



(11) **EP 1 743 932 A3**

(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
05.09.2007 Bulletin 2007/36

(51) Int Cl.:
C10M 107/08 (2006.01) **C10M 111/04** (2006.01)
C10M 171/02 (2006.01) **C10M 169/04** (2006.01)

(43) Date of publication A2:
17.01.2007 Bulletin 2007/03

(21) Application number: **06113832.7**

(22) Date of filing: **11.05.2006**

(84) Designated Contracting States:
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI
SK TR**
Designated Extension States:
AL BA HR MK YU

(30) Priority: **15.06.2005 US 153723**

(71) Applicant: **Infineum International Limited
Abingdon,
Oxfordshire OX13 6BB (GB)**

(72) Inventors:
• **L' Heureux, George C.
New Jersey 07076 (US)**
• **Waddoups, Malcolm
New Jersey 07090 (US)**

(74) Representative: **Lewis, Pauline Therese et al
Infineum International Ltd.,
P.O. Box 1,
Milton Hill, Oxfordshire OX13 6BB (GB)**

(54) **Low ash or ashless two-cycle lubricating oil with reduced smoke generation**

(57) A new low smoke two-cycle oil comprises highly reactive polyisobutylene ("HR-PIB"), a solvent additive package, and exhibits Kinematic viscosity of at least 6.5 mm²/s at 100°C and JASO M342 Smoke Index of at least 85. The new two-cycle oil is manufactured from an alter-

native starting material, which offers an efficient alternative as compared to polyisobutylene ("PIB"), which has traditionally been included in conventional two-cycle oils.

EP 1 743 932 A3



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 06 11 3832

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Y	EP 0 640 680 A1 (BP CHEM INT LTD [GB]) 1 March 1995 (1995-03-01) * abstract * * claims 1,4 * * page 2, line 52 - line 57 * * examples 1-3 * -----	1-8	INV. C10M107/08 C10M111/04 C10M171/02 C10M169/04
Y	EP 0 145 235 A1 (BP CHEM INT LTD [GB]) 19 June 1985 (1985-06-19) * claims 1-3 * * examples; table 4 * * page 2, line 35 - page 3, line 9 * -----	1-8	
Y	WO 02/057397 A (INFINEUM INT LTD [GB]) 25 July 2002 (2002-07-25) * the whole document * -----	1-8	
A,D	WO 02/14385 A (BASF AG [DE]; WETTLING THOMAS [DE]; BORCHERS DIRK [BE]; VERRELST WIM []) 21 February 2002 (2002-02-21) * the whole document * -----	1,3,5	TECHNICAL FIELDS SEARCHED (IPC) C10M
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 26 July 2007	Examiner Renoth, Heinz
CATEGORY OF CITED DOCUMENTS 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		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 & : member of the same patent family, corresponding document	

 4
EPO FORM 1503 03.82 (P04C01)

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

EP 06 11 3832

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.

26-07-2007

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0640680	A1	01-03-1995	BR 9403293 A	11-04-1995
			CA 2117446 A1	21-02-1995
			CN 1107880 A	06-09-1995
			DE 69419369 D1	12-08-1999
			DE 69419369 T2	04-11-1999
			HU 69327 A2	28-09-1995
			IN 189430 A1	22-02-2003
			JP 7150162 A	13-06-1995
			SG 46960 A1	20-03-1998
			US 5475171 A	12-12-1995
EP 0145235	A1	19-06-1985	AU 565575 B2	17-09-1987
			AU 3611384 A	22-05-1985
			BR 8407152 A	08-10-1985
			CA 1236125 A1	03-05-1988
			DE 3468884 D1	25-02-1988
			DE 145235 T1	10-04-1986
			DK 294885 A	28-06-1985
			ES 8507158 A1	01-12-1985
			WO 8501942 A1	09-05-1985
			HU 38107 A2	28-04-1986
			IN 162093 A1	26-03-1988
			JP 6092453 B	16-11-1994
			JP 61500266 T	20-02-1986
			MX 168385 B	20-05-1993
			US 4605808 A	12-08-1986
			ZA 8408550 A	25-06-1986
WO 02057397	A	25-07-2002	CN 1539005 A	20-10-2004
			US 6455477 B1	24-09-2002
WO 0214385	A	21-02-2002	AT 268342 T	15-06-2004
			AU 9376101 A	25-02-2002
			CA 2418032 A1	31-01-2003
			CN 1447822 A	08-10-2003
			DE 10040618 A1	28-02-2002
			EP 1311565 A1	21-05-2003
			HU 0300675 A2	28-08-2003
			JP 2004506759 T	04-03-2004
			MX PA03001130 A	30-06-2003
			US 2003162918 A1	28-08-2003