Brugger GmbH
Gewerbestraße 23
D- 78739 Hardt
Tel. +49 7422 /9519-0
Fax +49 7422 /9519-220
Web: www.brugger-magnet.de
E-mail: info@brugger-magnet.de

**General safety data sheet**

## 1. name of substance/preparation and company

Magnet/magnet system

Item no.: applies to all raw magnets and magnet systems from our range (NdFeB, SmCo, Alnico and ferrite)

Manufacturer/Supplier
Brugger GmbH
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## 2. composition

Magnets coated with a nickel, chrome, zinc, silver, epoxy, parylene or other coating.
Plastic-bonded or pressed magnets or small assemblies of magnetic material, bonded or otherwise processed.
Magnetic systems can be copper-plated, painted, made with galvanized or nickel-plated steel, magnetic stainless steel or injection-moulded plastic.

## 3 Possible dangers

Wearers of pacemakers should be particularly careful when handling magnets or magnetic systems. A minimum distance of 20 cm from the device must be maintained, otherwise temporary malfunctions of the pacemaker may occur. (see here point 16 other information)
The use of magnets or magnet systems in explosion-proof rooms is questionable. If magnets fall down, they can shatter and cause sparks.
Splintering.

## 4. first aid measures

No specific information required

## 5. fire-fighting measures

No special information necessary

## 6. measures in case of accidental release

No special information necessary

## 7 Handling and storage

### 7.1 Handling

In addition to the comments already made under point 3, the following points also apply to handling:

- Do not store or bring close to magnetic storage media (e.g. check cards or diskettes)
- Some of the magnets used are very strong and attract iron parts. Incorrect handling can result in crushing. Splintering can also occur, which can lead to eye injuries and cuts.

### 7.2 Storage

See point 7.1

## 8. exposure limitation and personal protective equipment

See point 3 and point 16

## 9. physical-chemical properties

No special information necessary

## 10. stability and reactivity

No special information required

## 11. information on toxicology

Contact of the nickel layer with the skin may cause allergic reactions in case of hypersensitivity.

## 12. information on ecology

No negative effects known

## 13. note on disposal

- Waste disposal should be in accordance with Directives 91/689/EEC and 94/62 EU and with local, regional and national regulations.
- Compliance with the regulations must be clarified with the relevant waste disposal company.
- Use waste codes according to the European Waste Catalog.

## 14. information on transportation

Under certain circumstances, magnets can be classified as dangerous goods in air freight in accordance with packaging regulation IATA 953. If properly packed, classification as dangerous goods does not apply.
Magnets are not subject to the regulations of the ADR (UN number 2807, hazard number none, class 9)

## 15. regulations

none

**16. other information**

Information for wearers of pacemakers - Recommendation

At field strengths above 1 militesla (mT) [= 10 gauss], the reed contact used in the pacemaker (biotronic) switches to the so-called “magnetic mode”. It should be noted that in “magnetic mode” the pacemaker does not switch off, but switches to a programming mode in which the pacemaker continues to operate in an emergency mode (basic function).

It should also be added that the implanted pacemaker is located inside the wearer's body and a distance of 1-2 cm is sometimes reached. When approaching a magnet or magnet system, the switching distance of the reed contact from the pacemaker is <20 cm at a field of 1 militesla (mT) [= 10 gauss], depending on the magnet or magnet system. This is also the minimum safety distance that a magnet/magnet system must have from the pacemaker
(see also here the requirement of the standard “Safety of implantable pacemakers” DIN EN 50061/A1, section 6.3.4 according to which fields of 1 militesla (mT) [= 10 gauss] strength must not interfere with the pacemaker).

**General hazard potential - here are statements from the Federal Office for Radiation Protection**

*Permanent magnets*

*Permanent magnets can produce static magnetic fields of up to 300 millitesla (mT) [= 3000 gauss] directly on the surface. At a distance of a few centimeters, however, the field is already lower than the earth's natural magnetic field, which is around 0.04 millitesla (mT) [= 0.4 gauss] in our latitudes.*

***Are magnetic badge clips for name badges safe?***

*With small permanent magnets on name badges, magnetic inductions of around 1 millitesla (mT) [= 10 gauss] were measured at a distance of 1 cm. At a distance of 5 cm it was only 0.1 millitesla (mT) [= 1 gauss]. In addition, the values on the back of the magnet were considerably lower than on the front.* **(The name tag holders supplied by us are somewhat stronger magnetically and still have a field strength of 1 millitesla (mT) at a distance of 3 cm).**

*The biological effect thresholds for static magnetic fields are well known. The ICNIRP, an international radiation protection committee, recommends that the following values for static fields should not be exceeded for continuous exposure:*

*40 millitesla (mT) [ = 400 gauss] for the general population;*
*200 millitesla (mT) for occupational exposure. [= 2000 gauss]*

*These values are far from being reached when the permanent magnet is normally attached to clothing. A risk or impairment to the health of persons can therefore be completely ruled out.*

*In addition, however, adverse effects are known for wearers of certain types of pacemakers from 0.5 millitesla (mT) [= 5 gauss]. From approx. 1 millitesla (mT) [= 10 gauss], effects have also been described in which magnetic cards, credit cards, watches and similar devices were affected. It is advisable not to use the name badges near implanted pacemakers (range approx. 1 cm) and not to keep sensitive magnetic cards in jacket pockets.* **We go a little further here and generally advise pacemaker wearers not to use magnetic name badge holders.**

This excerpt and further information on the subject can be found on the website of the Federal Office for Radiation Protection under the link:

https://www.bfs.de/SharedDocs/Downloads/BfS/DE/broschueren/emf/stko-strom.pdf?__blob=publicationFile&v=8

https://www.bfs.de/DE/themen/emf/nff/nff_node.html

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