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Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted
a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of
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(54) Title: HIGHLY OVERBASED MAGNESIUM ALKYL TOLUENE SULFONATES

(57) Abstract: A process for preparing a highly overbased magnesium alkyltoluene sulfonates comprising: (A) reacting at least one oil soluble alkyltoluene sulfonic acid and at least one source of magnesium, in the presence of a mixture comprising: (i) at least one hydrocarbon solvent; and (ii) at least one low molecular weight alcohol; (B) contacting the reaction product of (A) with at least one promoter and water; (C) contacting the product of (B) with an overbasing acid; and (D) heating the reaction product of (C) to a temperature greater than the distillation temperature of the hydrocarbon solvent, the low molecular weight alcohol, and the water to distill the hydrocarbon solvent, the low molecular weight alcohol, and the water.



WO 2011/068732 A3

A. CLASSIFICATION OF SUBJECT MATTER*C07C 303/32(2006.01)i, C07C 309/30(2006.01)i, C10M 135/10(2006.01)i, C10M 159/24(2006.01)i*

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

C07C 303/32; C10M 3/34; C10M 1/40; C10M 135/10

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: alkyl aryl sulfonate, magnesium, overbase, carbon dioxide

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4617135 A (MUIR, RONALD J.) 14 October 1986	1-18
Y	See column 3, lines 58-68; column 4; column 5, lines 7-16.	19-20
Y	US 5089155 A (MARSH, JOHN F. et al.) 18 February 1992	19-20
A	See claim 1.	1-18
A	US 4201682 A (SABOL, ALBERT R. et al.) 06 May 1980 See the whole document.	1-20



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

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"&" document member of the same patent family

Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4617135 A	14. 10. 1986	None	
US 5089155 A	18. 02. 1992	CN 1022256 C	29. 09. 1993
		CN 1034752 A	16. 08. 1989
		CN 1034752 C0	17. 07. 1993
		EP 0312313 A1	19. 04. 1989
		EP 0312313 B1	19. 06. 1991
		EP 0312315 A1	19. 04. 1989
		EP 0312315 B1	11. 12. 1991
		JP 01-174597 A	11. 07. 1989
		JP 02-084493 A	26. 03. 1990
		JP 02-598489 B2	09. 01. 1997
		JP 02-695763 B2	12. 09. 1997
		JP 08-231442 A	10. 09. 1996
		US 5112506 A	12. 05. 1992
		US 5137648 A	11. 08. 1992
US 4201682 A	06. 05. 1980	None	