



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification ⁷ : C07C 211/21, 211/20, A61K 7/06</p>	<p>A3</p>	<p>(11) International Publication Number: WO 00/05192</p> <p>(43) International Publication Date: 3 February 2000 (03.02.00)</p>
<p>(21) International Application Number: PCT/US99/16301</p> <p>(22) International Filing Date: 19 July 1999 (19.07.99)</p> <p>(30) Priority Data: 09/120,699 22 July 1998 (22.07.98) US</p> <p>(71) Applicant: CALGON CORPORATION [US/US]; 5400 Campbells Run Road, Pittsburgh, PA 15205 (US).</p> <p>(72) Inventors: DING, Hong; Apt. 217, 1526 Lake View Drive, Darien, IL 60561 (US). CARPENTER, Michael, M.; 255 Glenmore Drive, Moon Township, PA 15108 (US). CHEN, Shih-ruey, T.; 1498 King Charles Drive, Pittsburgh, PA 15237 (US). VOZZA, Nicholas, F.; 375 Maple Road, Burgettstown, PA 15021 (US). LIN, Fu-Mei, Chen; 15 Barton Drive, Pittsburgh, PA 15221 (US). PARSONS, Jennifer, R.; 6215 Hampton Street, Pittsburgh, PA 15201 (US).</p> <p>(74) Agent: MILLER, Raymond, A.; Reed Smith Shaw & McClay LLP, P.O. Box 488, Pittsburgh, PA 15230-0488 (US).</p>	<p>(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).</p> <p>Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i></p> <p>(88) Date of publication of the international search report: 11 May 2000 (11.05.00)</p>	
<p>(54) Title: ALKYL ALLYL AMINES AND LOW VOC HAIR STYLING COMPOSITIONS USING SAME</p>		
<p>(57) Abstract</p> <p>The present invention is directed to alkyl allyl amine monomers and their use as a polymerizate in a low VOC hair spray formulation. The hair spray formulation preferably includes a polymerizate of an alkyl allyl amine monomer, preferably an alkyl diallyl amine monomer alone or in combination with other known monomers. The hair spray formulation preferentially satisfies low VOC requirements while maintaining characteristics desired in a hair fixative product.</p>		

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 99/16301

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 C07C211/21 C07C211/20 A61K7/06

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)

IPC 7 C07C A61K

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

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	H. RHEE ET AL.: "Pd(0)-Catalyzed Coupling Reaction..." BULL. KOREAN CHEM SOC., vol. 19, no. 1, - January 1998 (1998-01) pages 25-27, XP000872585 see table 1: reaction 5 compounds 57,13	1-5
X	STN-INFORMATION SERVICE FILE: REG, XP002130512 see the polymers mentioned therein	6-13
X	STN INFORMATION SERVICE, FILE: REGISTRY, XP002130513 see the mono allyl amine compounds mentioned therein	1

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Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "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

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

15 February 2000

Date of mailing of the international search report

12.03.00

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
 NL - 2280 HV Rijswijk
 Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
 Fax: (+31-70) 340-3016

Authorized officer

Goetz, G

INTERNATIONAL SEARCH REPORT

Inter. Patent Application No

PCT/US 99/16301

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	STN INFORMATION SERVICE, FILE REGISTRY, XP002130514 see the di allyl amine compounds mentioned therein	1
A	US 5 176 898 A (GOLDBERG MARVIN E ET AL) 5 January 1993 (1993-01-05) cited in the application the whole document	14-20
A	EP 0 791 351 A (OREAL) 27 August 1997 (1997-08-27) the whole document	14-20
A	DE 42 34 743 A (WELLA AG) 21 April 1994 (1994-04-21) the whole document	14-20

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 99/16301

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.: -
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
see FURTHER INFORMATION sheet PCT/ISA/210

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.2

The initial phase of the search revealed a very large number of compounds falling within the scope of present claims 1 and 6. A selection of these novelty-detroying compounds has been cited in the search report (see the three STN-Information Service documents).

For this reason, a meaningful search over the whole breadth of the claims 1 and 6 is impossible.

INTERNATIONAL SEARCH REPORT

information on patent family members

International Application No

PCT/US 99/16301

Patent document cited in search report	Publication date	Patent family member(s)	Publication date	
US 5176898	A	05-01-1993	AT 131032 T	15-12-1995
			AU 657832 B	23-03-1995
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			ES 2060558 T	01-12-1994
			JP 7502540 T	16-03-1995
			US 5690921 A	25-11-1997