

COMPARISON BETWEEN KINETICS OF OIL- ASPHALTENES OBTAINED FROM LACUSTRINE AND MARINE OILS

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Basin modeling based on kinetic parameters of source rock has been used as a methodology for predicting the timing and amount of generated oil and gas in order to reduce the exploration risk. However, these parameters are not normally available if the source rock has not been drilled in areas of exploration frontiers or when it is too deeply buried.

Behar and Pelet (1985) demonstrated that the pyrolysis products of oil-asphaltenes are very similar to those obtained by kerogen pyrolysis. So, kinetic parameters of oil-asphaltenes have been used as an aid to basin modeling when source rock samples are not available (di Primio et al., 2000; Dieckmann et al., 2003; Keym et al., 2003).

In this study, oil-asphaltenes obtained from petroleum generated by lacustrine and marine source rocks with different ages were submitted to Rock-Eval analysis in order to compare their kinetic parameters. Results demonstrated that although the oil-asphaltenes were obtained from petroleum generated by different source rocks, their kinetic parameters are very similar (Figure 1).

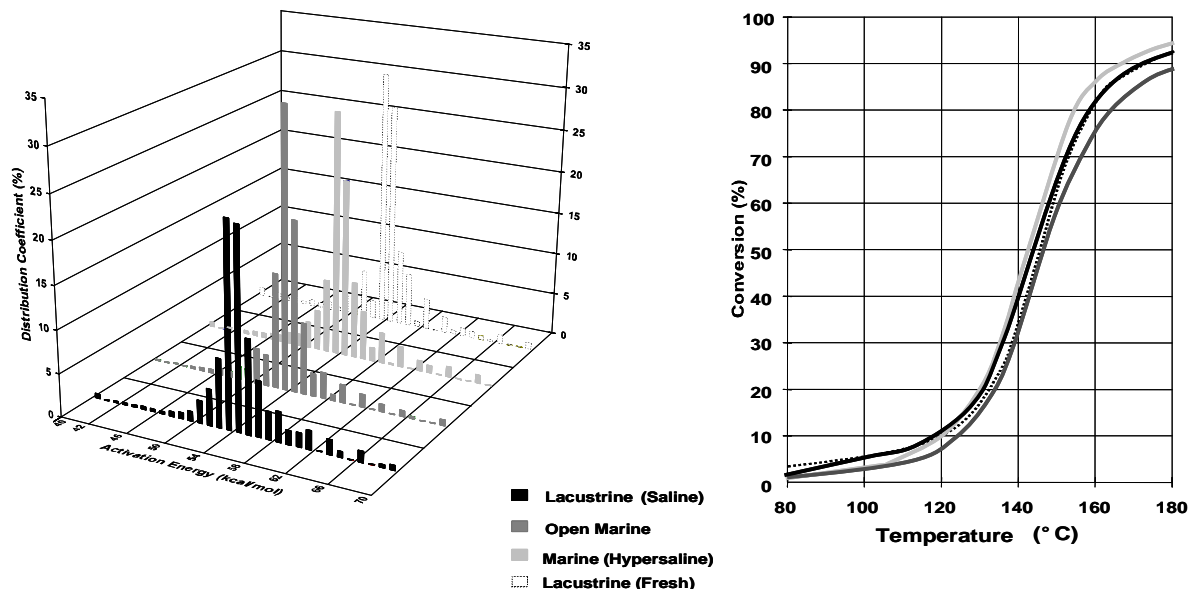


Figure 1. Comparison between the kinetic parameters of oil-asphaltenes.

Such a similarity suggests that kerogens pertaining to these source rocks are not homogeneous and present variations in their kinetic energies. The reservoir oil is a mixture of petroleum generated by these different organofacies. Furthermore, the kinetic parameters of the oil-asphaltenes represent an average of the kinetic of the organic matter present in the entire source rock section. Apparently, the kinetics of the oil-asphaltenes can be used with advantage when the source rock is composed by variable kerogen type.

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