Study of the kinetics and mechanisms of thermal decomposition of Ellajjun oil shale, Jordan

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Oil Shale kinetic parameters have been determined for samples from the Ellajjun oil shale deposit in Jordan. Estimation of activation energy and frequency factor was performed using four standard procedures. The employed standard methods are used to estimate the kinetic parameters using TGA/DGA data. Heating rates of 1, 3, 5, 10, 30, and 50°C min^{-1} are used with a 100 ml min^{-1} nitrogen flow rate. The kinetic parameters were determined using Friedman, Kissinger-Akahira-Sunose (KAS), Flynn-Wall-Ozawa (FWO) and Coats & Redfern methods. The activation energy and pre-exponential factor estimated using Friedman, KAS, FWO did not produce the required matching results whereas Coats & Redfern procedure was the best to result in good estimates of the kinetic parameters that produced predicted curves in good match with experimental data.