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Permanent Magnet Alloys  
High Temperature Phase  
Transformation In Situ And  
Dynamic Observation And  
Its Application In Material  
Design

**Rare Earth Permanent  
Magnet Alloys High  
Temperature Phase  
Transformation In Situ  
And Dynamic**

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Is Nickel Magnetic |  
Testing Nickel (Ni) with a Rare Earth

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Magnet What does rare earth magnet mean? *Disintegrating rare earth alloy with hydrogen*

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What is RARE-EARTH MAGNET?

What does RARE-EARTH MAGNET mean? RARE-EARTH MAGNET

meaning \u0026amp; explanation/ *Bought A 330 Pound Rare Earth Magnet New*



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*alternatives may ease demand for  
scarce rare-earth permanent magnets  
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Wakanda Technology | Magnetic

Games ~~What Happens If a Monster~~

~~Magnet Meets an iPhone 6S?~~ Super-

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strong neodymium magnets destroying  
everyday items in slow motion **The  
Rarest Element on Earth**

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The Ultimate Illegal Research !

Permanent Magnets Outlawed.

Alternate Energy FORBIDDEN #4.

**Copper pipe and neodymium  
magnet** ~~Monster magnet meets~~

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magnetic fluid... *THE STRONGEST  
MAGNET IN THE WORLD* How  
SuperMagnets are made

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Rare Earth Elements Research with  
Rick Honaker **Rare Earth Magnet**  
**Cutting Board** *Ames Lab 101: Rare-  
Earth-Free Manganese Permanent  
Magnets* Samarium–Cobalt SmCo



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Dysprosium - THE MOST MUSICAL  
METAL ON EARTH! Rare Earth

Permanent Magnet Alloys

Rare-earth magnets are strong permanent magnets made from alloys of rare-earth elements. Developed in the 1970s and 1980s, rare-earth magnets are the strongest type of

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permanent magnets made, producing significantly stronger magnetic fields than other types such as ferrite or alnico magnets. The magnetic field typically produced by rare-earth magnets can exceed 1.4 teslas, whereas ferrite or ceramic magnets typically exhibit fields of 0.5 to 1 tesla.

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Rare-earth magnet - Wikipedia

Rare earth magnets are made from the rare earth elements whose atomic numbers are between 57 and 71. The most common and strongest rare earth magnet is obtained from the alloys of neodymium, boron, and iron. To make

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rare earth magnets, solid ingots of neodymium, boron, and iron are ground into powder. This process of making rare earth magnet consists of three phases.

Rare Earth Magnets - Explanation,  
Types, Applications, FAQs



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Appreciable permanent-magnet  
properties with a magnetocrystalline  
anisotropy of about 9.6-16.5,  
Mergs/cm (3), a magnetic polarization

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J (s) approximate to 7.2-10.6 kG, and  
coercivities  $H_c = \dots$   
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Rare Earth Permanent Magnets  
presents the discussion of the  
metallurgy and properties of rare earth

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permanent magnet alloys. The monograph initially provides the elementary aspects of magnetism to enable the reader sufficient understanding of permanent magnetism.

Rare Earth Permanent Magnets |

*Page 20/39*

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ScienceDirect

The study on the new magnet has also been extended to other R-Fe-B compounds containing various rare earths (R) and to R-Fe-Co-B alloys.  $2\text{Fe} \cdot 14\text{B}$  matrix phase plus Nd-rich phase and B-rich phase ? Nd  $2\text{Fe}$

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Permanent magnet materials based on the rare earth-iron ...

The rare-earth-free  $Zr(Fe,Si)_{12}$  compounds are, apparently, metastable and their anisotropy is believed to be too weak for permanent magnet materials. However, as an answer to the overreliance of

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permanent magnets on the “critical” rare-earth elements, very rare-earth-lean  $R_{1-x}Zr_x(Fe,Si)_{12}$  compounds with  $R = Nd$  [37] and  $Sm$  [38] may be of interest.

ThMn<sub>12</sub>-Type Alloys for Permanent Magnets - ScienceDirect

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There are two principal neodymium magnet manufacturing methods: Classical powder metallurgy or sintered magnet process. Sintered Nd-magnets are prepared by the raw materials being melted in a furnace, cast into a mold and cooled to form ingots. The ingots are pulverized ...



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- Neodymium magnet - Wikipedia  
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Design  
A rare earth permanent magnet  
includes a main phase composed of a  
main phase particle and a grain  
boundary present among a plurality of  
the main phase particles. The grain  
boundary includes a...

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US10453595B2 - Rare earth permanent magnet - Google Patents  
Significant progress has been made in the production of high-performance permanent magnets in the last century, thanks to the discoveries of  $\text{SmCo}_5$ ,  $\text{Sm}_2\text{Co}_{17}$ , and  $\text{Nd}_2\text{Fe}_{14}\text{B}$ -

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based rare-earth hard magnetic  
materials in the 1960s and 1980s  
(Herbst and Croat, 1991; Strnat and  
Strnat, 1991).  
Its Application In Material  
Rare-Earth-Free Permanent Magnets:  
The Past and Future ...  
The MarketWatch News Department

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was not involved in the creation of this  
content. Nov 09, 2020 (SUPER  
MARKET RESEARCH via COMTEX)

-- The global rare earth magnet market  
reached a value of USD 13.5 ...

Rare Earth Permanent Magnet Market  
2020, Industry Overview ...

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Australian Strategic Materials' (ASX: ASM) Ziron Tech team in Korea has successfully produced 200kg of FeNd, a key rare earth alloy used to produce sintered permanent magnets (via powder metallurgy). Sintered rare earth permanent magnets have high magnetic strength and heat resistance

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and are essential for advanced and clean technologies including electric vehicles.

ASM produces key rare earth alloy -  
The Pick Online Magazine

In particular, in rare-earth-free permanent magnetic alloys with L10

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structure microstructural defects deserve special attention. In this work, we report on the “negative” effect of twin structure, and the “positive” effect of dislocations on the coercivity is clarified in a systematic experimental study of L10 -MnAl alloys. We find that the nucleation of

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magnetization reversal is preferentially activated along the twin boundaries and grows into the twin stripes.

$\$L\{1\}_{0}\$$  rare-earth-free permanent magnets: The effects ...

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Alloys' High Temperature ...  
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can be realized in tetragonally  
distorted full Heusler alloys by light  
interstitial atoms.

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Designing rare-earth free permanent magnets in heusler ...

In nickel–metal hydride (NiMH) cells, the anode is a rare-earth or nickel alloy with many metals. The cathode is nickel oxyhydroxide. The electrolyte is potassium hydroxide. Applications are cellular phones, camcorders,

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emergency backup lighting, power tools, laptops, portable, and electric vehicles.

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Titanium and the key rare earth  
permanent magnet metals neodymium

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and praseodymium have been produced in the commercial pilot plant with dysprosium and zirconium scheduled for later this month.

ASM produces key heavy rare earth dysprosium metal in ...

Hard magnets (or permanent

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magnets) • Used in applications where you don't want material to demagnetise e.g. loudspeakers, motors, magnetic recording • The hardest magnets contain rare earths, e.g. Nd<sub>2</sub>Fe<sub>14</sub>B, with a coercive field  $H_c \sim 1.2$  Tesla.

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