



Europäisches Patentamt  
European Patent Office  
Office européen des brevets



(11) **EP 1 120 453 A3**

(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:  
**30.01.2002 Bulletin 2002/05**

(51) Int Cl.7: **C10G 65/08**

(43) Date of publication A2:  
**01.08.2001 Bulletin 2001/31**

(21) Application number: **01100722.6**

(22) Date of filing: **12.01.2001**

(84) Designated Contracting States:  
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU  
MC NL PT SE TR**  
Designated Extension States:  
**AL LT LV MK RO SI**

(72) Inventors:  
• **Knudsen, Kim Groen**  
**2900 Hellerup (DK)**  
• **Cooper, Barry H.**  
**2920 Charlottenlund (DK)**  
• **Tippett, Thomas**  
**Seal Beach, California 90740 (US)**

(30) Priority: **25.01.2000 DK 200000118**

(71) Applicant: **Haldor Topsoe A/S**  
**2800 Kgs. Lyngby (DK)**

(54) **Process for reduction of content of sulphur compounds and poly-aromatic hydrocarbons in distillate fuels**

(57) A process for reducing content of sulphur compounds and polyaromatic hydrocarbons in a hydrocarbon feed having a boiling range between 120°C and 450°C, which process comprises in combination

contacting the feed and hydrogen over a hydrotreating catalyst and hydrotreating feed at hydrotreating conditions, cooling the effluent consisting of hydrocarbon, polyaromatic hydrocarbons, hydrogen sul-

phide and hydrogen-rich gas from the hydrotreating reactor, contacting said effluent and hydrogen gas over a hydrotreating catalyst in a post treat reactor at a temperature appropriate to lower the polyaromatic hydrocarbon content.

**EP 1 120 453 A3**



European Patent  
Office

# EUROPEAN SEARCH REPORT

Application Number  
EP 01 10 0722

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	FR 1 359 910 A (CHARBONNAGES DE FRANCE) 23 March 1964 (1964-03-23) * page 4, column 1, paragraph 2; example 1 *	1-9	C10G65/08
X	GB 940 290 A (UNIVERSAL OIL PROD CO) 30 October 1963 (1963-10-30) * claim 1; example 1 *	1,2,5-9	
X	GB 824 635 A (EXXON RESEARCH ENGINEERING CO) 2 December 1959 (1959-12-02) * claims 1-4,7; figure 1 *	1-4,6	
X	DE 938 613 C (FARBENFABRIKEN BAYER AG) 11 August 1955 (1955-08-11) * example 1 *	1-3,6-9	
X	EP 0 420 651 A (EXXON RESEARCH ENGINEERING CO) 3 April 1991 (1991-04-03) * claims 1,4,7,8; figure 1; examples 2,3 *	1,6-9	
X	DE 29 35 191 A (METALLGESELLSCHAFT AG) 2 April 1981 (1981-04-02) * claims 1,2,10,11; example 1 *	1,3,4	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			C10G
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
THE HAGUE		12 December 2001	Gilliquet, J-N
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone  Y : particularly relevant if combined with another document of the same category  A : technological background  O : non-written disclosure  P : intermediate document</p> <p>T : theory or principle underlying the invention  E : earlier patent document, but published on, or after the filing date  D : document cited in the application  L : document cited for other reasons</p> <p>&amp; : member of the same patent family, corresponding document</p>			

EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 01 10 0722

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on  
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

12-12-2001

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
FR 1359910 A	30-04-1964	BE 645484 A	21-09-1964
		DE 1272921 B	
		GB 1055723 A	18-01-1967
		LU 45713 A1	20-09-1964
		NL 6402990 A	23-09-1964
GB 940290 A	30-10-1963	DE 1470680 A1	19-06-1969
		FR 1326659 A	10-05-1963
GB 824635 A	02-12-1959	NONE	
DE 938613 C		NONE	
EP 0420651 A	03-04-1991	CA 2025466 A1	29-03-1991
		EP 0420651 A1	03-04-1991
		JP 3131686 A	05-06-1991
DE 2935191 A	02-04-1981	DE 2935191 A1	02-04-1981
		ZA 8004921 A	26-08-1981