Organic Matter from the Rock Clasts and Matrix in the Mud Volcanoes of Moroccan Continental Margin

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During several international cruises of UNESCO-IOC Programme “Training-Trough-Research” the investigations in the Gulf of Cadiz were focused on hydrocarbon seep areas characterized by widespread underwater mud volcanism. More than 500 samples of rock clasts and matrix from mud breccia of different mud volcanoes from the Moroccan Continental Margin were analysed with use of large set of organic geochemical methods, such as fluorescent analysis, Rock-Eval pyrolysis, chemical extraction, gas-chromatography and others.

Mud breccia appears as pluricentimetric clasts embedded in silty clayey matrix. Fragments of rocks from different mud volcanoes of Moroccan Margin in the Gulf of Cadiz are represented by variety of lithotypes: bioclastic or micritic limestones, marlstones, claystones and sandstones. The clasts from the mud volcanoes derived from different sedimentary rocks range in age from Cretaceous until Pleistocene.

According to geochemical investigation the organic matter of the rock clasts and matrix belongs to immature and low mature kerogen of the II and III types. Organic carbon content is different and depends on environmental conditions during sedimentation. Level of maturity and significant range (from poor to excellent) of oil/gas potential of the samples suggest, that organic matter of the study rocks can produce mostly gas from upper gas window zone, and quantity of this gas strongly depend on total organic carbon content and type of kerogen.

Key words: mud volcanic breccia, organic matter, maturity, kerogen.