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1. Strictly speaking, they are not rare.

They may be called rare but in reality, considering their distribution over the earthâ€™s crust, rare earth metals are in relative abundance. Along with copper, rare earth metals are the 25th most abundant element found in the earthâ€™s crust. So why are they called rare? Unlike copper, these metals are widely dispersed; itâ€™s practically difficult to find enough of them concentrated in one location where they can be efficiently extracted through mining.

2. There are 17 rare earth metals.

The 17 rare earth metals are the following: Scandium (Sc), Yttrium (Y), Lanthanum (La),

Cerium (Ce), Pr (Praseodymium), Nd (Neodymium), Pm (Promethium), Samarium (Sm),

Europium (Eu), Gadolinium (Gd), Terbium (Tb), Dysprosium (Dy), Holmium (Ho), Erbium (Er), Thulium (Tm), Ytterbium (Yb), and Lutetium (Lu).

3. They are collectively known by many names.

Aside from rare earth metals (REM), they are also known as rare earth elements (REE) and rare earth oxides (REO). Several REMs also have specific categories, such as light rare earth elements (LREE) which refer to Europium and Lanthanum, and heavy rare earth elements (HREE) which refer to Gadolinium, Lutetium, and Yttrium.

4. Their names tell stories of their origin.

Rare earth elements are named after the people who discovered them, such as Samarium (from Vasili Samarsky-Bykhovets); the place where they were first found, such as Yttrium (from Ytterby, Sweden); or their characteristics, such as Praseodymium (from the Greek words that literally mean â€œleek green twinsâ€•).

5. A black mineral introduced rare earth metals to the world.

Ytterbite was a black mineral first discovered in 1787 by Lieutenant Carl Axel Arrhenius.

The mineral, first found in a quarry in the Swedish village of Ytterby, was renamed gadolinite in 1800.

6. They took a long journey to discovery.

It took almost a hundred years before all known rare earth metals were discovered, from the discovery of â€œytterbiteâ€• in 1787 to the 1940s when a chemical procedure was finally developed which successfully separated and filtered rare earth metals.

7. They were taken from other related minerals.

Several of the rare earth elements were isolated or obtained from other minerals. For example, Carl Gustav Mosander derived three oxides from ytteria and came up with Yttrium, Terbium, and Erbium.

Familiarize

8. Theyâ€™re causing controversy in some parts of the world.

Mining rare earth metals raises environmental and geo-political issues specifically in China and Malaysia where they are heavily mined. In Malaysia, the issue is with the way the mining wastes are handled, which affects neighboring villages and towns with reported cases of birth defects. In China, they are carefully considering limiting the extraction of rare earth metals to prevent over-exploitation.

9. They are essential to technology.

They are used for aerospace components, microwave filters, lasers, nuclear batteries, MRI contrast agents, high refractive index glass, battery electrodes, etc.

10. They command a high demand in the international market.

Due to their wide application in technology, rare earth elements command a high price in the international market, to such a degree that they have a different pricing compared to gold and other precious metals.

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