as conditions warrant.
Hand Protection: Wear impermeable gloves, protective work clothing as necessary.
Eye Protection: Safety glasses.
Respiratory Protection: If permissible levels are exceeded, use NIOSH approved dust respirator.

Section 9: Physical and Chemical Properties

9.1. Information on Basic Physical and Chemical Properties

Physical State	:	Solid
Color	:	Silver gray metallic
Odor	:	Not determined
Odor Threshold	:	Not determined
pH	:	N/A
Evaporation Rate	:	N/A
Melting Point	:	Above 1021°C (2192 - 2642 °F)
Freezing Point	:	No data available
Boiling Point	:	3074°C
Flash Point	:	N/A
Auto-ignition Temperature	:	No data available
Decomposition Temperature	:	No data available
Flammability (solid, gas)	:	No data available
Vapor Pressure	:	No data available

Relative Vapor Density at 20 °C	:	No data available
Relative Density	:	7.008 g/cc
Density	:	7.5 g/cc
Solubility	:	Water: Insoluble
Partition Coefficient: N-octanol/water	:	No data available
Viscosity	:	N/A
Explosive Properties	:	None.
Oxidizing Properties	:	None.

9.2. Other Information No additional information available

Section 10: Stability and Reactivity

10.1 Reactivity: No data.

10.2 Chemical Stability: Product is stable under recommended storage conditions.

10.3 Possibility of Hazardous Reactions: Contact with acids may evolve hydrogen gas. Dusts are flammable. May react with water under fire conditions liberating flammable hydrogen gas.

10.4 Conditions to Avoid: Avoid exposure of powdered magnet material to air, oxygen or halogenated hydrocarbons and to elevated temperatures above 150° C. Do not use or store in conditions as follows: acidic, alkaline or electrically conductive liquids, corrosive gases.

10.5 Incompatible Materials: Fine powders are incompatible with air, oxygen, halogenated hydrocarbons with strong oxidizers. Avoid acids and other oxidizing agents.

10.6 Hazardous Decomposition Products: Neodymium oxides, neodymium hydroxides, hydrogen.

Section 11: Toxicological Information

11.1. Information On Toxicological Effects

Acute Toxicity: Not classified.

Skin Corrosion/Irritation: Not classified

Serious Eye Damage/Irritation: Not classified.

Respiratory or Skin Sensitization: Not classified. Not classified.

Germ Cell Mutagenicity: Not classified

Carcinogenicity: Not classified.

Reproductive Toxicity: Not classified.

Specific Target Organ Toxicity (Single Exposure): Not classified Specific Target Organ Toxicity (Repeated Exposure): Not classified. Aspiration Hazard: Not classified

Symptoms/Injuries After Inhalation: During processing, inhalation of fumes may cause lung inflammation and injury with symptoms of chest pains, chills, cough, headache, and diarrhea. Inhalation of dusts and fumes can cause metal fume fever. Symptoms can include a metallic or sweet taste in the mouth, sweating, shivering, headache, throat irritation, fever, chills, thirstiness, muscle aches, nausea, vomiting, weakness, fatigue, and shortness of breath.

Symptoms/Injuries After Skin Contact: During metal processing, . Dust may cause irritation in skin folds or by contact in combination with tight clothing.

Symptoms/Injuries After Eye Contact: Dust generated from material cutting may cause a slight irritation. Slivers may be generated, which could cause mechanical irritation or injure the eye.

Symptoms/Injuries After Ingestion: If a large quantity has been ingested: Gastrointestinal irritation.

Inhalation of Nickel compounds has been shown in studies to provide an increased incidence of cancer of the nasal cavity, lung and possibly larynx in nickel refinery workers. Copper: Overexposure to fumes may cause metal fume fever (chills, muscle aches, nausea, fever, dry throat, cough, weakness, lassitude); metallic or sweet taste; discoloration of skin and hair. Tissue damage of mucous membranes may follow chronic dust exposure.

Section 12: Ecological Information (non-mandatory)

12.1. Toxicity: No further relevant information available.

12.2. Persistence and Degradability: No further relevant information available.

12.3. Bio accumulative Potential: No further relevant information available.

12.4. Mobility in Soil: No further relevant information available.

12.5. Other Adverse Effects

No additional information available

Section 13: Disposal Considerations (non-mandatory)

13.1. Waste treatment methods

Sewage Disposal Recommendations: Do not empty into drains; dispose of this material and its container in a safe way.
Waste Disposal Recommendations: Dispose of waste material in accordance with all local, regional, national, and international regulations.

Section 14: Transport Information (non-mandatory)

Magnets can generate magnetic fields that may affect navigation equipment. Magnets are able to attract ferromagnetic materials.
Land Transport: Not regulated for transport.
Transport by Sea: Not regulated for transport
Air Transport: Neo magnets may or may not require a hazardous material label. See the International Air Transport Association's (IATA) Dangerous Goods Regulations (DGR) and FAA Title 49, Part 173.21

Section 15: Regulatory Information (non-mandatory)

15.1 US Federal Regulations

Safety, health and environmental regulations/legislation specific for the substance or mixture			
SARA Section 355 (extremely hazardous substances):	None of the ingredients is listed		
Section 313 (Specific toxic chemical listings)	7440-48-4	Cobalt	
	7429-90-5	Aluminum	
TSCA (Toxic Substances Control Act):	All ingredients are listed		
Proposition 65 (chemicals known to cause cancer)	7440-48-4	Cobalt	
Chemicals known to cause reproductive toxicity	Females: None of the ingredients is listed Males: None of the ingredients is listed		
Chemicals known to cause developmental toxicity	None of the ingredients is listed		
Cancerogenity categories			
EPA (Environmental Protection Agency)	None of the ingredients is listed		
TLV (Threshold Limit Value established by ACGIH)	7440-48-4 7429-90-5	Cobalt Aluminum	A3 A4
MAK (German Maximum Workplace Concentration)	7440-48-4	Cobalt	2
NIOSH-Ca (National Institute for Occupational Safety and Health)	None of the ingredients is listed		
OSHA-Ca (Occupational Safety & Health Administration	None of the ingredients is listed		
National regulations:			
Other regulations, limitations and prohibitive regulations	Guidelines 67/548/ECC, 1999/45/EC 1272/2008/EG (CLP) 1907/2006/EG (REACH) German Hazardous Substances		
PLEASE NOTE:	Magnetized parts generate magnetic fields and are able to attract magnetizable materials. This may result in injury during handling of magnets. Electronic devices and measure tools may be changed in calibration or damaged by the high magnetic field strength. Please keep magnetized magnets away from computers, displays and magnetic storage devices. Especially people with heart pacemakers must keep away from magnetic fields.		
Chemical Safety Assessment	VOID (for articles)		

Section 16: Other Information

Revision Date : 09/02/2014		
The information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.		
Relevant phrases (Wording of safety instructions quoted <section 3> concerning pure substances (powder).	H228 H250 H261 H315 H317 H319 H334	Flammable solid Catches fire spontaneously if exposed to air In contact with water releases flammable gas Cause skin irritation May cause an allergic skin reaction Cause serious eye irritation May cause allergy or asthma symptoms or breathing difficulties
	R11 R15 R17 R36/38 R42/43 R53	Highly flammable Contact with water liberates extremely flammable gases Spontaneously flammable in air Irritating to eyes and skin May cause sensitization by inhalation and skin contact May cause long-term adverse effects in aquatic environment.
Department issuing MSDS		
Contact		
Abbreviations and acronyms	IMDG: International Maritime Code for Dangerous Goods IATA : International Air Transport Association ACGIH : American Conference of Governmental Industrial Hygienists LC60: Lethal Concentration, 50% LD50: Lethal Dose, 50 %	
Sources		

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.