

PROCESS FOR REMOVING TRACE METALS IN LIQUID
HYDROCARBONS BY ADSORPTION AND APPARATUS
THEREFOR

ABSTRACT

The invention provides a process and apparatus for removing by adsorption trace metals contained in asphaltene-containing liquid hydrocarbons with high efficiency over a long period of time.

At least two first adsorption treatment zones each comprising a porous inorganic adsorbent-packed bed are disposed in parallel and connected in series such that either one is on the upstream side and the other is on the downstream side. An asphaltene-containing liquid hydrocarbon is fed to the upstream side adsorption treatment zone for contacting with the porous inorganic adsorbent and then further treated for adsorption in the downstream side adsorption treatment zone. During adsorbent exchange in the upstream side adsorption treatment zone, adsorption treatment is performed with the downstream side adsorption treatment zone alone. The adsorption treatment zone in which the adsorbent exchange has been finished is now connected so that it can serve as the downstream zone. The liquid hydrocarbon treated in the first adsorption treatment zones is fed to a second adsorption treatment zone packed with a porous carbonaceous material for contacting therewith and removal of trace metals.

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