

What is Graphene? The Magical Material You Probably Use Every Day

Described by many as “magical material”, graphene is a single layer of graphite, considered lighter than paper and 100 times stronger than steel. And although you may never have heard of it, the chances are that you use it every day.

Back in the 1560s, graphite was used to make pencils, but in 2004 Andre Geim and Konstantin Novoselov, were able to isolate graphite, creating the first graphene sheet. Its highly conductive and sensitive nature has since been used to form display screens and touch screens, as well as high-speed communication networks.

Graphene’s properties are much different from graphite. An isolated sheet of graphene is so thin, that it is almost one atom thick, and can hold a tensile pressure of 130 GPa (gigapascals), which is almost 100 times stronger than steel, making it one of the strongest materials discovered.

Nearly five years ago, graphene began being used to manufacture batteries for high-level equipment and tools. At the Mobile World Congress in 2018, there were demonstration showing how it is possible to fully charge a mobile battery in just seven seconds.

Graphene has been the subject of extensive research around the world, and has been used to create wearable technologies and solar panels. In 2016, researchers at AMO in Germany were able to create a network based on graphene photodetectors to create an ultra-high-speed bandwidth network, suitable for IoT and 5G communication. It has even started to be implemented in medicine, with graphene conductive papers being used for DNA tests, and in the creation of artificial limbs.

The magical material has been introduced to almost every industrial and consumer field already, but its usages could still prove to exceed expectations.

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