Abstract

The present invention provides a method and system for producing light aromatic hydrocarbons, wherein a catalytic cracking cycle oil is subjected to two-stage hydrotreating in the presence of hydrogen and a hydrogenation catalyst, and the hydrogenated oil-gas mixture is passed through a first distillation column to obtain an overhead light fraction, a light aromatic hydrocarbon-rich fraction, a first recycle fraction having a specific distillation range and a second recycle fraction having a specific distillation range; the first recycle fraction is introduced into a first reaction zone of a catalytic cracking unit for a catalytic cracking reaction, and the second recycle fraction is introduced into a second reaction zone of the catalytic cracking unit for reaction or returned to the second stage of the hydrotreating for recycling. Further, the reaction product obtained from the catalytic cracking is separated by a second distillation column to obtain a first fraction oil-gas mixture, a second fraction oil and a slurry oil, the second fraction oil is returned to the above-mentioned first stage of the hydrotreating, and optionally the first fraction oil-gas mixture is introduced together with the hydrogenated oil-gas mixture into the above-mentioned first distillation column for separation. The present invention performs effective separation of the catalytic conversion product and the hydrogenated product in the same separation system and then performs zone-specific catalytic conversion, which increases the yield of light aromatic hydrocarbons while saving the equipment investment for the separation unit.

Fig.1