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amorphous carbon

A carbon material without long-range crystalline order. Short-range order exists, but with deviations of the interatomic distances and/or interbonding angles with respect to the graphite lattice as well as to the diamond lattice.
Note:
The term amorphous carbon is restricted to the description of carbon materials with localized π-electrons as described by P.W.Anderson (*Phys. Rev.*, 1958, *109*, 1492). Deviations in the C–C distances greater than 5% (i.e. $\frac{\Delta x}{x_0} > 0.05$, where x_0 is the interatomic distance in the crystal lattice for the sp^2 as well as for the sp^3 configuration) occur in such materials, as well as deviations in the bond angles because of the presence of 'dangling bonds'. The above description of amorphous carbon is not applicable to carbon materials with two-dimensional structural elements present in all pyrolysis residues of carbon compounds as polyaromatic layers with a nearly ideal interatomic distance of $a = 142$ pm and an extension greater than 1000 pm.
See also: diamond-like carbon films

Source:
PAC, 1995, *67*, 473 *(Recommended terminology for the description of carbon as a solid (IUPAC Recommendations 1995))* on page 477

