

Title (en)  
MULTI-STAGE HYDROCRACKER WITH KEROSENE RECYCLE

Title (de)  
MEHRSTUFIGER HYDROCRACKER MIT KEROSIN-REZYKLIERUNG

Title (fr)  
HYDROCRAQUEUR A ETAGES MULTIPLES AVEC RECYCLAGE DE KEROSENE

Publication  
**EP 1511824 A4 20080709 (EN)**

Application  
**EP 03726599 A 20030502**

Priority

- US 0313816 W 20030502
- US 16277402 A 20020604

Abstract (en)  
[origin: US2003221990A1] This invention relates to a multi-stage process for hydroprocessing gas oils. Preferably, each stage possesses at least one hydrocracking zone. The second stage and any subsequent stages possess an environment having a low heteroatom content. Light products, such as naphtha, kerosene and diesel, may be recycled from fractionation (along with light products from other sources) to the second stage (or a subsequent stage) in order to produce a larger yield of lighter products, such as gas and naphtha. Subsequent zones are maintained at a lower pressure than that of the first zone, thereby reducing operating expenses.

IPC 1-7  
**C10G 65/02**; **C10G 65/10**; **C10G 65/14**; **C10G 65/18**

IPC 8 full level  
**C10G 65/10** (2006.01); **C10G 65/12** (2006.01)

CPC (source: EP US)  
**C10G 65/10** (2013.01 - EP US); **C10G 65/12** (2013.01 - EP US)

Citation (search report)

- No further relevant documents disclosed
- See references of WO 03104358A1

Citation (examination)  
US 4921595 A 19900501 - GRUIA ADRIAN J [US]

Designated contracting state (EPC)  
DE FI GB GR IT

DOCDB simple family (publication)  
**US 2003221990 A1 20031204**; AU 2003228827 A1 20031222; AU 2003228827 B2 20081120; CA 2487381 A1 20031218;  
EP 1511824 A1 20050309; EP 1511824 A4 20080709; JP 2006510746 A 20060330; PL 203817 B1 20091130; PL 372757 A1 20050808;  
US 2005103682 A1 20050519; US 2008283444 A1 20081120; WO 03104358 A1 20031218; ZA 200409344 B 20060222

DOCDB simple family (application)  
**US 16277402 A 20020604**; AU 2003228827 A 20030502; CA 2487381 A 20030502; EP 03726599 A 20030502; JP 2004511419 A 20030502;  
PL 37275703 A 20030502; US 0313816 W 20030502; US 13838408 A 20080612; US 92241304 A 20040819; ZA 200409344 A 20041119