

# Minerals for a Green Society

Mining is important in our  
every day lives



Mineral	Biological Systems	Manufacturing	Renewable Energy	Health Care	Defense Systems	Hollywood
<b>Iron (Fe)</b>	Animal RBC and Plant Respiration	Refined Steel Products	Wind chargers and towers	Stainless steel instruments	Weapon systems	Cameras and steel props
<b>Fluoride (F)</b>	Tooth decay and is present in plants	Harden steel	Hard steel in wind chargers	Drinking water and tooth paste	Military Equipment that needs to be hardened	Graphic Production
<b>Manganese (Mn)</b>	Essential in living organisms	Alloy agent for aluminum	Used in batteries	Produce light aluminum frames for solar panels	Used to prevent rust and corrosion and an additive in fuels	Special effects and used in pigments
<b>Sodium (Na)</b>	Fluid dynamics in plants and animals	Used in certain alloys	High temperature batteries	Surgical soaps and I.V. fluids	Common element in explosives	Street lamps in movies
<b>Potassium (K)</b>	Essential for animals and healthy plants	Salts to clean metal surfaces	Electrical storage components	Intravenous fluids	Gun Powder and explosives	Special effects



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<b>Calcium (Ca)</b>	Cell physiology in plants and animals	Cements and mortars	Porcelain in fuel cell generators	Mineral supplements	Alloying agent in aluminum, beryllium, copper, lead, and magnesium alloys	Compounds used in recording studios
<b>Copper (Cu)</b>	Essential trace element in plants and animals	Transmit electricity	Important for thermal and electrical conductivity	Hospitals for bacteriostatic and fungicidal activity	Communication systems	Electrical equipment
<b>Carbon (C)</b>	Sugars in both plants and animals	Carbon composites	Synthetic plastics and silicon panels	Organic medications	Carbon composites that are lighter and stronger	Diamonds which are also used in manufacturing
<b>Silver (Ag)</b>	Used as an antimicrobial agent on clothing and wound treatments for animals	Used for film production for x-rays	Used in mirrors and optics	Used in dentistry and has antimicrobial properties in bandages and tubes.	Used in mirrors and optics	Decorative items and film
<b>Gold (Au)</b>	May be used as a food additive	Good reflector of electromagnetic radiation	Used in renewable energy for electronics	Used to treat arthritis and used in dentistry	Used as protective coating in many satellites	Decorative and used in photography

# Strategically Important Rare Earth Elements



Symbol	Element Name	Strategic uses and renewable energy uses
La	<u>Lanthanum</u>	High refractive index glass, flint, hydrogen storage, battery-electrode, camera lens
Ce	<u>Cerium</u>	chemical oxidizing agent, polishing powder, yellow colors in glass and ceramics, catalyst for Self-cleaning oven
Pr	<u>Praseodymium</u>	Rare-earth magnets, laser, green colors in glass and ceramics, flint
Nd	<u>Neodymium</u>	Rare-earth magnets, laser, violet colors in glass and ceramics, ceramic capacitor
Pm	<u>Promethium</u>	Nuclear battery
Sm	<u>Samarium</u>	Rare-earth magnets, Laser, neutron capture, maser
Eu	<u>Europium</u>	Red and blue phosphors, laser, mercury-vapor lamp
Gd	<u>Gadolinium</u>	Rare-earth magnets, high refractive index glass or garnets, laser, x-ray tube, computer memory, neutron capture
Tb	<u>Terbium</u>	Green phosphors, laser, fluorescent lamp
Dy	<u>Dysprosium</u>	Rare-earth magnets, laser,
Ho	<u>Holmium</u>	Laser
Er	<u>Erbium</u>	Laser, vanadium steel
Yb	<u>Ytterbium</u>	Infrared Laser, chemical reducing agent



Now is the time to get  
more involved

