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filamentous carbon

A carbonaceous deposit from gaseous carbon compounds, consisting of filaments grown by the catalytic action of metal particles.
Note:
In general, such deposits are obtained at pressures of < kPa in the temperature region 600 - 1300 K on metals such as iron, cobalt or nickel. Typical filaments consist of a duplex structure, a relatively oxidation-resistant skin surrounding a more easily oxidizable core, with a metal particle located at the growing end of the filament. They generally range from 0.01 to 0.5 μm in diameter and up to 10 μm in length. In some systems, the metal particles are located in the middle of the filaments, and there are also examples where several filaments originate from a single particle. The filaments may be produced in different conformations, such as helical, twisted and straight.

Source:
PAC, 1995, *67*, 473 *(Recommended terminology for the description of carbon as a solid (IUPAC Recommendations 1995))* on page 488

