

The Lanthanides

ALSO KNOWN AS THE RARE EARTH ELEMENTS, THE LANTHANIDES ARE SILVER, METALLIC ELEMENTS, AND CAN BE FOUND IN MINERALS IN THE EARTH'S CRUST

57 La Lanthanum	58 Ce Cerium	59 Pr Praseodymium	60 Nd Neodymium	61 Pm Promethium	62 Sm Samarium	63 Eu Europium	64 Gd Gadolinium	65 Tb Terbium	66 Dy Dysprosium	67 Ho Holmium	68 Er Erbium	69 Tm Thulium	70 Yb Ytterbium	71 Lu Lutetium
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THE LANTHANIDES ALL FORM
STABLE +3 IONS



THE LANTHANIDES
HAVE ELECTRONS IN
THE 4f ORBITAL
LEADING TO THE

LANTHANIDE CONTRACTION



PHOSPHORESCENT
EUROPIUM & TERBIUM
COMPOUNDS ARE USED IN
ANTI-COUNTERFEIT BANK NOTES

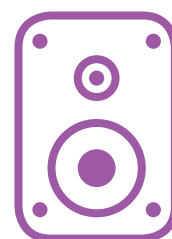


SEVERAL OF THE
LANTHANIDES FORM
COLOURED IONS



NEODYMIUM ALLOYS

ARE USED TO MAKE
**THE STRONGEST
PERMANENT MAGNETS**



FOUND IN LOUDSPEAKERS
AND IN HEADPHONES



SOME LANTHANIDES
ARE USED AS
COLOUR PHOSPHORS
IN SOME TV SCREENS



LANTHANIDES
REACT WITH
OXYGEN
TO GIVE
OXIDES



LANTHANIDE
COMPOUNDS
ARE USED TO
**COLOUR
CERAMICS
& GLASS**

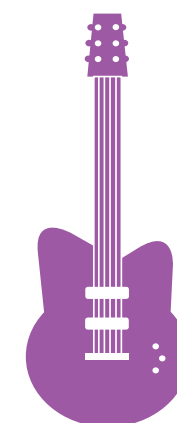


**MANY OF THE LANTHANIDES
WERE FOUND IN
MINERAL ORES FROM
A MINE IN THE VILLAGE OF
YTTERBY, SWEDEN**



**YTTERBIUM, ERBIUM,
TERBIUM & YTTRIUM**
ARE ALL NAMED
AFTER **YTTERBY**

IN 2010, CHINA
ACCOUNTED FOR **95%**
OF GLOBAL RARE EARTH
ELEMENT PRODUCTION



SAMARIUM & COBALT
ALLOY IS USED TO
MAKE THE MAGNETS
FOUND IN ELECTRIC
GUITAR PICK-UPS