* Neodymium

Magnets

Strongest permanent magnets known

Cheaper, lighter, and stronger than samarium-cobalt magnets

Appear in products such as microphones, professional loudspeakers, in-ear headphones, guitar and bass guitar pick-ups, and computer hard disks where low mass, small volume, or strong magnetic fields are required

Neodymium magnet electric motors have also been responsible for the development of purely electrical model aircraft within the first decade of the 21st century

Used in the electric motors of hybrid and electric automobiles to provide greater power and torque

Help collect dust from the surface of Mars

* Dysprosium

Substituting up to 6% of neodymium in Neodymium-iron-boron magnets to raise the coercivity for demanding applications such as drive motors for electric vehicles

Used in conjunction with vanadium and other elements in making laser materials and commercial lighting

Employed in various data storage applications, such as hard disks

One of the components of Terfenol-D, the highest room-temperature magnetostriction of any known material

* Praseodymium

In combination with neodymium, used to create high-power magnets

As an alloying agent with magnesium to create high-strength metals that are used in aircraft engines

In optical fiber, as optical amplifier

Fluoride forms the core of carbon arc lights which are used in the motion picture industry for studio lighting and projector lights

Can be used as a catalyst in petrochemical industry

* List of companies

Toyota Tsusho (Japan)

Greenland Minerals and Energy Ltd (Australia) – Project Kvanefjeld

Alkane Resources Ltd (Australia) – Dubbo Zirconia Project

Molycorp Minerals LLC(US) – Mountain Pass mine

Lynas Corporation Ltd (Australia) – Mount Weld Rare Earths Project

Hitachi Metals (Japan) – neodymium iron boron magnet patents

China Minmetals Corporation (China)

Chinalco (China)

Chinese Baotou Steel Rare-Earth Group (China)

Avalon Rare Metals Inc. (Canada) – HREE

Solvay (Belgium) – refinement, REE separation

Solikamsk Magnesium Works (Russia)