

# World Mineral Scarcity

Mineral	Group	Reserves (Years) <sup>1</sup>	BGS Risk Index <sup>2</sup>	End-of-life Recycling Rate <sup>3</sup>	US Import Reliance <sup>1</sup>	Top Producer <sup>2</sup>	Dependency <sup>1</sup>	Substitutes <sup>1</sup>	Uses <sup>1</sup>
Indium	Speciality	Low	7.6	<1	100%	China (55%)	High	High	LCD Displays, Electrical Components
Antimony	Speciality	11	9.0	5-85%	84%	China (82%)	Low	High	Ammunition; Lead; Flame retardant; Batteries
Lead	Non-Ferrous	16	6.2	52-95	31%	China (54%)	Low	Med	Lead-acid Batteries
Chromium	Ferrous	18	6.2	87-93	66%	Kazakhstan (20%)	Low	Low	Stainless Steel
Zinc	Non-Ferrous	19	4.8	19-60	82%	China (36%)	Low	High	Galvanizing; Brass and Bronze; Other Alloys
Gold	Precious	20	5.7	15-20*	0%	China (15%)	Low	Med	Electronics, Jewellery, Coins, Dental
Silver	Precious	20	6.2	30-50*	72%	Mexico (21%)	Med	High	Electrical and Electronics; Coins and Medals; Photography; Jewellery
Tin	Non-Ferrous	20	6.7	91	75%	China (40%)	Low	High	Cans and Containers; Construction; Transportation; Electrical
Cadmium	Speciality	23	6.7	15	0%	China (32%)	High	Med	Alloys; Coatings; Batteries; Pigments; Plastics Stabilizers
Titanium	Non-Ferrous	23	4.8	91	0%	Canada (23%)	Low	Low	Aerospace; Armour; Chemical Processing; Marine; Medical; Power Generation
Strontium	Speciality	28	8.6	<1	100%	China (80%)	Low	Med	Pyrotechnics and Signal Flares; Magnets; Alloys; Pigments; Glass
Nickel	Ferrous	30	6.2	57-63	37%	Philippines (17%)	Low	Med	Transportation; Fabricated Metal Products; Electrical Equipment; Petroleum
Manganese	Ferrous	34	5.7	53	100%	China (31%)	Low	Low	Alloys in Construction, Machinery and Transportation; Steel
Copper	Non-Ferrous	39	4.3	43-53	36%	Chile (32%)	Low	Med	Buildings, Electric Products, Transportation, Consumer Equip., Machinery
Molybdenum	Ferrous	41	8.6	30	0%	China (41%)	Low	Low	Iron, Steel and Alloys
Barium	Speciality	41	8.1		70%	China (45%)	Low	High	Oil and Gas Extraction; Paints and Plastics; Automotive; Medical
Bismuth	Speciality	42	9.0	<1	95%	China (50%)	High	High	Lead replacement; Metallurgy; Sprinkler Systems
Tungsten	Speciality	49	9.5	10-66	49%	China (83%)	Low	High	Carbide Materials for Construction, metalworking, mining, oil and gas; Alloys
Mercury	Speciality	52	8.6	1-62%	0%	China (71%)	Low	High	Chlorine Production; Electronics; Fluorescent Lighting
Iron	Ferrous	58	5.2	52-90	0%	China (44%)	Low	Low	Construction, Transportation, Cans and Containers
Cobalt	Non-Ferrous	60	7.6	68	75%	Congo, D R (68%)	High	Med	Alloys; Carbides; Metals; Chemicals
Niobium	Ferrous	84	7.6	50-56	100%	Brazil (94%)	Low	Med	Steels; Alloys
Gallium	Speciality	100	7.6	<1	100%	China (n/a)	High	Med	LED, Solar Panels
Bauxite/Aluminium	Non-Ferrous	108	4.8	42-70	100%	Australia (31%)	Low	Med	Transportation, Packaging, Buildings, Electrical, Machinery
Uranium <sup>4</sup>	Non-metal	111	5.7			Kazakhstan (36%)	Low	Low	Power Generation
Platinum Group	Precious	164	7.6	60-701	90%	South Africa (59%)	Med	Low	Catalysts; Computer Equipment; Glass; Displays
Vanadium	Ferrous	184	6.7	<1%	100%	China (52%)	High	Med	Steel Alloys
Phosphorous	Non-metal	299			4%	China (44%)	Low	Low	Agriculture as a fertiliser
Lithium	Speciality	371	6.7	<1	60%	Chile (49%)	Low	High	Ceramics and Glass; Batteries; Lubricants; Casting Powders; Air Treatments
Rare Earths	Speciality	1,273	9.5	<1	100%	China (90%)	Low	Med	Catalysts; Alloys; Magnets
Magnesium	Non-Ferrous	Large	7.1	39	26%	China (65%)	Low	High	Alloys in Transportation, Packaging; Cast products; Desulfurisation of Steel
Nitrogen (Ammonia)	Non-metal	Large			29%		Low	Low	Agriculture as a fertiliser

Sources: 1.USGS National Minerals Information Centre. Mineral Commodity Summaries 2016 (2016) (available at <http://minerals.usgs.gov/minerals/pubs/mcs/2016/mcs2016.pdf>). 2. British Geological Survey. Risk List 2012, (2012) (available at <http://www.bgs.ac.uk/downloads/start.cfm?id=2643>). 3.UNEP. International Resource. Report 2: Recycling Rates of Metals: A Status Report (2011) (available at [http://www.unep.org/resourcepanel/Portals/24102/PDFs/Metals\\_Recycling\\_Rates\\_110412-1.pdf](http://www.unep.org/resourcepanel/Portals/24102/PDFs/Metals_Recycling_Rates_110412-1.pdf)). 4. International Atomic Energy Agency. Uranium 2011: Resources, Production and Demand (The Red Book). (available at [http://www.iaea.org/OurWork/ST/NE/NEFW/Technical\\_Areas/NFC/uranium-production-cycle-redbook.html](http://www.iaea.org/OurWork/ST/NE/NEFW/Technical_Areas/NFC/uranium-production-cycle-redbook.html)).