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Endogenous Fissility of Donbass Sandstones

Statistically values of fissility of gristones, medium sandstones, fine-grained sandstones as well as transition types of blanket sands and coastal-maritime sandstones differ greatly. Other things being equal blanket sands are more crumbling to compare with coastal-maritime ones.

With increase of katagenesis grade fissility of blanket sands and coastal-maritime sandstones vary differently despite their gradation. Distance between fissures in blanket sands grows with increase of katagenesis grade corresponding to modification of coal metamorphism from Δ grade to Γ grade, and then it decreases getting second minimum at the grade \mathcal{K} . Following modification of endogenous fissility of blanket sands takes place under the conditions of regular increase of distance between fissures. The law can be explained by katagenetic variations of material composition and structural features of blanket sands.

On the one hand, total effect of the variations is shown in general decrease of the rock features strength. On the other hand, it is shown in their spatial anisotropy increase. Result of the processes is total increase in fissility. Under further increase in katagenesis (stages corresponding to K, OC and T coal grades) secondary quartz, chalcedony and other authigenic minerals precipitation originates, and it cements formerly existed fissures.

Fissility of coastal-maritime sandstones decreases monotonously with increase in katagenesis grades. Recrystallization of carbonaceous cement with simultaneous fissure cementation with the help of derived matter takes place.

At the katagenesis stage corresponding to T coal grade structural and textural features, variability of mineral composition, and mode of coastal-maritime sandstones occurrence are the reason to divide them statistically into two types which differ greatly on degree of fissility. Within the types average distances between fissures are 58cm and 120cm for gristones, 83cm and 154cm for medium sandstones, and 51cm and 112cm for fine-grained sandstones.