

## Rare Earth Elements (REE) Extraction & Exotic Alloys

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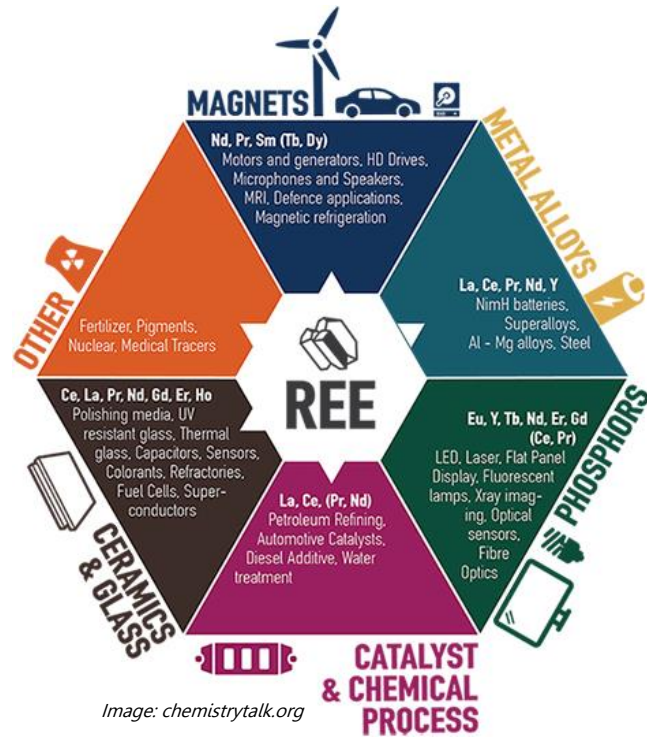
### Rare Earth Elements

The rare earth elements (REE) or rare earth oxides are a set of seventeen metallic elements. These include the fifteen lanthanides on the periodic table plus scandium and yttrium.

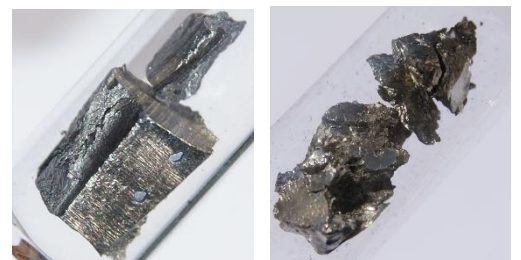
Rare earth oxides can be extracted starting from mineral sand deposits or traditionally, starting from the ore. Currently, China accounts for more than 90% of global rare earth production. Australia has some good mineral sand deposits and the world's only single site ore deposit outside China.

Rare earth elements are necessary components of more than 200 products across a wide range of applications, especially high-tech consumer products, such as cellular telephones, computer hard drives, electric and hybrid vehicles, and flat screen monitors and televisions. Significant defence applications include electronic displays, guidance systems, lasers, and radar and sonar systems.

Two major rare earths oxides out of Australian mines are Neodymium and Praseodymium which are used to create powerful permanent magnets, essential to the performance of electric vehicles and wind turbines.



Although the amount of REE used in a product may not be a significant part of that product by weight, value, or volume, the REE can be necessary for the device to function. For example, magnets made of REE often represent only a small fraction of the total weight, but without them, the spindle motors and voice coils of desktops and laptops would not be possible.



Neodymium and Praseodymium  
are mined in Australia

## Exotic Alloy Grade Steels

The extraction process requires many exotic alloys such as Alloy C-276, Alloy 800H, 904L, Super Duplex S32750, Lean Duplex S32101 in addition to 304L and 316L in pipes, fittings, and flanges. Specialised Pipe and Fittings is in the forefront of supplying all types of exotic alloys both from our stock in Henderson and from our trusted suppliers. Our supply chain base as well as our technical know-how of various special grades required in the metallurgical extraction of the rare earth oxides works in tandem to help all our customers in the mining industry.

Specialised Pipe and Fittings Australia stocks 304L, 316L and S31803/S32205 Duplex grade piping products in Perth, Australia.

Additionally, we can supply material in specialty stainless steel pipes, tubes, fittings, flanges, bars, and plates in grades like 321/321H, 317L, 310S/H, 309S/H, 347S/H, S31803/S32205 Duplex, S32750 Super Duplex and N08904 (904L).

In high nickel alloys, we can supply grades such as Alloy 800/H/HT, Alloy 600/625, Monel 400, Ni200, Ni201, Alloy 20, Alloy 31, Alloy C-276, Alloy C-22 and Invar 36.

If you have any technical queries please contact:

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Specialised Pipe and Fittings Australia Pty Ltd is the premier supplier of quality pipe, pipe fittings, flanges and ancillary products.

We have the stock range and sourcing expertise to service the oil & gas, mining, mineral processing, petrochemical, power, defence, water and marine industries throughout Australia and Internationally.

## MATERIAL GRADES

- Stainless Steel
- Duplex
- Super Duplex
- Low Temperature Carbon
- Chrome Moly
- High Yield
- Carbon Steel
- Nickel Alloy
- Titanium
- Copper Nickel

## SERVICES

- Contract Management
- Technical Support
- Third Party Inspection
- Mechanical & Non-Destructive Testing
- Freight & Logistics
- Documentation Review & Supply
- Marking, Packing & Colour Coding
- Warehousing
- 24/7 Availability

## PRODUCTS

- Seamless Pipe
- Welded Pipe
- Line Pipe
- Seamless Tube
- Butt-Weld Fittings
- Forged Fittings
- Flanges
- Specialised Bolting