

Magnet Safety Guide

By Stanford Magnets

Please be advised that the following is not a comprehensive list. Magnets are not toys. Please review the various safety tips carefully.

Neodymium Magnets

Neodymium magnets are unlike other magnets in property. These are the strongest permanent magnets and therefore pose greater risk when handled. Neodymium magnets which are larger than a few centimeters are strong enough to cause injuries to body parts when pinched between two magnets. Furthermore the greater force exerted by Neodymium magnets can be hazardous to mechanical and electronic devices. Consequently the relevant safety precautions must be taken when coming into contact with Neodymium magnets, with particular attention needed to the large Neodymium magnets. This guideline will highlight some of these possible safety precautions.

- Neodymium Magnets are dangerous because of their strength and the fact that they easily shatter and produce sharp fragments. They should not be dropped as the magnets will lose their magnetization.
 - They should at all times be treated with respect and not left with children unsupervised. Nor should primary-age children be allowed to handle them.
 - There is a danger of nipped flesh if they are allowed to snap together.
 - They should be kept away from electronic apparatus and credit cards, digital cameras, watches, mobile phones, pacemakers etc.
 - Care should be taken to ensure the magnets do not jump and become attached to a steel shelf bracket or furniture frame and so be lost.
 - Avoid using iron filings to demonstrate magnetic poles. They stick on magnets and may irritate the skin of younger children. If dressmaking pins are used, take care to collect all of them and not let any fall on the floor. To avoid losing any, they can be placed in a sealed transparent plastic bag which is placed over the magnet on the OHP. Do not allow the children to handle the pins.
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Overview:

Before handling Neodymium magnets one should empty their pockets; wear personal protective equipment; keep electronic equipment at a safe distance; check their working environment and lastly keep magnets out of reach of children.

The most important safety tip "swallowing" deals with the safety of children. We take this subject very seriously and discourage giving Neodymium magnets to children under 14. Besides the danger of swallowing, smaller children could put small magnets into outlets and receive an electric shock. With larger magnets children could jam a finger and get hurt.

Therefore, children under 10 years old should under no circumstances handle magnets.

Our magnets are carefully tested to ensure their safety. All of our magnets comply with industry safety regulations, and are regularly inspected to check that our suppliers and the manufacturing process meet Stanford Magnet's high level of quality standards. Packaging designs are reviewed to clearly indicate appropriate warnings and ages.

Large Magnets Warning

Big magnets have a very strong attractive force. Unsafe handling could cause jamming of fingers or skin in between magnets. This may lead to contusions and bruises. Larger magnets (more than 0.5 lbs.) can easily crush fingers and break bones.

Safety Precautions for Large Magnets

- You should always wear heavy protective gloves and eye protection when handling large magnets. Very large magnets can pose a crushing hazard and should not be handled.
- Store large magnets at least one meter away from your body.
- Separate big magnets, especially spheres, with a piece of cardboard and thick gloves.

Small Magnets Warning

Children could swallow small magnets. If several magnets are swallowed, they could get stuck in the intestine and cause perilous complications.

Safety Precaution for Small Magnets

- Magnets are not toys. Make sure that children do not play with magnets.
 - In general, to protect both small children and pets from rare earth magnets, keep track of all rare earth magnets in a home/school (like push pins and fridge magnets), not just those located in toys.
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Safety considerations

1. Be careful when handling strong magnets.

- Don't let them snap to each other because they will chip or break and small pieces will go flying off.
- Wear safety goggles so those small chips don't lodge into your eyes.
- Don't drop the magnets. Not only will they chip or break, but the impact will also affect the strength of the magnet.

2. Empty pockets

Remove any metal items or any object with metal inside from your pockets, such as keys, Coins or pocket knives, before handling magnets with a pulling force of more than a few pounds. In addition leave your wallet in a safe place, as Neodymium magnets can erase data from credit cards. Furthermore set aside your cell phone or MP3 player.

3. Wear personal protective equipment

Personal protective equipment, such as lab goggles, is a must for anyone within a few feet of a strong Neodymium magnet. These will protect your eyes in case a magnet shatters. Consider wearing gloves to protect your fingers from metal objects forcibly drawn to the magnet.

4. Check your working environment

When preparing a workbench or class demonstration using Neodymium magnets, make sure you're aware of all metal objects in the area. Ideally, use a wooden or plastic bench with no steel hardware. Keep the magnets in a safe area until you need them. You should educate the people you are working with about the magnets, and thoroughly discuss the possible hazards, before allowing anyone else to handle the magnets.

5. Keep electronic equipment at a safe distance

- Neodymium magnets can erase data from computer hard drives and floppy disks; subsequently keep computer equipment several feet away.
- If they are placed close to a video tape, portions of the tape will be erased or messed up.
- If they are placed close to an audio tape, portions of the tape will be erased or messed up.

- If they are placed close to credit cards, the magnetic strip on the back of the card will be erased or messed up.
- If they are placed close to a TV screen or computer monitor, the screen's colors will become distorted, and it is not easy to fix it!
- If they are placed close to a mechanical watch, the watch can become damaged.
- Medical devices, such as pacemakers or hearing aids, will be attracted to the strong magnetic field. Therefore keep them away.

6. Store magnets separately in thick packaging

If you are handling more than one magnet, make sure that each magnet has its own storage container. This will prevent the magnets from accidentally sticking together or to other objects when not in use.

7. Keep magnets out of reach of Children

Swallowing magnets can cause a number of serious health effects, and in some cases death. Therefore caretakers need to be aware of the symptoms and take relevant measures to prevent children and in some cases teenagers from the possible adverse effects of swallowing magnets.

Parents and guardians need to pay particular attention to children's toys as a wide range of children's products such as building toys, dolls and action figures, alphabet and number magnets, science and craft kits, board games and vehicle sets contain small powerful magnets.

Teenagers are also at risk as they put balls of magnets in between their lips, on their tongues and in their noses to mimic facial piercings. Furthermore small powerful magnets used in jewelry, clothing accessories and other household items such as fridge magnets may pose a hazard if the item itself is small enough to be swallowed or if the small magnet breaks away from the product and is swallowed.

SIDE EFFECTS

When a single magnet is swallowed, it can become lodged inside the throat, lungs, or esophagus (the tube that connects the mouth to the stomach). This can lead to choking, difficulty breathing, or damage to the area. While a swallowed magnet smaller than a penny will generally pass through a child's digestive system, large, sharp, or oddly shaped items may become stuck.

A much greater danger exists when a magnet is swallowed along with another magnet or piece of metal. When two or more such objects are swallowed, the magnetic attraction can pin the bowel walls together leading to a blockage or tearing of the bowel that is potentially deadly. If more than one magnet is swallowed, the balls can pull together inside the child's digestive

system, resulting in intestinal wounds and in some cases intestinal perforations, sepsis and death.

The magnets, which are made of the rare-earth element Neodymium, stick together with such force that if they're ingested, they can bore holes in the stomach or intestines, sometimes causing blood poisoning and requiring emergency surgery.

Further research is advised:

This is not a comprehensive list. Please conduct your own thorough research regarding handling magnets to complement this guide.
