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Comparative analysis of quartz sand and detritus effects on thermal behavior and kinetics of heavy crude oil

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Research Highlights:

- Effect of quartz sand and detritus on thermal behavior of oil was studied.
- Relation of E versus α for oil alone and its mixtures was presented.
- **Comparative analysis of quartz sand and detritus effects on E was deployed.**
- **Quartz sand and detritus affected FD and HTO regions, notably the detritus.**
- **E was lowered by the addition of quartz sand and detritus, especially the detritus.**

ABSTRACT:

This work aimed at conducting the comparative effect analysis of quartz sand and detritus on thermal behavior and kinetics of heavy crude oil by thermogravimetric (TG) tests with multiple heating rates. The results indicated that during the whole heating process, oil, oil + quartz sand and oil + detritus experienced three main regions, i.e. low temperature oxidation (LTO), fuel deposition (FD) and high

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