

Methodical experiment on the use of zeolitized tuffs to detect low concentrations of hydrocarbons in an environment simulating bottom sediments

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Abstract. This paper presents the results of a methodical (trial) experiment for conducting in-kind conditions on capturing microseepage hydrocarbon molecules by sorption, which amount is sufficient for the certificate of the presence of oil and gas-bearing formations. The experiment simulating hydrocarbon accumulation in traps with sorbents was organized and conducted at the Institute of Marine Geology and Geophysics, Far Eastern Branch of the Russian Academy of Sciences as a step before the installation of traps in natural conditions near a hydrocarbon deposit. Zeolitized tuffs from the Ogonkovsky site of the Lyutogskoye deposit (Sakhalin Island) with a 50 % zeolite content, as well as the peats were used as sorbents. The sorbents were kept for 5 months in an artificial container containing soil (lofts), seawater, and a small additive of a hydrocarbon mixture. The obtained results confirmed the possibility of detecting low concentrations of hydrocarbons in an environment similar to bottom sediments using traps with a zeolite sorbent. The advantage of this sorbent as an indicator of hydrocarbon microseepage over a deposit compared to a peat sorbent was revealed.

Keywords:

microseepage, geochemical methods, sorption, geochemical anomalies, zeolites

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