

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
15 October 2009 (15.10.2009)

PCT

(10) International Publication Number
WO 2009/125433 A3

(51) International Patent Classification:
C08F 8/00 (2006.01) *A61K 31/785* (2006.01)

(21) International Application Number:
PCT/IN2009/000226

(22) International Filing Date:
6 April 2009 (06.04.2009)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
00826/MUM/2008 8 April 2008 (08.04.2008) IN

(71) Applicant (for all designated States except US): **USV LIMITED** [IN/IN]; B.S.D. Marg, Station Road, Govandi, Mumbai 400 088, Maharashtra (IN).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **SATHE, Dhananjay, Govind** [IN/IN]; USV Limited, B.S.D. Marg, Station Road, Govandi, Mumbai 400 088, Maharashtra (IN). **MONDKAR, Harish, Kashinath** [IN/IN]; USV Limited, B.S.D. Marg, Station Road, Govandi, Mumbai 400 088, Maharashtra (IN). **JADHAV, Tanaji, Shamrao** [IN/IN]; USV Limited, B.S.D. Marg, Station Road, Govandi, Mumbai 400 088, Maharashtra (IN). **PATIL, Samadhan, Daulat** [IN/IN]; USV Limited, B.S.D. Marg, Station Road, Govandi, Mumbai 400 088, Maharashtra (IN).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN,

HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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 the earlier application (Rule 4.17(iii))
- of inventorship (Rule 4.17(iv))

Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

(88) Date of publication of the international search report:
7 January 2010

(54) Title: PROCESS FOR PREPARATION OF AMINE POLYMER SALT

(57) Abstract: The present invention discloses simple process for preparation of salt of polyallylamine polymer.



WO 2009/125433 A3

INTERNATIONAL SEARCH REPORT

International application No
PCT/IN2009/000226

A. CLASSIFICATION OF SUBJECT MATTER
INV. C08F8/00 A61K31/785

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)
C08F 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)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2006/050315 A2 (GENZYME CORP [US]; BHAGAT HITESH [US]; GOLDBERG JEFFERY MARC [US]; HAR) 11 May 2006 (2006-05-11) cited in the application page 8, line 8 - line 30 page 15, line 1 - line 25 page 10, line 8 - page 11, line 12 -----	1-12, 16-19
A	US 2002/159968 A1 (PETERSEN JOHN S [US] ET AL) 31 October 2002 (2002-10-31) paragraphs [0008] - [0010], [0013], [0014] -----	1-12, 16-19
A	US 2006/251614 A1 (BHAGAT HITESH R [US] ET AL) 9 November 2006 (2006-11-09) paragraphs [0020], [0026] - [0032], [0042] ----- -/--	1-12, 16-19



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
- *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.
- *G* document member of the same patent family

Date of the actual completion of the international search

18 August 2009

Date of mailing of the international search report

18/11/2009

Name and mailing address of the ISA/

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

Authorized officer

Giani, Elena

INTERNATIONAL SEARCH REPORT

International application No
PCT/IN2009/000226

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2003/133902 A1 (HOLMES-FARLEY STEPHEN RANDALL [US] ET AL HOLMES-FARLEY STEPHEN RANDALL) 17 July 2003 (2003-07-17) cited in the application claims 1,2	1-12, 16-19
A	----- DELMEZ J. ET AL.: "A randomized, double-blind, crossover design study of sevelamer hydrochloride and sevelamer carbonate in patients in hemodialysis" CLINICAL NEPHROLOGY, vol. 68, no. 2/2007, 17 September 2007 (2007-09-17), pages 386-391, XP008109709 page 386	1-12
A	----- DATABASE WPI Week 199843 Thomson Scientific, London, GB; AN 1998-501699 XP002541630 & JP 10 218936 A (MITSUBISHI CHEM CORP) 18 August 1998 (1998-08-18) abstract	1
X,P	----- DATABASE WPI Week 200878 Thomson Scientific, London, GB; AN 2008-N36198 XP002541752 & IN 200 601 893 A1 (EMCURE PHARM LTD) 4 July 2008 (2008-07-04) abstract	1

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IN2009/000226

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 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:
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 No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

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

see additional sheet

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 fees, this Authority did not invite payment of additional fees.
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.:

1-12, 16-19

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-12, 16-19

Process for the preparation of carbonate salt of amine polymers.

2. claims: 13-15

Process for drying carbonate salt of amine polymers.

3. claims: 20-34

Carbonate salt of amine polymer having the features disclosed by claim 29 or claim 30 and process for its preparation.

4. claims: 35-43

Process for the preparation of Sevelamer carbonate.

5. claims: 44-46

Process for the preparation of Sevelamer carbonate.

6. claim: 47

Sevelamer carbonate with Loss on drying below 10%.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IN2009/000226

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2006050315 A2	11-05-2006	AU 2005302243 A1 BR PI0517916 A CA 2586023 A1 EP 1807057 A2 JP 2008518950 T	11-05-2006 21-10-2008 11-05-2006 18-07-2007 05-06-2008
US 2002159968 A1	31-10-2002	NONE	
US 2006251614 A1	09-11-2006	NONE	
US 2003133902 A1	17-07-2003	NONE	
JP 10218936 A	18-08-1998	JP 3978799 B2	19-09-2007
IN 200601893 A1		NONE	