

A synthetic study of density centrifuge separated macerals

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Organic matters included in sedimentary rocks will gradually be decomposed and rearranged into macerals or kerogens after diagenesis. The composition and maturity of those organic matters can record the thermal history they had experienced. Therefore, the classification and characterization of kerogen or maceral were very important in the evaluation of hydrocarbon potential.

High volatile bituminous coal samples of Miocene Shitih Formation were collected from Yu-Feng Mine, northern Taiwan. The samples were crushed to $-850\mu\text{m}$ and then density centrifuge separated by ZnCl_2 solution. The separated maceral mixtures with different density were then analyzed by a series of synthetic procedure including maceral composition, vitrinite reflectance, liptinite fluorescence spectrum, Raman spectrum, Rock-Eval pyrolysis, Scanning Electronic Microscopy characteristics, in addition to palynology and biomarker studies. The influence effects of ZnCl_2 solution were also examined in a pioneer study.

After examining the overall performance of every maceral mixtures, a possible mechanism of the suppression of vitrinite reflectance can thus be derived. Furthermore, detailed and correct information about depositional environment and thermal maturation can be detected. Finally, a practical analyzing method will be suggested for the evaluation of hydrocarbon potential.