

Analysis of the oil secondary migration micro process

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During secondary migration, oil takes place complicated changes, because rocks have different adsorption capacity for each component of oil, for example the adsorption capacity is stronger for asphaltene with larger molecular weight and stronger polarity. In this research, we simulate oil secondary migration by the way of injection oil from the bottom into the model continuously, the model was a vertically placed glass tube which was full of glass beads saturated by water; electronic temperature control system was adopted during the experiment to control constant temperature of the glass tube system; taking samples when oil outflow from top export once every three hours. According to the analysis results of sample, the oil components with bigger molecular weight and stronger polarity will be adsorbed on the surface of rocks, which will lead to the difficulty of oil migration : ⊖Narrow the migration channel ; ⊖Absorb the macromolecules, strong polarity components in migrating oil ; ⊗Leads to the formation of asphaltene concentration on the oil migration path. According to analysis of experimental results, the resistance produced by the oil migration itself is much greater than the capillary resistance, and increasing continuously with migration process, this may lead to the oil accumulation on migration path. The worse the porosity and permeability of transport layer, the greater the amount of accumulation.