

Vitali Malina
V.V. Ishkov, research supervisor
L.O. Tokar, language adviser
SHEI «National Mining University», Dnipropetrovsk

Key Features of Composition of Productive Stratum of Proletarsky Deposit

Natural magnet is principal ore mineral of the deposit. Shining ore as a second-order mineral is available only in some boreholes in quantities being out of commercial interest. Nonmetallic minerals are silicates (rhombic pyroxenes and clinopyroxenes, amphiboles, biotite, garnet, and clinkstone), quartz, and carbonate rocks (siderite, sideroplesite). Iron sulphides and apatite are minerals-bearers of harmful impurities. Mainly, sulfides are available as iron pyrites and pyrrhotines.

Natural magnet is in the form of polyhedral congeries within ore beds as well as monometrical disseminations within nonmetalliferous quartz or silicate beds. As a rule, flakes of natural magnet monomineralic and plane. Borders of natural magnet and silicates interlocking are normal, plane, and less often they are slightly rolling. Subautomorphic interlocking character prevails, but sometimes mermekitolike interlocking are available. Poikilitic interlockings (so called sieve textures) are less common. When it occurs, flakes of nonmetallic minerals are disseminations in ore minerals. Size of natural magnet is within 0,015 – 1,0mm, and 0, 1-0,6mm flakes prevail. Shining ore is available in the form of the two morphogenetical phases – primary shining ore and martite.

Primary shining ore prevails in slides. Most of all, it is available in pay leads forming close interlockings with natural magnet. Automorphic flakes of 0,04-0,08 x 0,08-0,17mm tabular shape are manifestation of shining ore. Martitization is not important; it concerns some flakes of natural magnet from surface. Most of all, quartz has monometrical shape with even outlines; less often the shape is ungeometrical – long. It forms mosaic structure.

Silicates are mainly available as pyroxenes (diopside, hypersthene), and as amphiboles (hornblende and actinolite). Less often peridot, biotite, garnet, stilpnomelane and clinkstone are available. In the majority of cases sizes of flakes of silicates are 0, 1-0,8mm. Carbonate rocks are rare.

Mainly, sulfides are iron pyrites and pyrrhotines half-and-half approximately. Most of all sulfides are limited to flakes of natural magnet forming either disseminations or interlockings in them. Sizes of particles are within 0, 04-0,15mm. Concentration of sulfides is also available within areas of silicates stretch.

Close interlockings sulfides and natural magnet may result in increase of sulphur content in concentrate.