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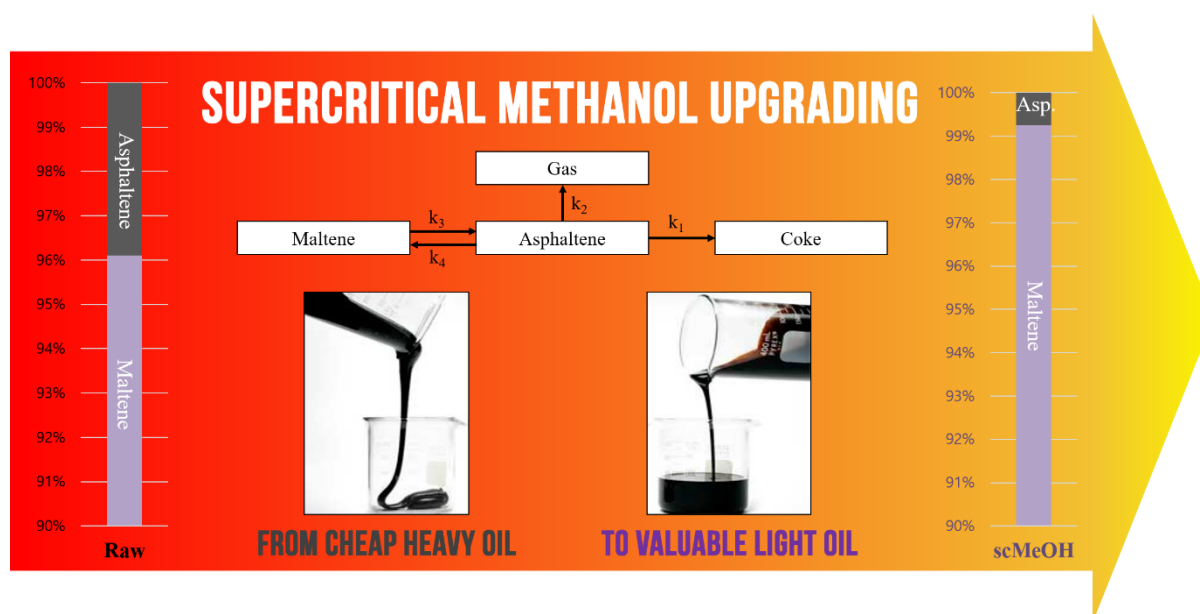
Kinetics of the upgrading of heavy oil in supercritical methanol

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Graphical Abstract



Highlights

- The heavy oil upgrading in supercritical methanol was studied using batch reactors. ► The influence of temperature and time on product distribution was investigated. ► Four lump kinetic model including maltene, asphaltene, coke, and gas was investigated. ► The decomposition of asphaltene is the most dominant reaction in the upgrading of crude oil while the generation of coke is suppressed.

Abstract

The crude oil upgrading was conducted in supercritical methanol (scMeOH) using batch reactors. The influence of temperature (653 to 693 K), reaction time (0 to 120 min) on product distribution was investigated. The crude oil was upgraded into the light oil with more saturate and less aromatic, resin in scMeOH. The higher the temperature, the faster the asphaltene was converted to coke. In FTIR analysis, scMeOH are presumed to

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