

## graphite

An allotropic form of the element carbon consisting of layers of hexagonally arranged carbon atoms in a planar condensed ring system graphene layers. The layers are stacked parallel to each other in a three-dimensional crystalline long-range order. There are two allotropic forms with different stacking arrangements, hexagonal and rhombohedral. The chemical bonds within the layers are covalent with  $sp^2$  hybridization and with a C–C distance of 141.7 pm. The weak bonds between the layers are metallic with a strength comparable to van der Waals bonding only.

Note:

The term graphite is also used often but incorrectly to describe graphite materials, i.e. materials consisting of graphitic carbon made from carbon materials by processing to temperatures greater than 2500 K, even though no perfect graphite structure is present.

**Source:**

PAC, 1995, 67, 473 (*Recommended terminology for the description of carbon as a solid (IUPAC Recommendations 1995)*) on page 491