

Title (en)
CATALYTIC HYDROGENATION PROCESS UTILIZING MULTI-STAGE EBULLATED BED REACTORS

Title (de)
KATALYTISCHES HYDRIERVERFAHREN IN MEHREREN REAKTOREN MIT WALLENDEN BETT

Title (fr)
PROCEDE D'HYDROGENATION METTANT EN OEUVRE DES REACTEURS A LIT BOUILLONNANT A ETAPES MULTIPLES

Publication
EP 1299507 B1 20060104 (EN)

Application
EP 00936894 A 20000619

Priority
EP 0005628 W 20000619

Abstract (en)
[origin: WO0198436A1] A process for catalytic multi-stage hydrogenation of heavy hydrocarbonaceous feedstocks using catalytic ebullated bed reactors, operated at generally the same reaction conditions. In the process, the feedstock is reacted with hydrogen in a first stage catalytic ebullated bed reactor at operating conditions of 700-850 DEG F temperature, 800-3000 psi hydrogen partial pressure at the reactor outlet, 0.2-2.0 V./hr/V, liquid hourly space velocity, catalyst space velocity of 0.03-0.33 bbl/day per pound of fresh catalyst and at reduced superficial gas velocity of 0.02-0.3 ft/sec in each reactor, so as to provide increased percentage liquid volume and reduced gas hold-up in each reactor. The first stage reactor effluent liquid portion is fed into the second stage reactor. The second stage reactor effluent is phase separated and fractionated to produce lower boiling liquid products. A vacuum bottoms fraction normally boiling above about 650 DEG F and preferably above 900 DEG F is recycled back to the first stage reactor.

IPC 8 full level
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