

rhombohedral graphite

A thermodynamically unstable allotropic form of graphite with an ABCABC stacking sequence of the layers. The exact crystallographic description of this allotropic form is given by the space group $D_{3d}^5 - R\bar{3}m$, (unit cell constants: $a = 256.6$ pm, $c = 1006.2$ pm).

Note:

The structure of rhombohedral graphite can be best considered as an extended stacking fault in hexagonal graphite. Rhombohedral graphite can not be isolated in pure form (natural graphite and laboratory preparations contain less than 40% of rhombohedral graphite in combination with hexagonal graphite). It is produced by shear deformation of hexagonal graphite and transforms progressively to the hexagonal (ABAB) modification on heating above 1600 K.

Source:

PAC, 1995, 67, 473 (*Recommended terminology for the description of carbon as a solid (IUPAC Recommendations 1995)*) on page 504