

58750 - 58760 Carborundum, Silicon Carbide

Chemical composition : SiC

In the purest state colorless, hexagonal, rhombohedral, usually leafy crystal sheets. The technical SiC is usually colored shiny green to blue, blue-black or even reddish by all kinds of admixtures. In hardness, SiC approaches diamond (Mohs hardness 9.5), with which it also corresponds in the crystal lattice.

SiC resists the attacks of chlorine, sulfur, oxygen and strong acids even at higher temperatures (it is even insoluble in a mixture of fuming nitric acid and hydrofluoric acid). On the other hand, it is oxidized during annealing with lead chromate and transformed into silicate and carbonate during heating with caustic alkalis under air admission.

Carborundum is produced by heating a mixture of quartz sand, coke, alumina and common salt in electric furnaces at high temperatures.

As a result of its exceptional hardness, SiC is suitable as a grinding and polishing material for grinding wheels, etc. Due to its high thermal conductivity, SiC is also used for the construction of muffles, retorts, tubes, recuperation and regenerative plants, where heat resistance and good temperature transmission are required at the same time.