

N35 MAGNETS

Milan, 16th, December 2022

DESCRIPTION

This data sheet provides technical and safety information relating to all magnets with N35 grade, regardless of diameter, size and thickness. The basic composition of the permanent magnet is NdFeB with NiCuNi coating.

SAFETY DATA SHEET

2. INFORMATION ON COMPOSITION

NdFeB Permanent magnet

	%	CAS
Iron	Balance	7439-89-6
Neodymium	26.5-28.5	7440-00-8
Dysprosium	7-9	7429-91-6
Boron	1.1-1.3	7440-42-8
Cobalt	1-1.2	7440-48-4

NiCuNi coating

Nickel	Balance	7440-02-0
Copper	27-35	7440-50-8
Manganese	1-4	7439-96-5
Iron	1-2.5	7439-89-6
Aluminium	0-0.5	7429-90-5
Carbon	0-0.15	7440-44-0
Silicon	0-1	7440-21-3
Sulfur	0-0.02	7704-34-9
Titanium	0-1	7440-32-6
Niobium	0-2.5	7440-03-1



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3. HAZARDS INFORMATION

Health hazards	No effect
Environmental effects	No effect
Physical and chemical hazards	No
Special hazards	No
Main symptoms	None
Article hazards	-

4. FIRST AID PROCEDURES

Measures in case of accidental exposure	
If inhaled	No effect
In case of skin contact	No effect
In case of eye contact	-
In case of ingestion	-
In case of cutting wounds	-
Serious symptoms and hazards	No
Article hazards	-

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	Sand, dry powder extinguishers
Potential hazards during fire	None
Special extinguishing procedures	Not required
Special protective equipment for firefighters	Not necessary

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	No
Environmental precautions	Not required
Cleaning method	Not required

7. SAFE HANDLING AND STORAGE MEASURES

Handling	No special precautions are required
Storage	Store in a cool and dry place, at room temperature.
Storage time	Unlimited

8. EXPLOSION PREVENTION MEASURES

Technical controls (Engineering control)	-
Control parameters	-
Personal protective equipment (PPE)	
Respiratory protection	Not necessary
Hand protection	Not necessary
Eye protection	Not necessary
Skin and body protection	Not necessary
Hygiene measures	-

9. PHYSICAL AND CHEMICAL CHARACTERISTICS

Physical state	Solid
Form	Solid
Color	Dark grey, shiny if coated NiCuNi or galvanized
Odor	None
pH	-
Boiling point / combustion point	-
Decomposition temperature	Not self-flammable
Explosion limits	-
Vapor pressure	-
Vapor density	-
Density	7,5
Melting point	1200°C



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10. STABILITY AND REACTIVITY

Stability	Very high
Potential hazards in special situations	None
Conditions to avoid	None
Substances to avoid	None
Hazardous decomposition products	None

11. TOXICOLOGICAL INFORMATION

Lethal toxicity	
If inhaled	No headache, dizziness and no loss of consciousness
Skin contact	No
Eye contact	No
Ingestion	No
Local effects	-
Sensitization	-
Chronic toxicity	-
Long-term toxicity	-
Special effects	-

12. ECOLOGICAL INFORMATION

No data available/not applicable

13. DISPOSAL METHODS

Dispose according to normal disposal procedures in compliance with applicable local regulations

14. TRANSPORT INFORMATION

International transport	No special requirements
Not magnetized	Transport by truck by sea: no special requirements
Magnetized	Air transport: follow IATA regulations
UN Code	Not assigned

National transport	No special requirements
Not magnetized	Transport by truck by sea: no special requirements
Magnetized	Air transport: follow IATA regulations

Special shipping methods and precautions:

In case of magnetized product, ensure the absence of intense magnetic fields outside the packaging, using packaging with adequate magnetic shielding.

15. REGULATORY INFORMATION

Specific health, safety and environmental regulations for the substance or mixture:
None

Chemical safety assessment	Not necessary
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16. OTHER INFORMATION

Additional codes indicating hazards	Not necessary
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NEODYMIUM MAGNETS: TIPS FOR SAFE HANDLING

	Ingestion Children could swallow small magnets. If multiple magnets are swallowed, they can become stuck in the intestine and cause serious complications. Magnets are not toys! Make sure that children do not play with magnets.
	Electrical conductivity Magnets are made of metal and conduct electricity. Children may try to insert magnets into a power socket, resulting in the risk of electric shock. Magnets are not toys! Make sure that children do not play with magnets.
	Bruising Large magnets have a very high attraction force. • Unsafe handling can cause fingers or skin to be crushed between magnets, resulting in bruising and hematomas. • Very powerful and large magnets can cause bone fractures. Wear heavy protective gloves when handling large magnets.
	Pacemaker Magnets can interfere with the operation of pacemakers and implantable cardiac defibrillators. • A pacemaker can switch to test mode and cause health disorders. • A cardiac defibrillator may stop working. If such devices are used, keep an adequate safety distance from magnets: www.supermagnete.de/eng/faq/distance • Warn people wearing these devices not to approach magnets
	Heavy objects Excessive loads, material fatigue conditions or defects in the material itself can cause the magnet or magnetic hook to detach from the surface to which it is fixed. Falling objects can cause serious injuries. • The specified adhesion force applies only under ideal conditions. Always provide an adequate safety margin. • Do not use magnets in places where, in case of material failure, injuries to people may occur.
	Metal splinters Neodymium magnets are brittle. Collision between magnets can cause them to break. Sharp splinters can be projected several meters away and cause eye injuries. • Avoid collision between magnets. • Wear safety goggles when handling large magnets. • Make sure that people nearby are also adequately protected or keep a safe distance.



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	Magnetic field Magnets generate an intense and wide-ranging magnetic field. They can damage televisions and laptops, hard drives, credit cards and ATM cards, data storage media, mechanical watches, hearing aids and speakers. Keep magnets away from devices and objects that could be damaged by strong magnetic fields.
	Flammability During mechanical processing of magnets, the dust generated by drilling can easily catch fire. Avoid processing magnets or use suitable equipment and an adequate amount of cooling water.
	Nickel allergy Many of our magnets have coatings containing nickel. • Some people may experience allergic reactions after contact with nickel. • Nickel allergy can develop after prolonged and repeated contact with nickel-plated objects. • Avoid prolonged skin contact with nickel-coated magnets. • Avoid contact with magnets in case of known nickel allergy.
	Air transport Magnetic fields generated by improperly packed magnets can interfere with aircraft navigation devices. In the worst cases, this could cause accidents. • Ship magnets by air only in packaging with adequate magnetic shielding.
	Postal shipping Magnetic fields generated by improperly packed magnets can cause interference in sorting machinery and damage fragile goods contained in other parcels. • Use a suitably sized box and place the magnet in the center, surrounding it with plenty of protective material. • Arrange magnets inside the package so that their magnetic fields neutralize each other. • If necessary, use iron sheets to shield the magnetic field. • Stricter rules apply for air transport: refer to the warning "Air transport"
	Influence on people According to current scientific knowledge, the magnetic fields of permanent magnets do not have a measurable positive or negative influence on humans. It is unlikely that permanent magnets represent a health risk, but this possibility cannot be completely excluded. • For greater safety, avoid prolonged contact with magnets. • Store large magnets at least one meter away from the body.
	Coating flaking Most of our neodymium magnets have a thin nickel-copper-nickel (NiCuNi) coating to protect them from erosion. Following impacts or high pressure, this coating can chip or crack, making the magnet vulnerable to environmental agents, such as humidity, and promoting oxidation phenomena. • Separate large magnets, especially spherical ones, with a sheet of cardboard or similar material. • Avoid impacts between magnets and repeated mechanical stress (e.g. blows or pressure).



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	Oxidation, corrosion, rust
	Untreated neodymium magnets oxidize quickly and tend to deteriorate. Most of our magnets have a nickel-copper-nickel (NiCuNi) coating to protect them from corrosion. This coating offers limited protection against corrosion, but is not sufficiently resistant for continuous outdoor use. • Use magnets only in dry indoor environments or adequately protect them from environmental exposure. • Avoid any damage to the coating.
	Temperature resistance
	Neodymium magnets have a maximum operating temperature between 80 and 200 °C. Most neodymium magnets permanently lose part of their adhesion force already at a temperature of 80 °C. • Do not use magnets in environments where they are exposed to high or extreme temperatures. • In case of use of adhesives, do not accelerate curing by means of hot air.
	Mechanical processing
	Neodymium magnets are brittle, heat-sensitive and subject to oxidation. • Drilling or cutting the magnet with unsuitable tools can cause it to break. • The heat generated during processing can demagnetize the magnet. • Damage to the coating promotes oxidation and the resulting deterioration of the magnet.
	Avoid mechanical processing of magnets in the absence of adequate equipment and specific experience.



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