

The 2022 U.S. Critical Minerals List¹

Critical mineral	Applications
Aluminum	Metallurgy and many sectors of the economy.
Antimony	Flame retardants and lead-acid batteries.
Arsenic	Semiconductors.
Barite	Hydrocarbon production.
Beryllium	Aerospace and defense.
Bismuth	Medical, metallurgy, and atomic research.
Cerium ²	Catalytic converters, ceramics, glass, metallurgy, and polishing compounds.
Cesium	Research and development.
Chromium	Metallurgy.
Cobalt	Batteries and metallurgy.
Dysprosium ²	Data storage devices, lasers, and permanent magnets.
Erbium ²	Fiber optics, glass colorant, lasers, and optical amplifiers.
Europium ²	Nuclear control rods and phosphors.
Fluorspar	Cement, industrial chemical, and metallurgy.
Gadolinium ²	Medical imaging, metallurgy, and permanent magnets.
Gallium	Integrated circuits and optical devices.
Germanium	Defense and fiber optics.
Graphite	Batteries, fuel cells, and lubricants.
Hafnium	Ceramics, nuclear control rods, and metallurgy.
Holmium ²	Lasers, nuclear control rods, and permanent magnets.
Indium	Liquid crystal displays.
Iridium ³	Anode coatings for electrochemical processes and chemical catalysts.
Lanthanum ²	Batteries, catalysts, ceramics, glass, and metallurgy.
Lithium	Batteries.
Lutetium ²	Cancer therapies, electronics, and medical imaging.
Magnesium	Metallurgy.
Manganese	Batteries and metallurgy.
Neodymium ²	Catalysts, lasers, and permanent magnets.
Nickel	Batteries and metallurgy.
Niobium	Metallurgy.
Palladium ³	Catalytic converters and catalysts.
Platinum ³	Catalytic converters and catalysts.
Praseodymium ²	Aerospace alloys, batteries, ceramics, colorants, and permanent magnets.
Rhodium ³	Catalytic converters, catalysts, and electrical components.
Rubidium	Research and development.
Ruthenium ³	Catalysts, electronic components, and computer chips.
Samarium ²	Cancer treatments, nuclear, and permanent magnets.
Scandium	Ceramics, fuel cells, and metallurgy.
Tantalum	Capacitors and metallurgy.
Tellurium	Metallurgy, solar cells, and thermoelectric devices.
Terbium ²	Fiber optics, lasers, permanent magnets, and solid state devices.
Thulium ²	Lasers and metallurgy.
Tin	Metallurgy.
Titanium	Metallurgy and pigments.
Tungsten	Metallurgy.
Vanadium	Batteries, catalysts, and metallurgy.
Ytterbium ²	Catalysts, lasers, metallurgy, and scintillators.
Yttrium	Catalysts, ceramics, lasers, metallurgy, and phosphors.
Zinc	Metallurgy.
Zirconium	Metallurgy and nuclear.

¹The 2022 Final List of Critical Minerals published February 24, 2022 by U.S. Geological Survey (87 FR 10381).

²Included in the Rare Earths chapter.

³Included in the Platinum-Group Metals chapter.