

## Safety Data Sheet (SDS/MSDS)

### 1. Identification, Company & Product

Product Name: Neodymium-Iron-Boron (NdFeB)  
Permanent Magnet

Product Use: Permanent magnet for various uses.

Company: Stanford Magnets  
23661 Birtcher Drive  
Lake Forest, CA 92630  
1-949-407-8902  
<http://www.stanfordmagnets.com>

### 2. Hazards Identification

Neodymium magnets are extremely powerful. The incredibly strong force between magnets can cause injury. Fingers and other body parts can be pinched between two magnets. With large magnets, injuries of this type can be severe.

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

### 3. Composition / Information on Ingredients

Chemical Name: Neodymium-Iron-Boron (NdFeB) Permanent Magnet

Material	Weight %	CAS #:	ACGIH TLV (mg/m <sup>3</sup> )	Notes
Neodymium	approx. 33%	7440-00-8	Not established	
Iron	approx. 65%	7439-89-6	10 (oxide)	
Boron	approx. 1.3%	7440-42-8	10	
Nickel	0.01-0.4%	7440-02-0	1(dust)/0.1(fume)	plating
Copper	0.01-0.2%	7440-50-8	1(dust)/0.1(fume)	plating
Dysprosium	0-4%	7429-91-6	Not established	hi-temp grades
Cobalt	0-5%	7440-48-4	0.02	hi-temp grades

### 4. First-Aid Measures

#### Eye Contact:

Small pieces, chips or dust from magnet material may cause irritation. Wash eyes gently under



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running water for 15 minutes or more to remove. If symptoms persist, seek medical attention.

**Skin Contact:**

Prolonged skin contact may cause irritation or allergic dermatitis, especially for individuals with nickel allergy.

In the case of contact with chips or dust from a broken magnet, brush off powders and wash well with soap and water.

**Inhalation:**

Rare. If vapors or dusts have been inhaled, move individual to fresh air and seek medical attention.

**Ingestion:**

If a magnet is swallowed, seek medical attention immediately. If multiple magnets are ingested, magnets can stick together through intestinal walls, causing serious infections and death. Seek immediate medical attention.

**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.

## 5. Fire-fighting Measures

**Flammable Properties:**

Dry powders of neodymium magnets will oxidize, smolder, and burn rapidly in the presence 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.

**Extinguishing media:**

Suitable: Sand or dry chemicals without oxygen compounds

Unsuitable: Do not use Halon agents or water on smoldering or burning powder.

## 6. Accidental Release Measures

**Personal precautions, protective equipment and emergency procedures:**

No special measures required. See Section 7 for information on safe handling.

**Environmental precautions:**

Not applicable.



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**Methods and Material for containment and cleaning up:**

No special measures required. Pick up mechanically.

**Reference to other sections:**

See Section 7 for information on safe handling.

## 7. Handling and Storage

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.

If magnetic dust is formed, sweep up dust and store in water slurry or sealed containers utilizing inert atmosphere such as argon or nitrogen to prevent spontaneous combustion.

## 8. Exposure Controls / Personal Protection

This product is considered to be an article which does not release or otherwise result in exposure to a hazardous chemical under normal use conditions. No engineering controls are necessary.

**Protection of hands:**

Avoid repeated and prolonged contact with the skin, especially if user has known nickel allergies. Protective gloves may be used.

**Eye protection:**

Safety goggles should be worn when handling magnetized magnets.

Keep mechanical/electrical instruments which may be damaged by high magnetic fields at some distance away from neodymium magnets.

## 9. Physical and Chemical Properties

Information on basic physical and chemical properties.

Physical state:	Solid
Color:	Silver/gray metal
Odor:	Odorless
Density:	7.5 grams per cubic centimeter
Specific Gravity:	7.5 (H <sub>2</sub> O = 1)
Solubility:	Not water soluble
Melting Point:	Above 1000°C (1832°F)

## 10. Stability and Reactivity

### Possibility of hazardous reactions:

Hydrogen maybe released in contact with acid, which can cause explosive gas mixtures.  
Reacts with strong acids to form hydrogen gas. Do not store near strong oxidizers.

## 11. Toxicological Information

Neodymium compounds are of low to moderate toxicity, yet its toxicity has not been thoroughly investigated. Neodymium dust and salts are very irritating to the eyes.

Roughly 2/3 of a neodymium magnet is composed of iron. Inhalation overexposure of iron dust may cause siderosis, a benign pneumoconiosis.

Most neodymium magnets are plated with nickel. Prolonged contact with nickel may cause sensitization dermatitis, or nickel allergy. Nickel is a listed carcinogen.

## 12. Ecological Information

No specific information available for this product.

## 13. Disposal considerations

Dispose in accordance with federal, state and local regulations.

Large, powerful magnets may be demagnetized with high temperatures before disposal to prevent possible handling injury.

## 14. Transport Information

Magnets can generate magnetic fields that may affect navigation equipment. Magnets are able to attract ferromagnetic materials.

For air transport, neodymium 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.

## 15. Regulatory Information

The following list of regulations may not be complete and should not be solely relied upon for all regulatory compliance responsibilities.

This product is an article as defined by TSCA regulations, and is exempt from TSCA Inventory



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requirements.

RoHS: This product is in compliance and conforms to the European Union's Restriction of Use of Hazardous Substances in Electrical and Electronic Equipment (RoHS) Directive of 2002/95/EC and 2011/65/EU (RoHS2).

REACH: This product does not contain, or contains less than 0.1% (by weight), any substances of concern as detailed in REACH EC-1907/2006. This declaration includes the 181 REACH SVHC items as of January 15, 2018. As the list of SVHC substances keeps expanding, Stanford Magnets will continue to monitor and test this statement's applicability.

California Prop. 65: This product may contain ingredients which the State of California has determined may cause cancer.

## 16. Other Information

### **WARNING:**

**RARE EARTH MAGNETS ARE EXTREMELY POWERFUL!**

They exhibit very strong magnetic forces which make them attract to other magnets and other ferromagnetic materials such as iron or steel.

**HANDLE WITH EXTREME CAUTION!**

The above information is believed to be correct but does not purport to be all-inclusive and shall be used only as a guide. Stanford Magnets shall not be held liable for any damage resulting from handling or from contact with the above product.