

## Chapter 2: Uses of Elements: *The Uses of the Elements Booklet*

### Hydrogen

- Hydrogen was used to keep blimps and manned balloons aloft.
- Hydrogen combines with oxygen to form water.
- Hydrogen is used to make ammonia, fertilizer, margarine, and rocket fuel.
- Isotopes are used in nuclear reactions and hydrogen bombs.

### Helium

- Helium is used today to fill blimps, manned balloons, toy balloons, and weather balloons.
- Scuba divers use a mixture of oxygen and helium to breathe.
- Helium was used to make the first gas lasers. Today gas lasers are used in bar code scanners.
- Helium is used as a liquid to cool particle accelerators.
- Helium is used by astronomers to eliminate space noise on their detectors.

### Lithium

- Lithium combines with aluminum to make a light metal used in aircraft and spaceships.
- Lithium is used to make small batteries for cameras, calculators, and pacemakers.
- Lithium is used to purify air in spacecraft and submarines.
- Lithium is used in some soaps.
- Lithium is used to manufacture lubrication grease.
- Lithium is used as medication for bipolar disease.
- Isotopes are used to make hydrogen bombs.

### Beryllium

- Beryllium is found naturally in gems. It gives emeralds and aquamarines their color.
- Beryllium is used to make X-ray tubes.
- Beryllium is used in rocket fuel and explosives.
- Isotopes are used for neutron sources in nuclear laboratories.

### Boron

- Boron is used in water softeners.
- Boron is used as an eyewash.
- Boron is used to make heat-resistant glass, such

### Boron (continued)

- as Pyrex™, for baking dishes and measuring cups.
- Boron is used to make control rods in nuclear reactors.
- Boron is used for transistors in VCRs, computers, and calculators.

### Carbon

- Many organic compounds are made from carbon.
- Many products such as petroleum and perfume are made from carbon.
- Natural diamonds are made of carbon.
- Graphite is made of carbon. Graphite is used in many products, such as pencils and synthetic diamonds.
- Carbon makes coal, which is used to make heat and electricity in some areas.
- Carbon is combined with oxygen to form carbon dioxide. Carbon dioxide is exhaled when we breathe, used in photosynthesis, used for carbonation in soft drinks, and used to make decaffeinated coffee.
- Dry ice is frozen carbon dioxide. It is used to freeze many things, such as ice cream.
- Carbon is used to remove pollutants from the air.
- Carbon is used in some inks, tires, and dry cells.
- Carbon combines with nitrogen to make cyanide, which is a very toxic poison.
- Isotopes are used to date rocks and fossils.

### Nitrogen

- Nitrogen makes up 78% of air.
- Liquid nitrogen is used to freeze foods and biological specimens.
- Gaseous nitrogen is used to protect electronic materials.
- Nitrogen is used to store fruit for long periods of time. Apples stored in nitrogen gas can last 30 months without rotting.
- Nitrogen is used to pump oil from the ground.
- Nitrogen combines with carbon, hydrogen, and other elements to make protein.
- Nitrogen is used in the production of ammonia and fertilizer.

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### Nitrogen (continued)

- Nitrogen combines with oxygen to form dangerous pollutants.
- Nitrogen is used to make nitrous oxide, a medicine that serves as a mild anesthetic.
- Nitrogen is used in whipped cream dispensers.
- Nitrogen is used to make dynamite and other explosives.
- Nitrogen is used to preserve canned food.
- Nitrogen is used in air bags in cars.
- Nitrogen is used in the PET scan, which is used in hospitals to detect brain dysfunction, schizophrenia, and Alzheimer's disease.

### Oxygen

- We use oxygen to breathe.
- Every cell in the body needs oxygen.
- Oxygen makes ozone, which protects us from the harmful rays of the sun.
- Oxygen combines with hydrogen to make water.
- Oxygen combines with just about every element to make a family of compounds called oxides.
- Oxygen makes hydrogen peroxide, which is used as an industrial and cosmetic bleach and disinfectant.
- Oxygen is used as a liquid rocket fuel.

### Fluorine

- Fluorine is added to many materials to lower the melting point.
- Fluorine is used to enrich uranium for use in nuclear power plants.
- Fluorine is added to water supplies and toothpaste to prevent cavities in teeth.
- Fluorine is used to make non-stick coating for pots and pans.
- Fluorine is used in spray cans.
- Fluorine, in the form of freon, is used in refrigerators and air conditioners.
- Fluorine is used in glass etchings.
- Isotopes are used in PET scans to produce cross-sectional pictures of portions of the body.

### Neon

- Neon is used in lights because it glows in an orange or red color.
- Neon is used to liquefy air because of its low boiling point.

### Sodium

- Sodium is used to transfer heat out of nuclear reactors.
- Sodium combines with chlorine to make table salt.
- Sodium is used in drain cleaner and oven cleaner.
- Sodium is used in several soaps because of its ability to dissolve grease.
- Sodium is used in baking soda.
- Sodium is used in medicine to provide relief for heartburn.
- Sodium is used in highway lights and fog lights because it glows yellow.
- Isotopes are used in medicine to trace movement in the body.

### Magnesium

- When combined with aluminum, magnesium makes an alloy that is used in automobile parts, aircraft parts, power tools, lawnmower housings, and racing bikes.
- Magnesium is used in fireworks and flares because it gives off a bright white light when it burns.
- Magnesium is a valuable mineral for the proper nutrition of the human body.
- Magnesium is used in medicine to treat heartburn and skin rashes.
- Magnesium is used to treat leather and other fabrics to accept dye.

### Aluminum

- Aluminum is used for aluminum foil.
- Aluminum is used in airplane wings.
- Aluminum is used in sandpaper and grinding tools.
- Aluminum is used to make fire bricks for ovens and furnaces.
- Aluminum is used to protect spark plugs and transistors.
- Aluminum is used in cosmetics for creams and lotions.

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### Aluminum (continued)

- Aluminum makes several jewelry items such as rubies and sapphires.
- Aluminum can conduct electricity. It is used in wires, reflectors, resistors, antennas, and solar mirrors.
- When combined with copper, it is used in construction material.
- Aluminum is used to make drink cans, pots, and pans.
- Aluminum can be recycled.
- Aluminum is used in some doors, screens, and window frames.

### Silicon

- Makes up gemstones such as opal, amethyst, agate, and jasper.
- Silicon makes up flint, which ancients used for tools and weapons.
- Ancients also used flint to start their fires.
- Silicon makes up quartz, which is used in clocks and watches.
- Quartz crystals are used for control devices for television and radio transmitters.
- Silicon is used in the production of glass, eye-glass lenses, and lenses for telescopes and microscopes.
- Pyrex™ is made from a combination of silicon and boron. Pyrex™ is used in baking dishes, measuring cups, beakers, and test tubes.
- Silicon is used to make ceramics, pottery, and china.
- Silicon is used in transistors and solar cells.
- Silicon is used in cosmetic surgery.
- Silicon chips are used in computers to store information.

### Phosphorus

- Phosphorus is used to make materials glow, such as lights, glow-in-the-dark clocks, watches, and toys.
- Phosphorus is used in televisions to make the image.
- Phosphorus is an important nutrient in the body. It produces strong teeth and bones.

### Phosphorus (continued)

- Phosphorus is used in laundry soaps and other detergents.

### Sulfur

- Sulfur is used as a food preservative.
- Sulfur dioxide is used as an additive to wine and fruit.
- Sulfur dioxide is used to make paper.
- Sulfuric acid is a compound of sulfur that is used in fertilizers.
- Sulfuric acid is also used in car batteries and to remove rust from metals.
- Many sulfur products are used in making rubber, detergents, and paints.
- Sulfur is used in gunpowder.

### Chlorine

- Chlorine was used in World War I as a poison gas.
- Chlorine is used as a germ killer in swimming pools and water supplies.
- Chlorine is used in bleach.
- Chlorine is used to make plastic pipes.
- Hydrochloric acid is a chlorine compound used for cleaning the rust off metal and is used in the stomach for digesting food.
- Chlorine is used in insecticides.
- Chlorine was used in air conditioners and refrigerators until recently when it was discovered that chlorine is a pollutant.

### Argon

- Argon is the gas used to fill light bulbs and fluorescent bulbs.
- Argon is used as a gas in welding.
- Argon is used in Geiger counters, devices that sense radiation.
- Isotopes are used in dating rocks and fossils.

### Potassium

- Potassium is a nutrient in plants. It is essential for plant growth. It is used in plant fertilizers.
- Potassium is used in scuba tanks to produce oxygen.

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### Potassium (continued)

- Potassium is used to make batteries and liquid soap.
- Potassium is used in explosives and gunpowder.
- Potassium is used by humans as a valuable mineral needed by the body.
- Isotopes of potassium are used in dating rocks and fossils.

### Calcium

- Calcium is a mineral needed in the human body for strong teeth and bones.
- Calcium is used as a medicine for heartburn.
- Calcium is used in building materials such as plaster and cement.
- Calcium was used in lighting stages for plays and concerts.
- Calcium is used in the production of iron.
- Calcium is a major component of marble, which is used for buildings and statues.

### Scandium

- Scandium is used in aircraft construction
- Scandium is used in lights in football and baseball stadiums.
- Isotopes are used to refine petroleum products.

### Titanium

- Titanium is used to house rockets and jet engines.
- Titanium is used to make bicycle frames.
- Titanium is used to make pins for bone surgery because it will not react with tissue.
- Titanium is used as a sunscreen.
- Titanium is used to give color to paint, paper, and plastics.
- Titanium was used by the navy in World War II as a smoke screen to hide from the enemy.

### Vanadium

- Vanadium is used to make a hard steel used in engine parts and cutting tools.
- Oxides of vanadium are used as an oxygen source in making sulfuric acid.
- Vanadium steel is used in the structural parts of nuclear reactors.

### Chromium

- Chromium is used as a protective and decorative coating for other metals. Its most common use for this purpose is for car bumpers.
- Chromium is used in the production of stainless steel.
- Chromium is used for coloring paints, cements, and plaster.
- Chromium gives rubies their red color. Rubies are used in jewelry and lasers.
- Chromium compounds are used for tanning leather and making high-quality recording tapes.

### Manganese

- Manganese is used in hard steel for rifle barrels, bank vaults, railroad tracks, and bulldozers.
- Manganese is used to purify public water supplies.
- Manganese is used to brighten pottery and ceramics.
- Manganese compounds are used for batteries and flashlights.

### Iron

- Iron is used in many products containing steel. Such uses include cars, tools, appliances, chains, and cooking utensils.
- Iron is used in buildings, bridges, and towers.
- Iron is used in magnets.

### Cobalt

- Cobalt is used to make blue glass.
- Cobalt is used for high-speed drills and other cutting tools.
- Cobalt is used in some magnets.
- Cobalt is an essential nutrient in the body for healthy blood.
- Isotopes of cobalt are used in X-ray machines, for cancer treatment, and for sterilizing food.

### Nickel

- Nickel makes up about 25% of the five-cent U.S. coin, the nickel.
- Nickel is used to coat other metals. For example, nickel is used to coat the propeller shafts of boats.

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### Nickel (continued)

- Nickel is used in the heating elements in toasters and electric ovens.
- Nickel is used in magnets.
- Nickel is used in rechargeable batteries for calculators, computers, and electric shavers.

### Copper

- Copper makes excellent water pipes and electrical wires.
- Copper is used in many of the U.S. coins, including coating the penny.
- Copper is used in buttons on police uniforms (that's where the term for police, *copper*, or *cop*, came from).
- The Statue of Liberty is made in part of copper.
- Copper is used in jewelry.
- Copper is combined with other metals to make alloys, such as brass and bronze. These alloys are used to make a variety of products including weapons, art pieces, and musical instruments, such as trumpets and trombones.
- Copper is used in paint for ships.

### Zinc

- Zinc is used to coat and protect steel in items like garbage cans and fences.
- Zinc is used in batteries for flashlights, portable radios, and radio-controlled toys.
- Zinc is the chief metal in the penny, although it is coated with copper.
- Zinc is combined with copper to form the alloy called brass, which has many uses.
- Zinc compounds are used for many products, such as paint, sunscreen, photocopiers, television screens, and computer monitors.

### Gallium

- Gallium is used as a metal in thermometers.
- Gallium is used in lasers.
- Gallium is used in the displays on watches and audio disc players.
- Gallium is being used to replace the silicon chips in high-power computers.
- Isotopes are used in cancer treatment.

### Germanium

- Germanium chips are used in transistors and computers.

### Arsenic

- Arsenic is used as a rat poison.
- Arsenic is used as a weed killer and insecticide.
- Arsenic was used by ancients as a yellow pigment. Its color is similar to that of gold.
- Arsenic is useful as a medicine for many diseases including skin diseases.
- Arsenic is used in computers and light-emitting diodes (LEDs). LEDs are used in watches and the displays on many electronic devices such as VCRs.

### Selenium

- Selenium is used in robotics.
- Selenium is used as a light detector in cameras and light meters.
- Selenium is used in photocopiers.
- Studies have shown that small amounts of selenium in the diet can prevent cancer and heart disease.
- Selenium compounds are used in shampoos to prevent dandruff.

### Bromine

- Bromine compounds are used to remove lead additives from gasoline.
- Bromine is used as a worm pesticide.
- Bromine is used in the production of photographic film.
- Bromine was used in the past as a sedative.

### Krypton

- Krypton is a gas used in lights on signs and airport runway lights.
- Krypton is used in camera flashes and strobe lights.

### Rubidium

- Rubidium is used in the manufacture of television picture tubes.
- Rubidium has other lab and technical uses.

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### Strontium

- Strontium is used in fireworks and highway warning flares.
- Isotopes of strontium are used in detecting bone disease in the body. Some isotopes are also very dangerous and can cause bone disease.

### Yttrium

- Moon rocks are high in yttrium.
- Compounds of yttrium are used in television picture tubes.
- Yttrium compounds are also used in laser cutting tools.
- Yttrium is used in superconductors that can elevate other metals at cold temperatures.
- Yttrium is used as a superconductor in trains. Yttrium will be used for this purpose in the future.

### Zirconium

- Zirconium is used in space-vehicle parts.
- Zirconium is used in jewelry as a diamond substitute.
- Zirconium is used in control rods in nuclear reactors.

### Niobium

- Niobium is used in the construction of nuclear reactors.
- Niobium is used as a superconductor in trains.
- Niobium is used in scanners in hospitals for detecting disease.
- Niobium is put into stainless steel used for aircraft, cutting tools, and spacecraft.

### Molybdenum

- Molybdenum is used in steel to make car and plane engine parts, guns, and cannons.
- Isotopes of molybdenum are used to make technetium and used in hospitals for detecting disease.

### Technetium

- Technetium is used to detect the damage to the heart during a heart attack.

### Ruthenium

- Ruthenium is used to obtain hydrogen gas.
- Ruthenium is used in jewelry.
- Alloys of ruthenium are used for fountain pen points and electrical contacts.

### Rhodium

- Rhodium is used in catalytic converters in cars to prevent pollution.
- Rhodium is used in car headlight reflectors.

### Palladium

- Palladium is used in catalytic converters in cars to prevent pollution.
- Dentists use palladium for crowns on teeth.
- Palladium is used in jewelry.
- Palladium is used to purify hydrogen gas.
- Palladium is used to treat cancer tumors.

### Silver

- Silver is used to make jewelry.
- Silver is used to coat mirrors.
- Silver is used to make utensils, such as forks and spoons.
- Silver makes photographic film and paper.
- Dentists use silver in tooth fillings.
- Silver is used to make coins.
- Silver is used to make wires.
- Silver compounds are used to develop photographs and in photochromic sunglasses.
- Compounds of silver are also used to seed clouds and make rain.

### Cadmium

- Cadmium is used to coat and protect steel.
- Cadmium is poisonous to the human body. It can cause kidney failure and high blood pressure. It is found in tobacco leaves, so cigarettes and secondhand smoke have trace amounts of cadmium.
- Cadmium is used in batteries.
- Cadmium is used in control rods in nuclear power plants.
- Cadmium is used in overhead sprinkler systems in many factories, businesses, and homes.

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### Indium

- Indium is used in transistors and photo cells.
- Indium foils are used to control nuclear reactions in nuclear reactors.

### Tin

- Tin is used in foils and cans.
- Tin is used to make solder, which is used to join or patch metal.
- Tin is used to make electrical connections.
- Pewter is an alloy of tin that is used in utensils, art pieces, bowls, and plates.
- Other alloys of tin are used in printing and ceramics.

### Antimony

- Antimony is used in matches.
- Antimony is used to make wastewater pipes.
- Antimony is added to the plastic that makes credit cards.
- Compounds of antimony are used in electrical insulation.

### Tellurium

- Tellurium is added to other metals, such as copper or stainless steel, to make them easier to work with.

### Iodine

- Iodine is used to kill germs in small cuts.
- Iodine tablets are used to purify water.
- Iodine is an important nutrient in the diet. The thyroid gland in the throat uses iodine. Iodine is often added to salt and animal feed for this purpose.
- When combined with silver, iodine is used in developing photographic film and cloud seeding.
- An isotope of iodine is used for testing the thyroid gland for disease.

### Xenon

- Xenon is a gas used in lights and camera flashes.

### Cesium

- Cesium is used by firefighters in areas where toxic fumes are released. Cesium reacts with water to produce the oxygen needed to breathe.
- Cesium is used in television picture tubes.
- Isotopes of cesium are used in atomic clocks.

### Barium

- Compounds of barium are used to find diseases in the intestine.
- Barium metal is used to make spark plugs.
- Other compounds of barium are used in photographic paper, writing paper, and plastic.

### Lanthanum

- Lanthanum is used in search lights, movie projectors, and studio lighting.
- Lanthanum isotopes are used in nuclear reactions.

### Cerium

- Cerium compounds are used to line self-cleaning ovens and to polish lenses for cameras and telescopes.
- Cerium is used in searchlights and movie projectors.

### Praseodymium

- Praseodymium is used in search lights and movie projectors.
- Compounds of praseodymium are used in car parts, jet parts, and paints as a yellow coloring.

### Neodymium

- Neodymium is used to make colored glass used in welders' goggles and certain lasers.
- Neodymium is used to make some of the world's most powerful magnets. These magnets are used to tell if paper money is counterfeit.

### Promethium

- Isotopes of promethium are used to produce heat in nuclear-powered batteries.
- Promethium isotopes are used to produce X-rays in portable X-ray machines.

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### Samarium

- Samarium is used to make permeate magnets.
- Compounds of samarium are used in glass.

### Europium

- Europium is used in color televisions and color computer monitors.
- Europium is used in fluorescent lamps.

### Gadolinium

- Gadolinium is used to make steel.
- Gadolinium is used in color televisions and computer monitors.
- Gadolinium is used by airline inspectors to detect flaws in the aircraft.
- Gadolinium is used in X-ray screens.
- Isotopes of gadolinium are used in nuclear power plants for control rods as neutron absorbers.

### Terbium

- Compounds of terbium are used in lasers.
- Terbium compounds are used to produce the green color in televisions and computer monitors.
- Alloys of terbium are used in compact discs and X-ray screens.

### Dysprosium

- Dysprosium is used in color televisions and mercury lamps.
- Dysprosium is used to alloy compact discs to function more effectively.
- Isotopes of dysprosium are being considered for use in control rods in nuclear power plants as neutron absorbers.

### Holmium

- Holmium is used as a yellow color in glass.

### Erbium

- Erbium is used to color glass and enamel glass pink.
- Erbium is used in sunglasses and inexpensive jewelry.
- Erbium is used in telephone networks.
- Erbium is often added to metals to make them easier to work with.

### Thulium

- Thulium is used in lasers.
- Thulium is used in portable X-rays for medical examinations and for detecting stress in metal machinery.

### Ytterbium

- Ytterbium alloys are used to make stainless steel stronger for use in dental instruments.
- Ytterbium is used in synthetic jewelry.

### Lutetium

- Isotopes of lutetium are used for determining the age of meteors and refining petroleum.

### Hafnium

- Hafnium is used in control rods to control nuclear reactions in nuclear-powered submarines.

### Tantalum

- Tantalum is used in medical surgery for hip joint replacement, plates for replacing parts of the skull, and screws and staples for holding together broken fragments of bones.
- Alloys of tantalum are used for aircraft parts, nuclear reactors, missiles, and medical and dental instruments.
- Tantalum is used in camera lenses.
- It is used in the circuits of cellular phones and small computers.

### Tungsten

- Tungsten is used in light bulbs.
- Tungsten is used in television tubes and computer monitors.
- Compounds of tungsten are used on the blades of high-speed cutting tools.

### Rhenium

- Rhenium is used in electrical switches
- Rhenium is used in instruments that measure very high temperatures.
- Rhenium is used in welding rods.
- Isotopes of rhenium are used to estimate the age of the universe.

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### Osmium

- Alloys of osmium are used in fountain pen tips.
- Osmium is used in phonograph needles and electrical switches.

### Iridium

- Iridium is used in hypodermic needles.
- Iridium is used in rocket engines.

### Platinum

- Platinum is used to make jewelry.
- Pure platinum is used in refining oil, dental instruments, ceramics, and the electrical and electronics industries.
- Platinum metal is used in glass tubes and bulbs.
- Platinum is used in pacemakers for the human heart.
- Platinum is used in thin sheets to make missiles, jet engines, and razor blades.
- Platinum is used in car parts.
- Platinum compounds are used to treat cancer.

### Gold

- Gold is used for money in the form of coins and bars.
- Gold is used by dentists to fill teeth.
- Gold is used to coat large glass plates and spacecraft.
- Gold is used to make jewelry, such as rings and necklaces.
- Isotopes of gold are used to treat certain types of cancer.

### Mercury

- Mercury is used in the home for thermometers, barometers, thermostats, silent switches, and fluorescent bulbs.
- Mercury vapor is used in street lights and security lights.
- Mercury is used to refine ores containing gold.
- Mercury compounds are used as pesticides because they kill fungus and insects.
- Mercury is used for making blasting caps.
- Mercury is used in batteries.

### Thallium

- Thallium was used to treat skin conditions.
- Thallium was used in rat poison and as an insecticide, but because it is so toxic, it has been banned from use in the United States.
- Thallium may cause cancer.
- Isotopes of thallium are used by doctors to find diseases in the body.

### Lead

- In ancient times, lead was used in coins, sculpture, and pipes.
- Lead metal is used today in batteries, solder, and television screens.
- Compounds of lead were used in paint and gasoline, but because of the high toxicity, they are no longer used for these purposes.
- Oxides of lead are used to make decorative glass called crystal.
- Alloys of lead are used for printing type and as a radiation shield in nuclear power plants and X-ray machines.
- Isotopes of lead are used to determine the age of rocks.

### Bismuth

- Compounds of bismuth are used to treat ulcers in the stomach and as a yellow pigment in cosmetics.
- Alloys of bismuth are used in fire alarms, fire sprinkler systems, and for casting and molding other metals.

### Polonium

- Polonium is used in nuclear batteries for space equipment.
- Isotopes of polonium are used on dust-removal brushes and photographic film.

### Astatine

- Astatine has no commercial uses.
- In lab experiments astatine is known to cause cancer in laboratory animals.
- Scientists believe astatine is taken up by the thyroid gland and may have a medical use in the future.

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### Radon

- Radon gas is very toxic and can build up in homes. Radon detectors are suggested in homes where little or no fresh air gets in.
- Radon gas can cause lung cancer.
- Smoking a cigarette can be a source of harmful radon gas.
- Radon isotopes are used in cancer treatment.

### Francium

- Francium has no known uses because of its high radioactivity and the small amounts of it that are available. It is estimated that less than an ounce of francium exists in the earth's crust.

### Radium

- Radium was used in paint for watches to make the numbers glow in the dark until radiation was better understood.
- Radium is used to treat cancer.

### Actinium

- Uses of actinium are impossible because it is radioactive and very rare.

### Thorium

- Thorium has the potential to be a source of nuclear energy in the future.
- Thorium is used in camping lanterns.

### Protactinium

- Protactinium has no known uses because it is radioactive and extremely rare.

### Uranium

- In ancient times uranium was used to color glass and ceramics.
- Uranium is used as a fuel in nuclear reactors.
- Uranium isotopes are also used in glass for ceramics, weapons, and shielding against more dangerous radiation.

### Neptunium

- Isotopes of neptunium are used in atomic bomb research, to make plutonium for atomic bombs, and were used as a power source for equipment on the moon.

### Plutonium

- Isotopes are used in atomic bombs, nuclear reactors, and space exploration.

### Americium

- Americium is used in smoke detectors.
- Isotopes of americium are used in nuclear reactors, airplane fuel gauges, and oil wells.

### Curium

- Curium was used to analyze moon soils.
- Curium is used to power satellites.

### Berkelium

- Berkelium has no uses because it is radioactive and decays very quickly.

### Californium

- Californium isotopes are used to log oil wells.

### Einsteinium

- Einsteinium has no uses because it is very radioactive and decays very quickly.

### Fermium

- Fermium has no uses because it is radioactive and half will decay in less than a day.

### Mendelevium

- Mendelevium has no uses because it is very radioactive and half will decay in 77 minutes.

### Nobelium

- Nobelium has no uses because it is extremely radioactive and half will decay in less than an hour.

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### **Lawrencium**

- There are no uses for lawrencium because it is extremely radioactive and half will decay in 30 seconds.

### **Rutherfordium**

- There are no uses for rutherfordium because it is extremely radioactive and half will decay in 62 seconds.

### **Dubnium**

- There are no uses for dubnium because it is extremely radioactive and half will decay in 34 seconds.

### **Seaborgium**

- Seaborgium has no uses because it is extremely radioactive and half will decay in less than a second.

### **Bohrium**

- Bohrium has no uses because it is extremely radioactive and almost nothing is known about it.

### **Hassium**

- Hassium has no uses because it is extremely radioactive and almost nothing is known about this element.

### **Meitnerium**

- Nothing is known about the properties of meitnerium. There are no uses.