

PETROLOGY OF META-ANTHRACITES AND COAL GRAPHITES OF RUSSIA

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With use of optical and electronic-microscopy methods I have studied petrographic composition of meta-anthracites of Taimyr coal basin, Kuznetsk basin, and Galimov deposit in the North-East of Russia, that were formed by thermal and contact metamorphism of coals from magmatic bodies. The classification of organic macerals of meta-anthracites has been offered with assignment of the groups of anthrinite, inertinite and graphitinite. Meta-anthracites contain the macerals of anthrinite up to 80 %, inertinite up to 20 %, graphitinite — first per cent. They show values of reflection factor ($R_{or\max}$) higher than 6.0 %, the largest among anthracites anisotropy of reflection with significant scattering of values of parameters, which is a diagnostic property of meta-anthracites of thermal-contact metamorphism. There was established direct influence of the indicated metamorphic process on the formation of petrographic composition of meta-anthracites. Regarding data of thermal and X-ray structural analysis, ranks of initial coals (long flame — gas coal) and temperature conditions of metaanthracite formation (500—600°C) were determined.

For coal graphites of the Taimyr basin there was established a number of carbonic macerals of graphites — «graphitinites» and their classification was elaborated. The metamorphism of graphites was studied: $R_{or\max}$ of graphitinites in partly-polarised light reaches 12 %. The border between meta-anthracites and graphites is determined by

$R_{or\max} = 7.4$ %. Petrographic criteria of graphitization are crystallization of the matrix (crystals size of 2—3 microns, seldom more), $R_{or\max}$ 7.4 % and strong anisotropy of reflection. Microscopic and X-ray methods have shown heterogeneous nature of the graphitization. The conditions of formation of coal graphites were determined (initial coals of ranks long flame — gas, temperature 600—650°C, presence of intrusive pressure, time of $n \cdot 100$ years and others).