

Toxic Organic Compounds in the Solid Metal and Nonmetal Ores

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In solid ores more the 120 organic minerals and compounds are found. Over 60 compounds produce toxic effects. They are found in the inclusions in the minerals, in the intergrain space and in the microcracks in the rocks. The organic minerals and compounds are in gaseous, liquid and solid condition. These organic compounds are attributed to different classes: to simple hydrocarbon (alkanes, alkenes, arenes), halocarbons, aldehydes, phenols, amines, heterocyclic compounds(thioesters, thiophenes, pyridines, quinolines) and hetero- organic compounds Si, Hg, As, Fe, Ti. Some of them cause asphyxiate and narcotic effects (part alkanes, alkenes), some produce general toxic effect, cause mutation and teratogenic defects (majority arenes, halocarbons).

The impurity of organic toxic compounds are revealed in majority of the samples from 100 endogenetical deposits. In the rocks of mantle genesis the compounds of simple structure and small toxic action predominate. In the lower horizon of the earth crust more complex organic compound appear. They have general toxic and mutation effect. In the upper horizons of the earth crust, where pegmatites and hydrothermal veins are present, the organic compounds of the complicated structure are revealed. The ores in these deposits contain small amounts of supertoxic compounds (benz(o)pyrene, pyrene, pyridine, amines).