

Tatiana Nefiodova, Maria Kakulia
I.I. Kurmeliyov, research supervisor
L.O. Tokar, language adviser
SHEI “National Mining University”, Dnipropetrovsk

Sulphur Content of h₉ Seam of “Tsentrosoiuz” Mine (“Sverdlovskantratsit” SE)

Sulphur is the most detrimental coal impurity. While coal burning, much sulphur turns into sulphur dioxide which affects human health, pollutes the air, and causes metal corrosion.

Sulphur concentration within coal seams takes place at peat stage of their development. Dissolved in peat water sulphates is a prime source of sulphides.

“Tsentrosoiuz” Mine of “Sverdlovskantratsit” SE mines hard coal of h₉ seam of C₂³ series. The seam is of complex two-multizone structure; its thickness is 0.95 to 1.1 m.

Forty samples from the mine were analyzed, and probe holes were tested within the area under study of h₉ seam. Results analyzed show following regularities:

Sulphur content within h₉ coal seam varies inside of 0.7% – 5.32%. Coal sulphur content depends on sulphur type:

1. Pyritic – 0.65% – 4.3%, (1.82% upon the average). Pyritic coal sulphur is evenly distributed in a finely dispersed form, and in the form of noddles and lenses in a lower part of plies. Pyritic sulphur prevails in a total sulphur composition; its content is 70 – 76%.

2. Sulphatic – 0.02% – 0.32% (0.06% upon the average). Sulphate sulphur is a result of pyrite oxidizing. In coal, it is available in the form of thin leather coats.

3. Organic – 0.01% – 0.76% (0.42% upon the average). Organic sulphur is evenly distributed over coal.

Sulphur balance in coal may be represented in such a way: pyritic sulphur → organic sulphur → sulphatic sulphur.

The greatest sulphur content is in upper ply. They are associated with clay roof shales.

Areas of higher sulphur content are located in the central part of the mine field as well as in the form of small east and west elongated zones.