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A Record Of Hydrocarbon Fluids Composition In The Carbonate-Cemented Fractures In The Oligocene- Miocene Limestones Using fluid Inclusions, in The Mond Field , Iran

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Fluid inclusions widely used in understanding the history of the ancient fluids in basins. Fluid inclusions could form within carbonate rocks as rim or fracture filling cements when the extensive water- rock reactions occur between hot basinal brines and pore waters. Oligocene to Miocene fractured reservoirs carbonates of Asmari-Jahrum Formations at Koh-i Mond in the east of Zagros Basin is conventional heavy oil resources. This field is on of the largest heavy oil resources in Iran. As it has already known that fractures were enhanced the porosities of rock and main routes of oil transportation. These cements contain enough fluid inclusions to measure the temperature of fluids deposited carbonate cements in burial environment. In this paper, we successfully identified the temperature of carbonate cements precipitation.

Microscopic investigations showed that carbonate cements include calcite and dolomite overgrowths and fracture filling cements. The interpretations of the inclusion data from calcite and dolomite as paragenetic minerals should combine together to successful determine diagenetic events.

At this study, the homogenisation temperature of fluid inclusions trapped in carbonate cements precipitation measure by microthermometry. The saturation temperatures of hydrocarbon fluid inclusions which were simultaneous to aqueous fluid inclusions were also measured to identify the minimum temperature of oil accumulations. Combined the homogenisation temperatures of hydrocarbon and aqueous fluid inclusions formed inside carbonate cements shows that diagenetic fluids in had temperature of around 100°C. This temperature reflects that carbonate cements deposited after oil migrated to Asmari- Jahrum reservoirs.

homogenization temperatures for calcite cements are around 105˚Cand the final melting temperatures were measured around -9.4 to -22.4°C corresponding to the salinities to 13.3-24.3 wt% NaCl equivalent.

The homogenisation temperatures (T.h.) for dolomites were between 50 to 100ºC. Thus, anhydrite homogenisation temperatures vary between 32.4C and 38.7ºC.

upward the Asmari Formation T.h. data show decreasing in Th .which is due to uplift events that caused removing about 1300 meters of the crest of Mond anticline.