

# What is graphite used for

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Graphite has a wide variety of almost contradictory uses. An allotrope of carbon and one of the world's softest minerals, its uses range from writing implements to lubricants.

It can be made into a one-atom-thick cylinder of graphene which is a super-strength material used in sports equipment. Graphite can behave like metal and conduct electricity but also as a nonmetal that resists high temperatures.

Graphite occurs naturally as flakes and veins within rock fractures or as amorphous lumps. The basic crystalline structure of graphite is a flat sheet of strongly bonded carbon atoms in hexagonal cells.

However, if a graphene sheet is aligned and rolled horizontally, the resultant material is 100 times stronger than steel.

Graphite is also used in pencils, steel manufacturing, and electronics such as smartphones. Perhaps its most important application is the lithium-ion battery, where graphite ranks above even lithium as the key ingredient. There is actually 10 to 30 times more graphite than lithium in a lithium-ion battery.

These are some uses of graphite:

There is no lead in what is known as lead pencils. The name originated in Europe when graphite was called "plumbago" or "black lead" because of its metallic appearance.

Graphite's use as a marker dates from the 16th century in northern England, where local legend states that shepherds used a newly discovered graphite deposit to mark sheep.

Graphite is one of the main ingredients in lubricants like grease, etc. Graphite reacts with atmospheric water vapor to deposit a thin film over any adjacent surfaces and reduces the friction between them. It forms a suspension in oil and lowers friction between two moving parts like car brakes and clutches.

Graphite works in this way as a lubricant up to a temperature of 787 degrees Celsius (1,450 degrees Fahrenheit) and as an anti-seize material at up to 1,315 degrees Celsius (2,399 degrees Fahrenheit).

This powerful mineral acts as a good repellant; hence a plethora of manufacturing companies use graphite as an ingredient in repellent solutions. One of the most common repellants that use graphite includes metal protectors.



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