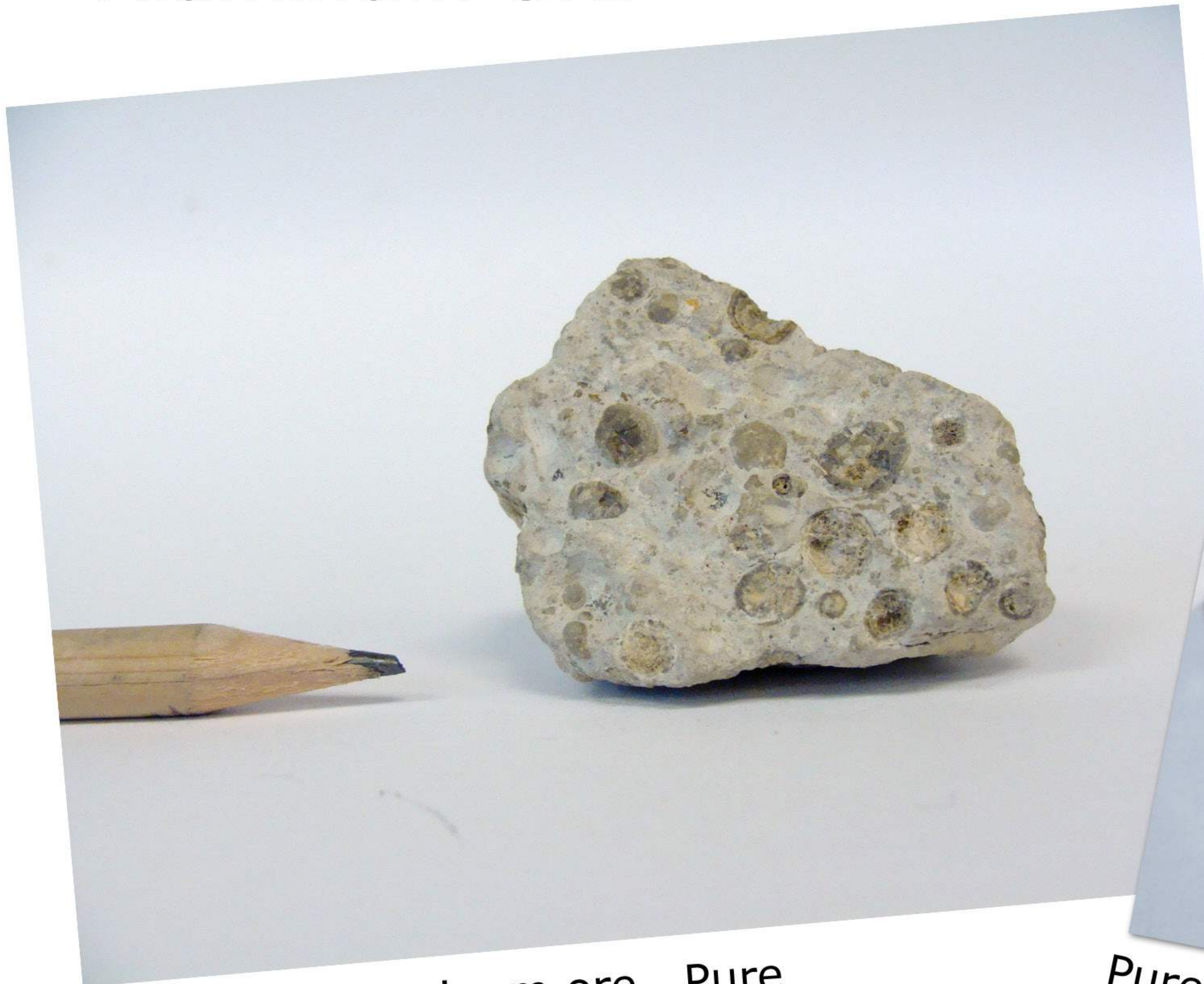


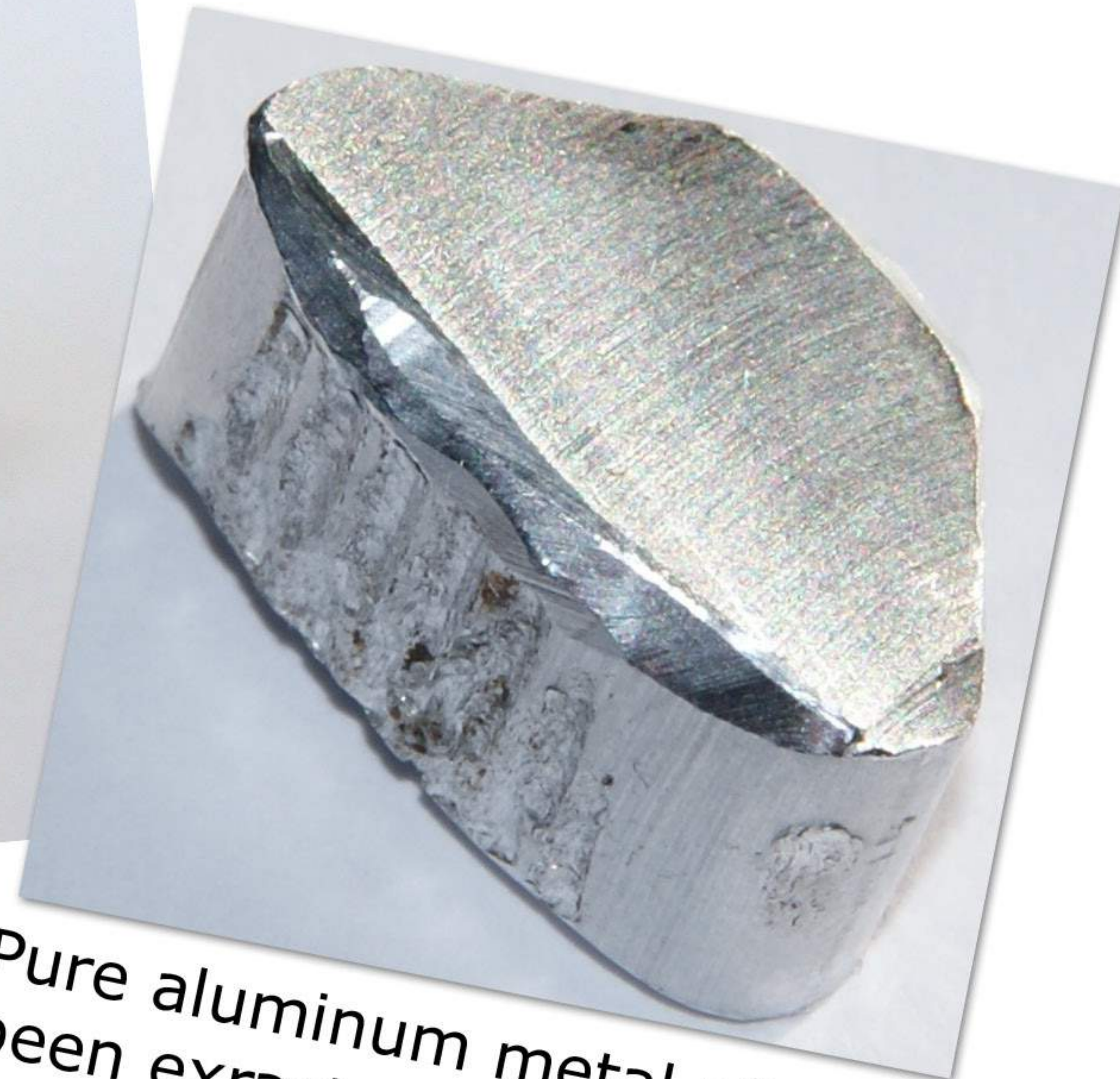
Bauxite

Aluminum Ore

Properties of aluminum
<ul style="list-style-type: none">▪ Soft▪ Lightweight▪ Strong▪ Malleable (can be flattened without crumbling)▪ Ductile (can be drawn into a wire)



Bauxite, an aluminum ore. Pure aluminum does not occur naturally.

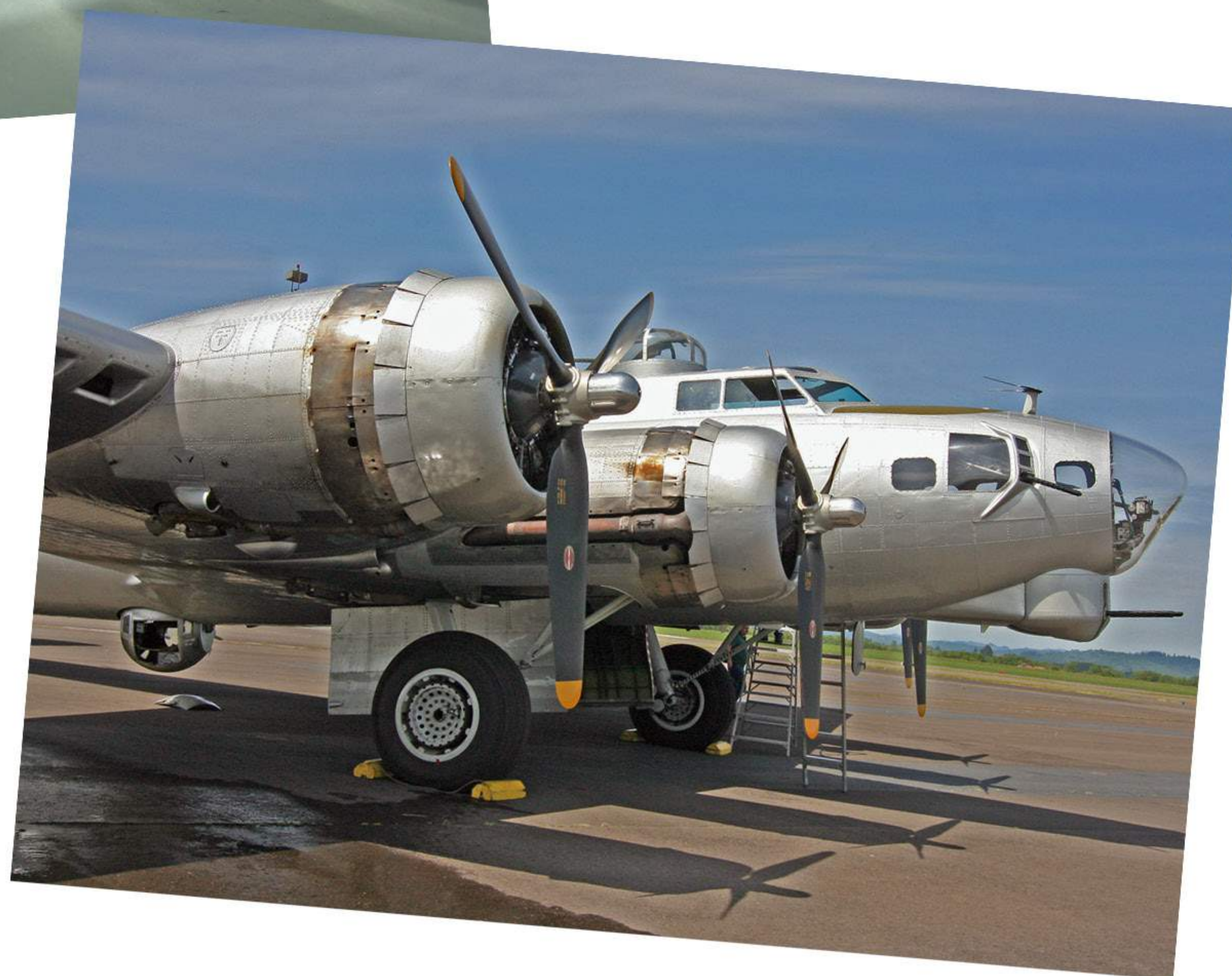


Pure aluminum metal after it has been extracted from bauxite.



Uses

- Aluminum foil and trays
- Lightweight airplane, car, and motorcycle parts
- Packaging (drink cans, candy wrappers)
- Baseball bats and other sports equipment
- License plates
- Window Frames
- Cookware and kitchen utensils



Bentonite

Properties of bentonite
<ul style="list-style-type: none">▪ Soft▪ Absorbs water▪ Expands as it absorbs water, shrinks as it dries





Uses

- Kitty litter
- Stall and barn absorbents
- Drilling mud (lubricates tools that drill holes into the earth)
- Sealing agent (swells on contact with water and can create a seal for waterproofing walls, plugging old water wells, etc)



Limestone

Properties of limestone

- Durable (doesn't break easily), easily cut into blocks or carved
- Contains calcite, a mineral with many uses and a source of calcium
- Dissolves in weak acid, but also neutralizes the acid
- Abundant and easily accessible



Limestone



Limestone is made up of the mineral calcite



Uses

- Cement, concrete and stucco
- Digestive system medications (TUMS and other antacids)
- Acid mine drainage treatments
- Lime for soil
- Dimension stone for countertops, tiles, statues, monuments and gravestones



Claystone

Properties of clay
<ul style="list-style-type: none">▪ Soft▪ Exhibits plasticity (can be molded into different shapes) when mixed with water; becomes hard and rigid when dry▪ Fine-grained





Uses

- Ceramics, pottery, china, dinnerware
- Bricks
- Floor and wall tiles
- Glossy paper
- Cosmetics
- Race track surfaces, tennis courts, and baseball infield areas



Copper

Properties of copper

- Attractive pinkish-brown (coppery) colour; one of only two metals that is not silver/grey
- Malleable (can be flattened without crumbling)
- Ductile (can be drawn into a wire)
- Very good at conducting electricity
- Antimicrobial properties (kills germs)



Copper is commonly mined as chalcopyrite, a copper ore.

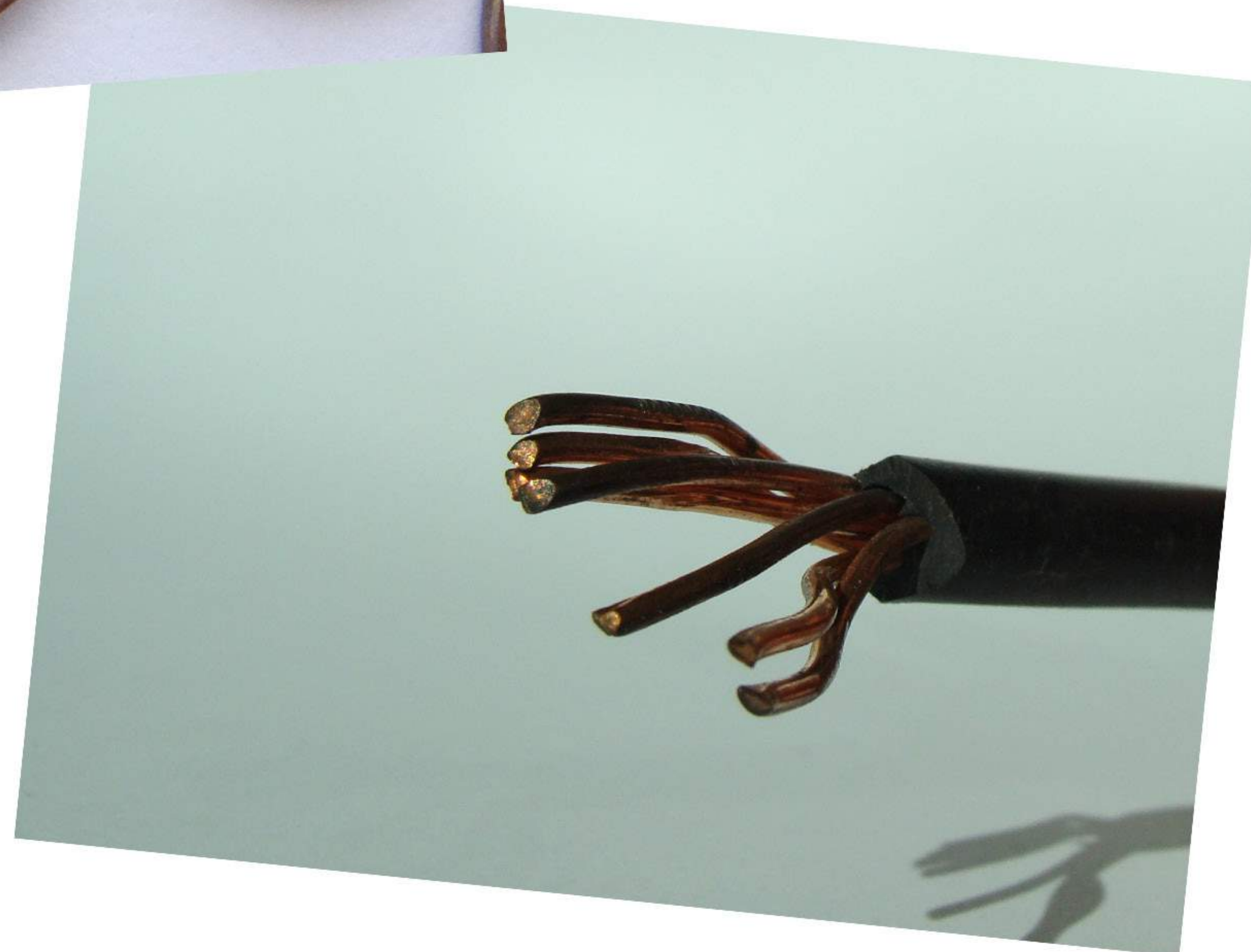


Copper can also occur naturally in native (pure) form.



Uses

- Electrical wiring in housing, businesses, vehicles, electrical appliances, handheld devices, etc
- Coins and jewelry
- Alloyed (mixed) with tin to make bronze or with zinc to make brass
- Plumbing pipes
- Telecommunication cables
- Hospital doorknobs
- Roofing



Feldspar

Feldspar mineral group

Properties of feldspar
<ul style="list-style-type: none">▪ Relatively hard▪ Easily weathered and broken down into clay▪ Contains silica (makes it glassy)▪ Most abundant mineral group





Uses

- Anti-caking agent in cake mixes
- Filler in paint and textiles
- Glass (improves durability), pottery, and ceramics
- Used in soaps, cement, glue, fertilizer, tarred roofing materials



Fluorite

Properties of fluorite
<ul style="list-style-type: none">▪ Source mineral for fluoride, which aids in the formation of bones and teeth.▪ Used to make Teflon ® , a non-stick, water resistant substance





Uses	
▪	Toothpaste
▪	Teflon (non-stick cookware)
▪	Pottery
▪	Optics



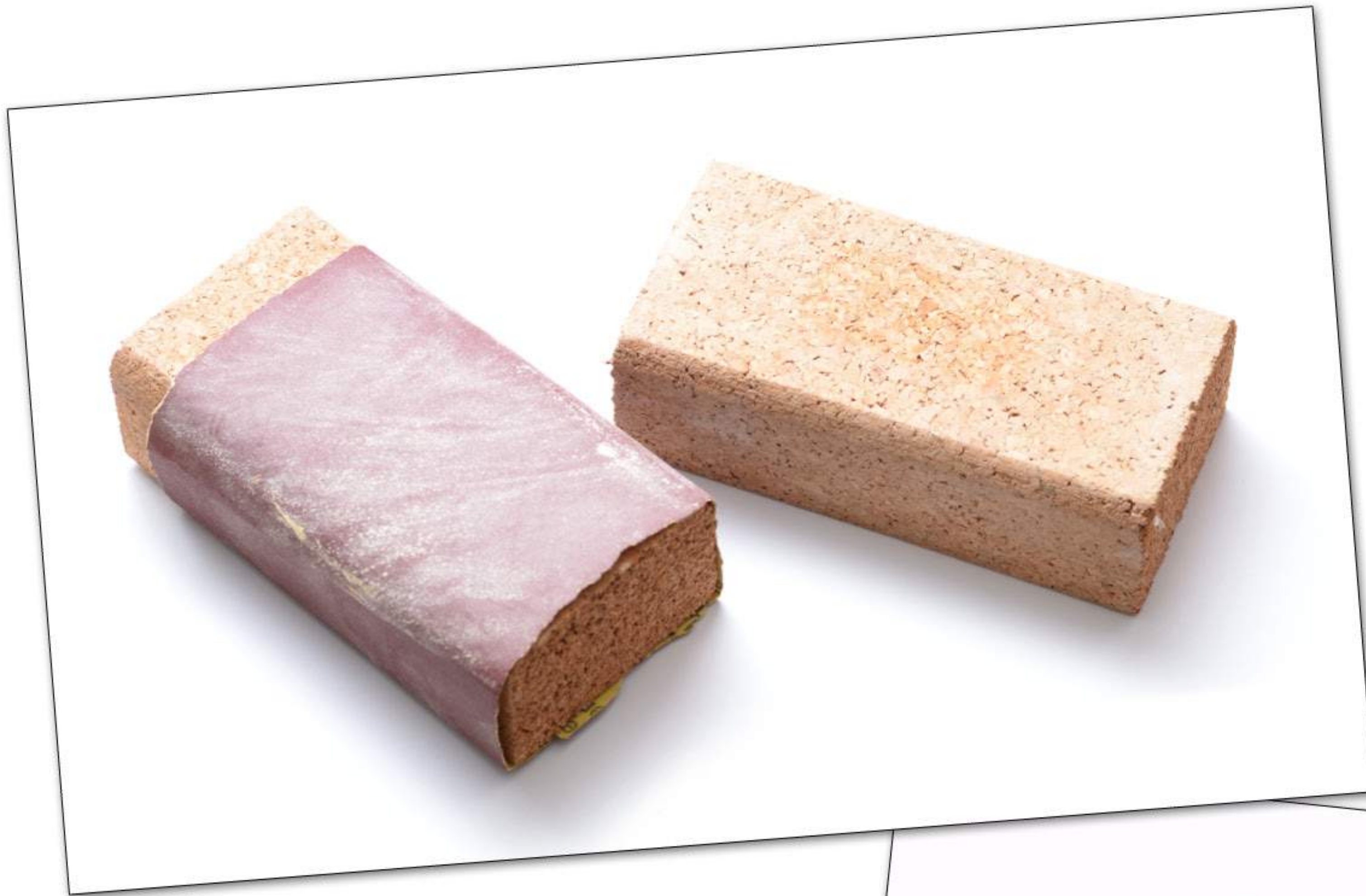
Garnet

Garnet mineral group



Properties of garnet

- Attractive colours such as red, green, and yellow
- Can be transparent
- Hard
- Easily crushed into an abrasive sand



Uses

- Sandpaper
- Nail files
- Jewelry (January's birthstone)
- Industrial abrasives



Gold

Properties of gold

- Attractive golden-yellow colour (one of only two metals that are not silver/grey)
- Soft
- Malleable (can be flattened without crumbling, easy to work with and bend into shapes)
- Does not tarnish
- Conducts electricity



Gold in quartz



Uses

- Jewellery
- Currency
- Decoration
- Electrical contacts
- Olympic gold medals



Graphite

Properties of graphite
<ul style="list-style-type: none">▪ Dark grey or black▪ Soft▪ Leaves a dark-colored, greasy residue (also known as streak)





Uses

- Pencil "lead"
- Lithium-ion batteries (very important in electric vehicles)
- Brake linings and industrial lubricants
- Flame retardant in paint and carpet



Galena

Lead Ore

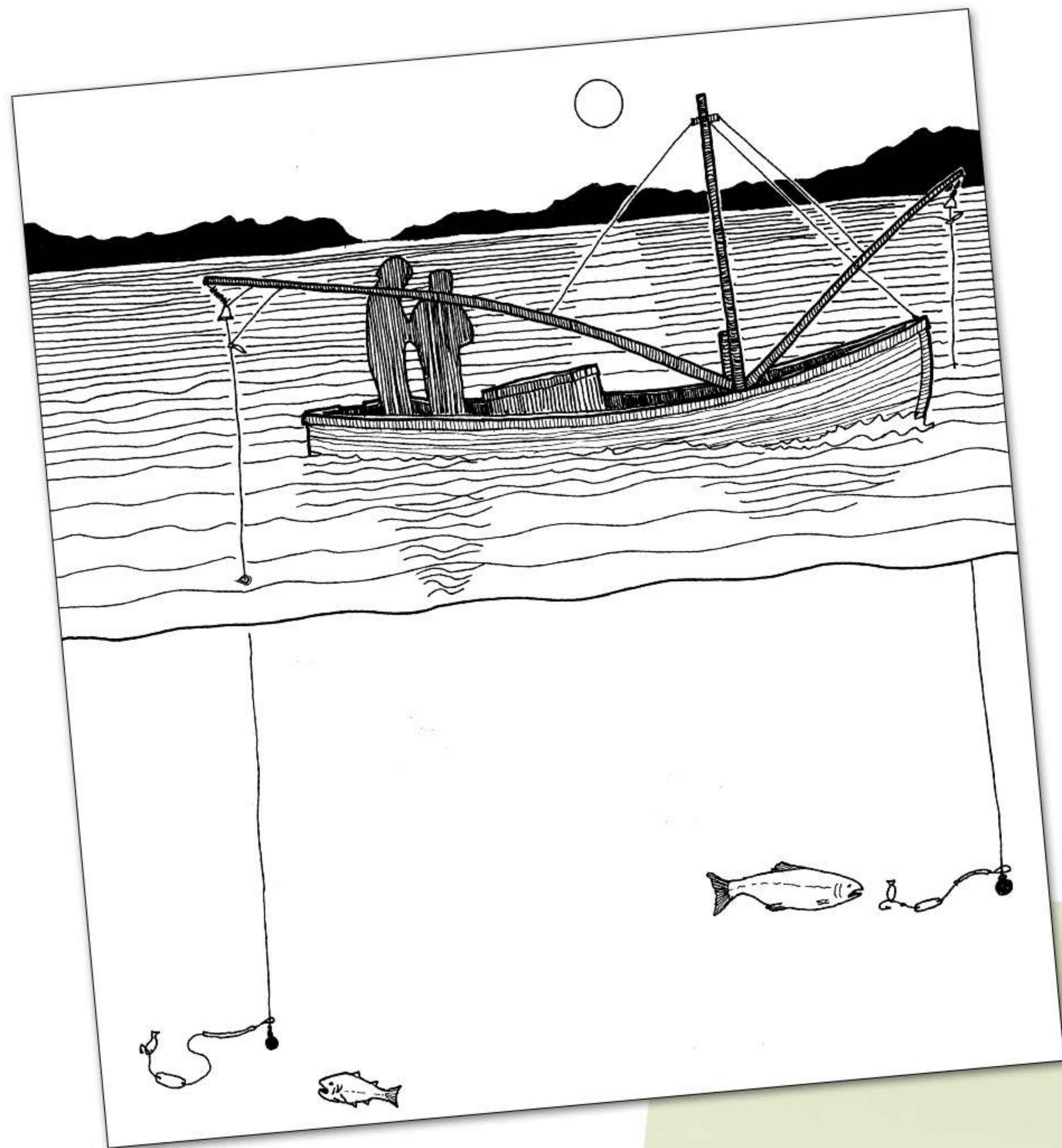
Properties of lead
<ul style="list-style-type: none">▪ Hard▪ Extremely heavy



Galena, a lead ore. Pure lead does not occur naturally.



Pure lead after it has been extracted from galena.



Uses

- Fishing and scuba diving weights
- Vehicle batteries
- Ballast in boats and ships
- Ammunition
- Lead glass (adds sparkle)
- X-ray protective aprons and radiation shields



Gypsum



Properties of gypsum

- Soft (can be scratched with a fingernail)
- Lightweight
- Can (slowly) dissolve in water
- Soft and workable when wet, hardens when dry





Uses

- Drywall (hint: also known as gyprock) and building plaster, plaster of Paris and Portland Cement
- Sidewalk and blackboard chalk
- Paint filler
- Filler in beer, spaghetti candy and vitamins, enriched flour, baking powder, canned vegetables and tofu
- Soil conditioner (ground mixed with soil to allow better air and water penetration)

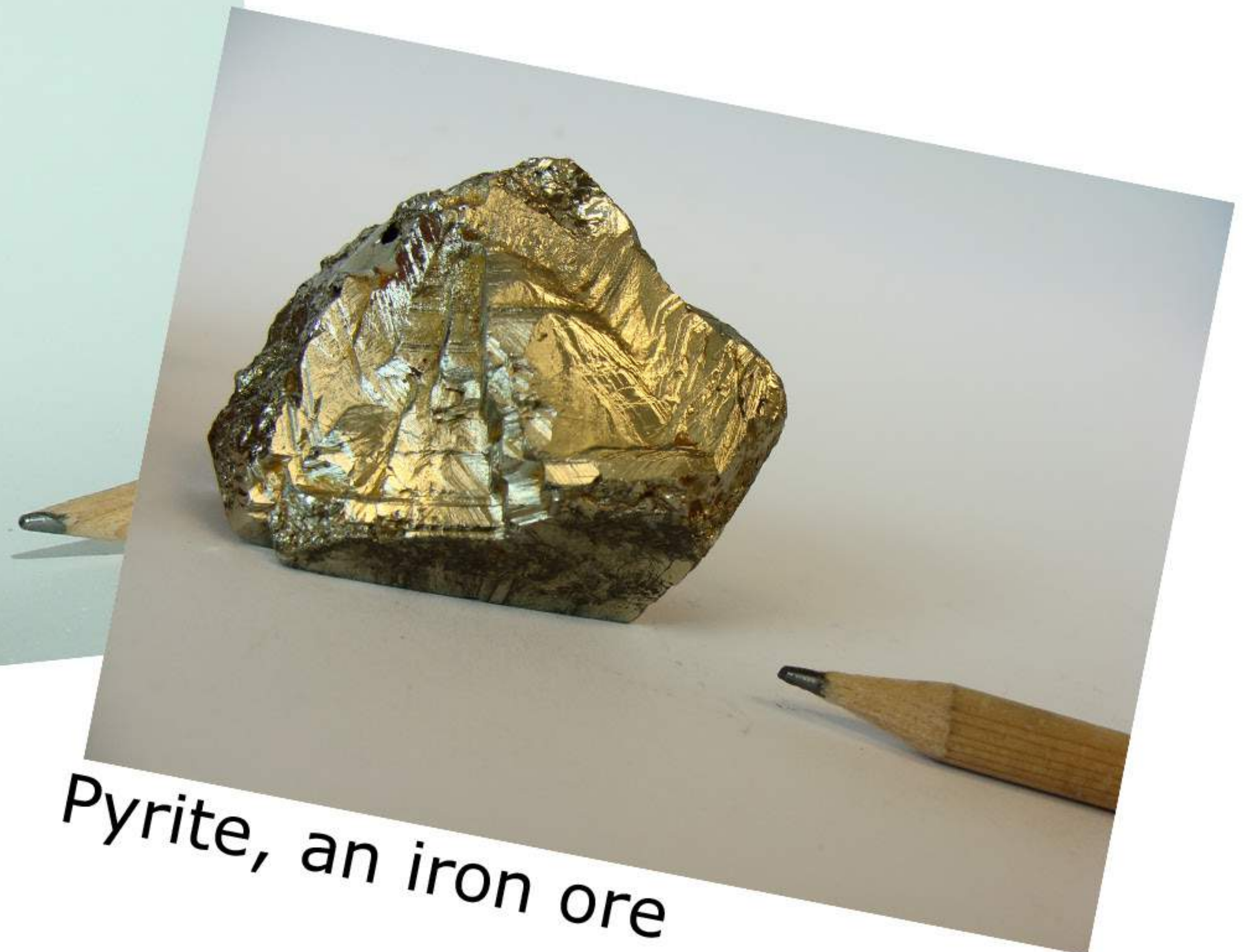


Iron

Properties of iron
<ul style="list-style-type: none">▪ Heavy▪ Strong (high tensile strength – resistant to breakage)▪ Alloyed (mixed) with carbon to produce steel, and with chromium and nickel to produce stainless steel▪ Rust (when exposed to air) is a problem▪ Very abundant



Banded iron formation



Pyrite, an iron ore



Uses

- Steel in bridges and buildings with steel-reinforced concrete
- Vehicles, tools, furniture
- Pots and pans, fish hooks, nails, screws, and other household items
- Pigment in makeup and ink
- Vitamins



Mica

Mica mineral group

Properties of mica
<ul style="list-style-type: none">▪ Glassy and transparent, shimmery▪ Easily breaks into thin, flat sheets▪ Chemically inert – does not react with light, air, water, etc.▪ Electrical insulator (does not allow electricity to pass through it)▪ Thermal conductor (transfers heat)





Uses

- "Shimmer" in eye shadow
- Artificial snow and glitter in Christmas ornaments
- Toaster heating elements
- Insulator in industrial applications



Magnetite

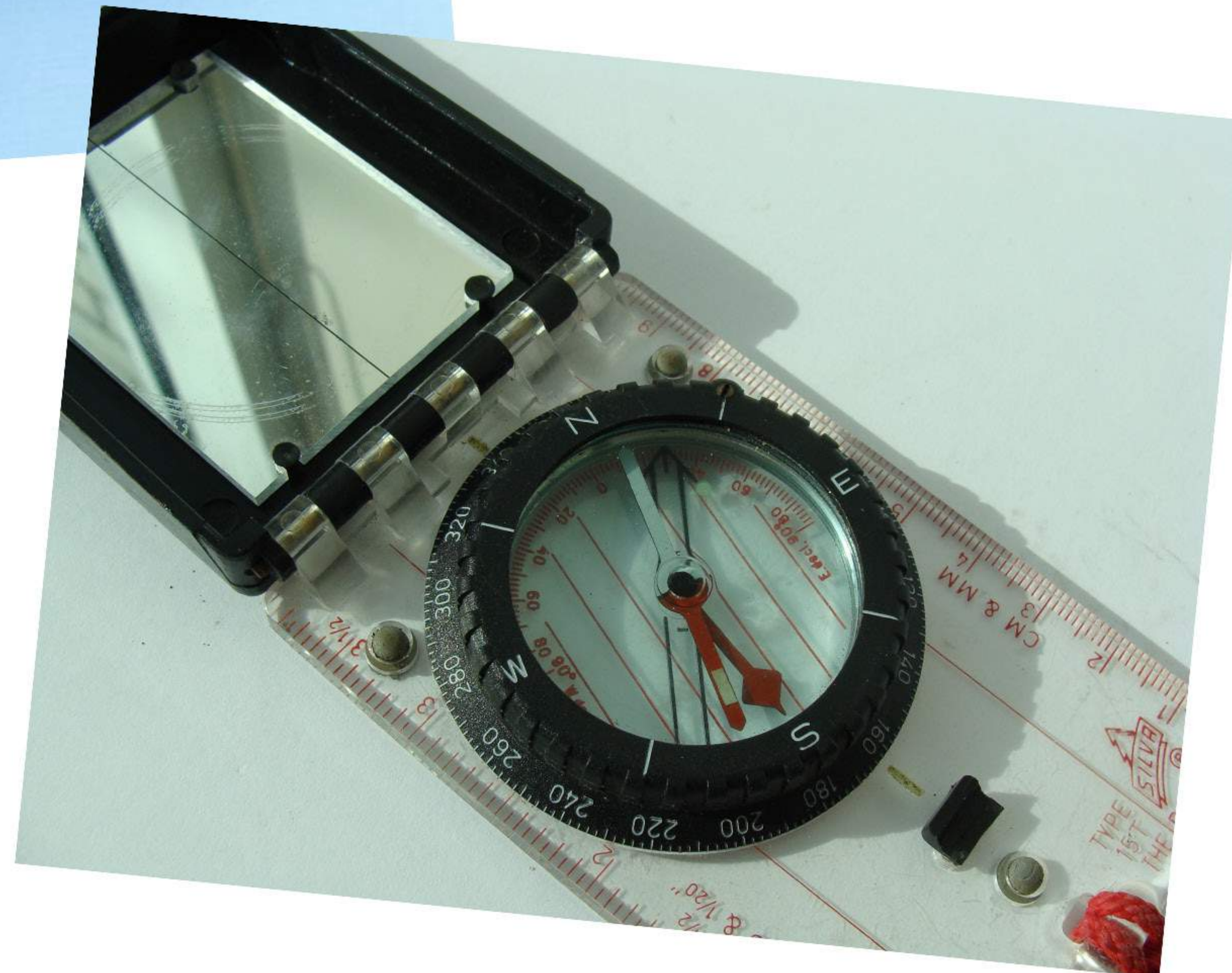
Properties of magnetite
▪ Strong magnetic field





Uses

- Magnets
- Compasses
- Emery abrasives (like on nail files)
- Pigment in paint



Oil Shale

Properties of oil shale
<ul style="list-style-type: none">▪ Source of oil. Oil is also extracted from reservoir rocks such as porous limestone and oil sands





Uses

- Heating
- Fuel
- Plastics
- Synthetic fibres such as Polar fleece or polyester



Pumice

Properties of pumice

- Extremely lightweight – full of pores (tiny air bubbles) that allow it to float on water
- Abrasive (due to silica content)





Uses

- Cosmetic pumice stones
- Lightweight aggregate for sport tracks
- Abrasive in cleaning products
- Rubbed against stonewashed jeans to create a worn-out, faded appearance



Quartz



Properties of quartz

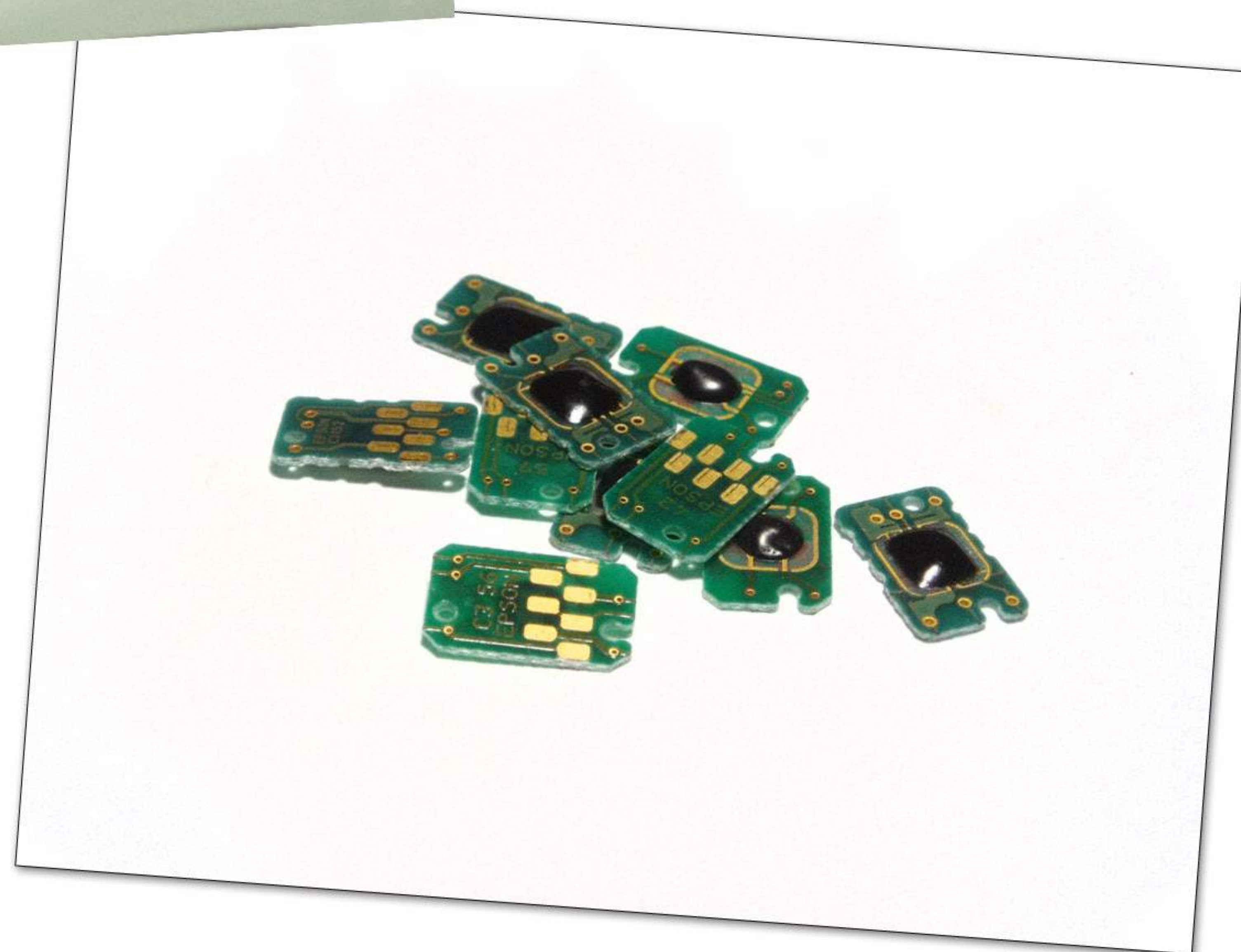
- Glassy and colorless, impurities create attractive colours
- Hard
- Durable (won't break)
- Contains silica, which is a chemically stable electrical insulator (doesn't conduct electricity)
- If quartz sand is melted and cooled quickly, it turns into a glass rather than turning back into crystals
- Electrical and heat resisting properties





Uses

- Glass items such as windows, lenses, some drinking glasses
- Silicon computer chips
- Sand
- Semiprecious stone for carving or jewelry
- Radio transmitters



Rock salt

Properties of rock salt
<ul style="list-style-type: none">▪ Dissolves in water, can lower the freezing temperature of water (melts ice)▪ Appealing salty taste



Rock salt

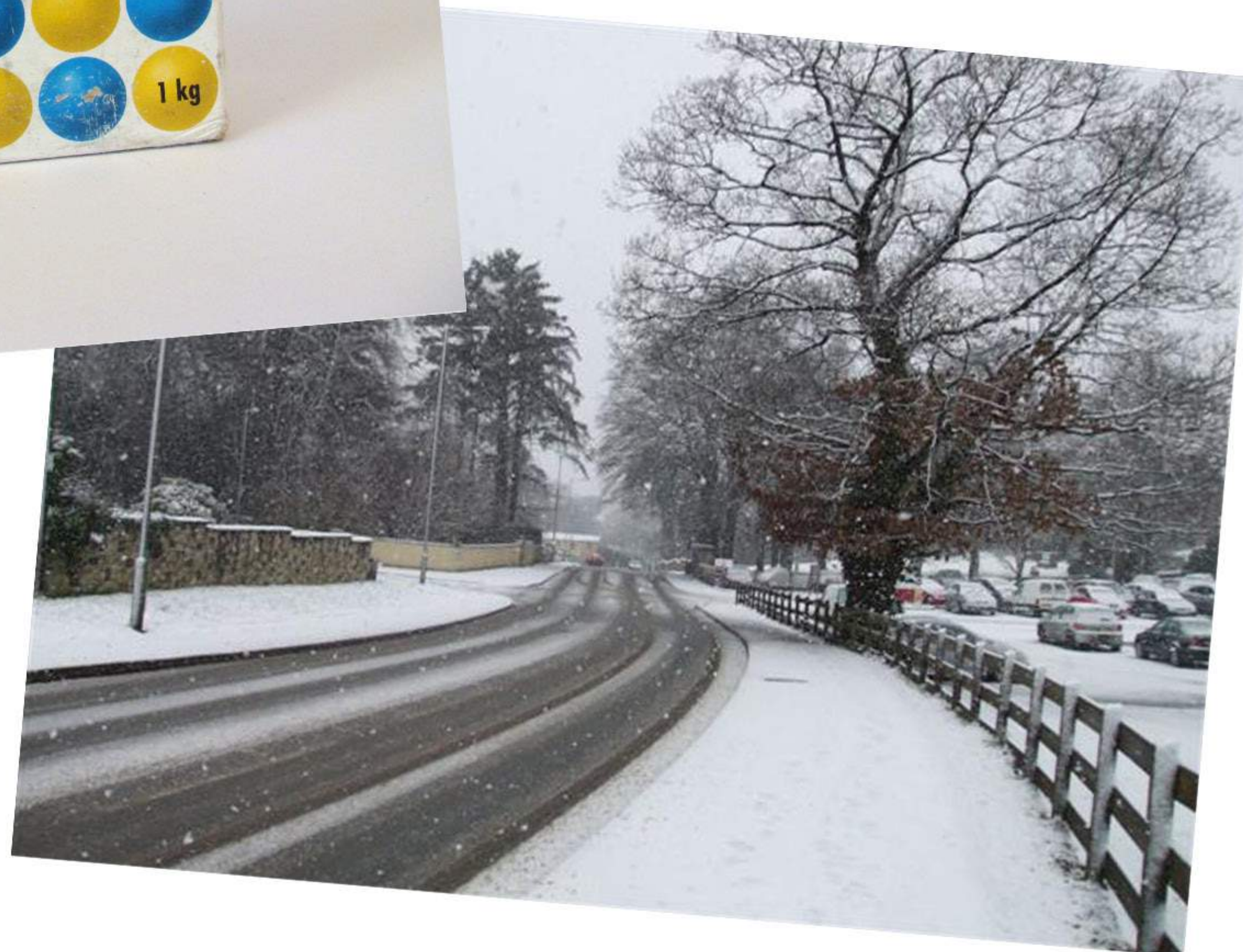


Rock salt is composed of the mineral halite



Uses

- Table salt for seasoning and food preservation
- De-icing roads
- Animal feed additive
- Leather curing
- Water softeners



Silver

Properties of silver

- Metallic silvery-grey
- Malleable and ductile (easily pounded into sheets or drawn into a wire – in other words, very easy to work with)
- Tarnishes easily
- Most reflective of the metals
- Very good electrical conductor





Uses

- Mirrors
- Jewelry and currency
- Electrical industry
- Cutlery (silverware)
- Dentistry (fillings)
- Olympic silver medals



Sulphur



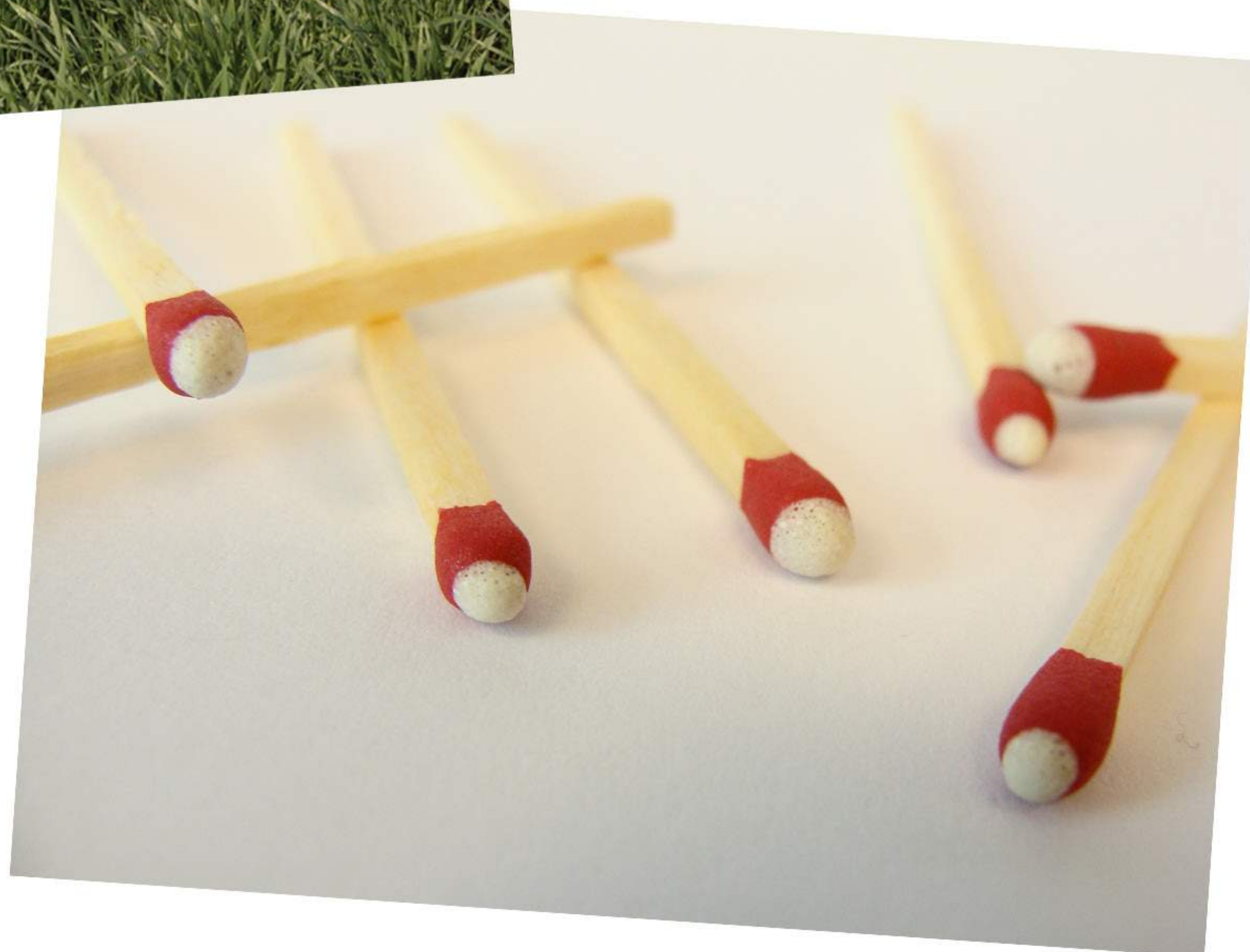
Properties of sulphur

- Easily powdered
- Source material for sulfates that plants need to grow strong and healthy
- Used to make sulphuric acid which is important in the chemical industry and has many important industrial uses
- Flammable



Uses

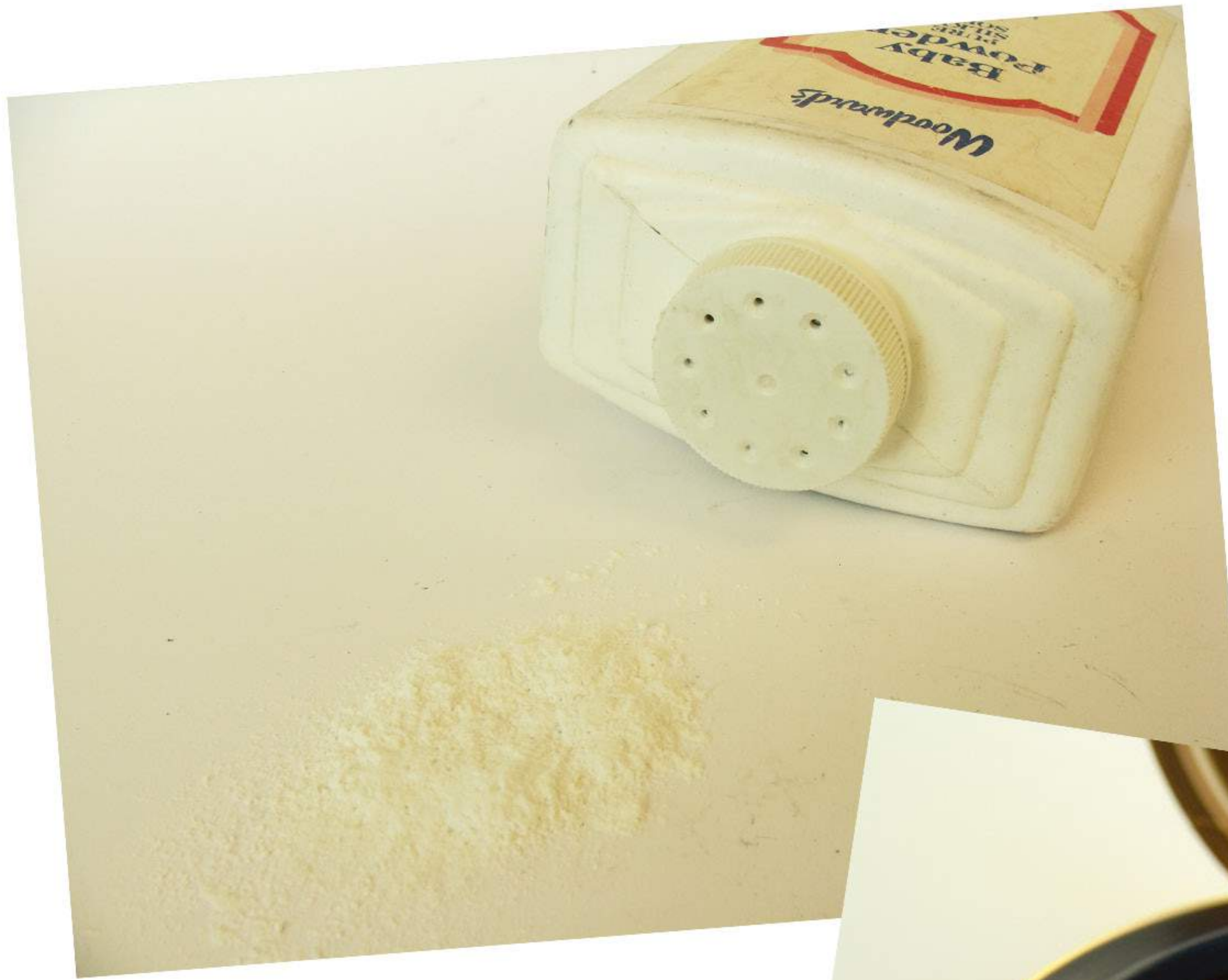
- Matches
- Fertilizer and other industrial applications
- Pharmaceuticals
- Gunpowder



Talc



Properties of talc
<ul style="list-style-type: none">▪ Extremely soft – can be scratched with a fingernail▪ Easily powdered▪ Has a pleasant slippery, greasy texture▪ Powdered form acts as an astringent and absorbs moisture on the skin (i.e., protects skin)



Uses

- Baby powder (talcum powder)
- Cosmetics
- First aid: foot powders, etc.
- Deodorant
- Paper
- Ceramics



Ilmenite

Titanium ore



Ilmenite, a titanium ore. Pure titanium is not found in nature.

Properties of titanium

- Hard
- Lightweight
- Good tensile strength (difficult to break)
- Titanium dioxide is a bright white, nontoxic powder
- Does not rust or corrode
- Hypoallergenic (can be used on or in the human body without causing an allergic reaction)



Pure titanium after it has been extracted from ilmenite.



Uses

- Medical prostheses
- Body jewelry
- Razorblades
- Smokescreens
- Lightweight alloys for jet engines, missiles, and spacecraft



Sphalerite

Zinc ore



Sphalerite, a zinc ore. Pure zinc is not found in nature.

Properties of zinc
<ul style="list-style-type: none">▪ Zinc oxide particles have deodorizing and antibacterial properties (kills odor and germs)▪ Zinc oxide also reflects UVA and UVB rays (sunlight)▪ Corrodes more slowly than iron or steel, so it can protect these metals from corrosion (i.e., galvanized steel)▪ Conducts electricity



Pure zinc after it has been extracted from sphalerite





Uses

- Skin applications such as antiseptic ointment, dandruff shampoo, diaper cream, deodorant, sunscreen
- Dry cell batteries (used in toys, hearing aids, etc.)
- Galvanized steel (added to steel to prevent the steel from rusting)
- Alloyed with copper to create brass
- Fluorescent lights
- Wood preservatives

