Aussie Magnets

What's in a Magnet?

Contrary to popular belief, a Rare Earth magnet is not a solid block of metal!

Exterior Coating

Magnets are coated in a protective outer layering, which combats corrosion and chipping. Ordinarily, magnets are triple coated as "Ni, Cu, Ni".

In some circumstances, magnets may have different coating, such as gold. This may be useful in instances where magnets will come into frequent contact with bare skin, and "Ni" irritation on the skin is to be avoided.

Furthermore, the glossy silvery or golden coatings improve the general aesthetics of the magnet!

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Nickel
[Ni] - A chemical element with high resistance to oxidation. It is a silvery-white lustrous material, often used for plating metals (such as Fe) to prevent corrosion.
Copper
[Cu] - A chemical element with high thermal and electrical conductivity. It is a ductile metal, often used as a conductor or a constituent of various metal alloys. This material is non-magnetic.

Magnet Interior

The interior of a magnet is comprised of a multitude of various chemical elements. These elements are jet-milled down into powder and blended into a slurry composition, before they are baked repeatedly at over 1,000°c.

Click here to read our detailed article "How is a Magnet Made?"

Once solidified, the interior of a magnet is an extremely light, porous, brittle material which is highly receptive to "permanent" magnetisation. This means that the unit (once magnetised) can support a powerful static

magnetic field, without an additional external input of power!

As such, the magnet is very lightweight and strong, but cannot be drilled, machine-cut or hammered.

All or a combination of the following elements are incorporated into rare earth magnets. Materials can be added, removed, or substituted to alter the grade and property of magnets!

Neodymium [Nd] - A metallic element belonging to the "rare earths" or "Lanthanides" chemical sub-category. This is an essential component used in the manufacture of modern rare earths / neodymium permanent magnets.

Iron [Fe] - The most common element on earth (by mass). Magnets require the presence of iron material to enable magnetic attraction.

Boron [B] - A silvery-grey mettaloid. Pure boron is produced with difficulty, as it tends to form containing small amounts of carbon or other elements.

Samarium
[Sm] - A hard, silvery element which oxidizes easily when exposed to air. This material has a high temperature threshold, and is used in high grade rare earths magnets.
Cobalt
[Co] - A ferromagnetic chemical element. It is a hard, lustrous silvery metal used in the production of high-strength, magnetic alloys.
Zirconium
[Zr] - A lustrous, gray-white, strong transition metal that resembles titanium. Zr is commonly used as an alloying element, due to its high resistance to corrosion.
Aluminium
[Al] - A chemical element with high resistance to corrosion. It is a silvery-white metal, most commonly used as an alloy. This material is non-magnetic.
Additional Elements
15 other elements in minor amounts.

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