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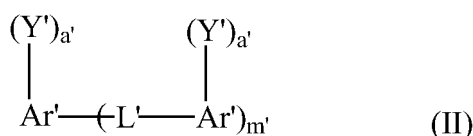
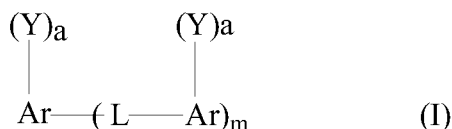
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(54) **Lubricating oil composition containing detergent additives**

(57) A lubricating oil composition having a total base number of more than 15 mg KOH/g, as determined by ASTM D2896, and including at least 40 mass % of an oil of lubricating viscosity; at least one detergent; and at least one compound of the formula (I) and/or formula (II):



In formula (I), each Ar independently represents an aro-

matic moiety having 0 to 3 substituents selected from the group consisting of alkyl, alkoxy, alkoxyalkyl, aryloxy, aryloxyalkyl, hydroxy, hydroxyalkyl, halo and combinations thereof; each L is independently a linking moiety comprising a carbon-carbon single bond or a linking group; each Y is independently -OR¹ or a moiety of the formula H(O(CR¹₂)_n)_yX-, wherein X is selected from the group consisting of (CR¹₂)_z, O and S; R¹ and R¹ are each independently selected from H, C₁ to C₆ alkyl and aryl; R¹ is selected from C₁ to C₁₀₀ alkyl and aryl; z is 1 to 10; n is 0 to 10 when X is (CR¹₂)_z, and 2 to 10 when X is O or S; and y is 1 to 30; each a is independently 0 to 3, with the proviso that at least one Ar moiety bears at least one group Y; and m is 1 to 100. In formula (II), each Ar' independently represents an aromatic moiety having 0 to 3 substituents selected from the group consisting of alkyl, alkoxy, alkoxyalkyl, hydroxy, hydroxyalkyl, acyloxy, acyloxyalkyl, aryloxy, aryloxy alkyl, halo and combinations thereof; each L' is independently a linking moiety comprising a carbon-carbon single bond or a linking group; each Y' is independently a moiety of the formula

$Z(O(CR^2_2)_n)_y.X'$, wherein X' is selected from the group consisting of $(CR^2_2)_{z'}$, O and S; R^2 and $R^{2'}$ are each independently selected from H, C_1 to C_6 alkyl and aryl; z' is 1 to 10; n' is 0 to 10 when X' is $(CR^2_2)_{z'}$, and 2 to 10 when X' is O or S; y' is 1 to 30; Z is H, an acyl group, an

alkyl group or an aryl group; each a' is independently 0 to 3, with the proviso that at least one Ar' moiety bears at least one group Y' in which Z is not H; and m' is 1 to 100.



European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 07 11 1837

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
P,X	EP 1 693 434 A (INFINEUM INT LTD [GB]) 23 August 2006 (2006-08-23) * claims 1-7; examples *	1-7,11	INV. C10M163/00 C10M165/00
P,Y	* paragraph [0105]; claim 14; table II *	1-7, 11-18	ADD. C10N30/04 C10N40/25 C10N40/26
Y	----- EP 1 605 034 A (INFINEUM INT LTD [GB]) 14 December 2005 (2005-12-14) * page 2, line 4, paragraph 25; examples *	1-7, 11-18	
P,Y	----- EP 1 767 611 A (CLARIANT PRODUKTE DEUTSCHLAND [DE]) 28 March 2007 (2007-03-28) * page 3, line 3, paragraphs 16,19; claims; examples *	1,2,14	
A	----- US 5 821 202 A (FORESTER DAVID R [US] ET AL) 13 October 1998 (1998-10-13) * column 1, lines 17-19 * * column 1, lines 51,52 * * column 10, lines 1-20 * * column 12, lines 5-16; claims 1,27 *	13,14,16	TECHNICAL FIELDS SEARCHED (IPC) C10M
A	----- US 5 021 498 A (STEPHENSON WILLIAM K [US] ET AL) 4 June 1991 (1991-06-04) * abstract *	14	
A	----- US 2 978 423 A (ROBERT TIRTIAUX ET AL) 4 April 1961 (1961-04-04) * tables I,II *	1	
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 25 July 2008	Examiner Kazemi, Pirjo
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			

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

EP 07 11 1837

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
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25-07-2008

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 1693434	A	23-08-2006	CA 2536894 A1	18-08-2006
			CN 1830935 A	13-09-2006
			JP 2006225663 A	31-08-2006
			SG 125220 A1	29-09-2006
			US 2006189492 A1	24-08-2006

EP 1605034	A	14-12-2005	EP 1642956 A1	05-04-2006

EP 1767611	A	28-03-2007	DE 102005045133 A1	05-04-2007
			US 2007221539 A1	27-09-2007

US 5821202	A	13-10-1998	AU 6362298 A	05-11-1998
			CA 2235835 A1	29-10-1998
			DE 69815752 D1	31-07-2003
			EP 0877072 A2	11-11-1998

US 5021498	A	04-06-1991	CA 2029465 A1	09-05-1991

US 2978423	A	04-04-1961	DE 1067955 B	
			FR 1155969 A	12-05-1958
			GB 807670 A	21-01-1959
