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<i>C08K 5/353</i> (2006.01)	<i>C07C 229/60</i> (2006.01)
<i>C08L 75/02</i> (2006.01)	<i>C07C 205/59</i> (2006.01)
<i>C07C 251/24</i> (2006.01)	<i>C07C 233/78</i> (2006.01)

AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

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

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*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: POLYUREA COMPOSITIONS AND COMPOUNDS FOR THE PREPARATION THEREOF

(57) Abstract: The invention is directed to novel compounds that are used in the formation of polyurea compositions, including one-part and two-part polyurea compositions. The invention is also directed to polyureas formed from such compounds, cross-linked polyureas, and UV-stabilized polyureas.



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<b>A. CLASSIFICATION OF SUBJECT MATTER</b> C08G18/50 C08G18/32 C08K5/353 C08L75/02 C07C251/24 C07C205/37 C07C217/84 C07C229/60 C07C205/59 C07C233/78		
According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) C08G C08K C08L C07C		
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, CHEM ABS Data, BEILSTEIN Data, WPI Data, INSPEC, COMPENDEX		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6 552 155 B1 (GUTMAN ARIE ET AL) 22 April 2003 (2003-04-22) cited in the application  column 1, line 18 - line 33 column 1, line 64 - column 2, line 56 column 3, line 3 - line 23 column 3, line 34 - line 44 column 4, line 4 - line 41 column 5, line 21 - line 23; claims 1,4,8,23  ----- -/--	1-16, 25-62, 65,66, 68-71
<input checked="" type="checkbox"/> Further documents are listed in the continuation of box C. <input checked="" type="checkbox"/> 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  23 December 2005		Date of mailing of the international search report  10.01.06
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  Seelmann, M

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tional application No.  
PCT/US2005/017018

## Box 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 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 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.:  
  
1-66,68-71
  
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

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

1. claims: 1-16, 26-27, 29-62, 65-66, 68-71

one-part and two part polyurea compositions from compounds of formulae (IV), (V), (XI), (XII), (VI), (VII), (XIII), (XIV) and (XXII).  
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2. claims: 17-25, 28 and 63-64

cross-linking agents.  
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3. claim: 67

polyureas in general.  
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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 4 328 322 A (BARON ET AL) 4 May 1982 (1982-05-04) cited in the application  column 4, line 41 - column 5, line 51 column 6, line 26 - line 43 formula (IV), on col.9 column 7, line 46 - column 8, line 2 column 19, line 58 - line 66; example VI -----	1-16, 25-62, 65,66, 68-71
A	GB 1 429 852 A (WELLCOME FOUNDATION LTD) 31 March 1976 (1976-03-31) page 7, line 14 - line 26; claim 8; example 2 -----	7-16
A	WO 00/31196 A (THE SHERWIN-WILLIAMS COMPANY; TANG, WEILIN; DING, HONG; D'ERRICO, MICH) 2 June 2000 (2000-06-02) page 19 - page 20; claims 1-3; example C2 -----	25-30
X	HENDERSON P A ET AL: "METHYLENE-LINKED LIQUID CRYSTAL DIMERS" LIQUID CRYSTALS, TAYLOR AND FRANCIS LTD, LONDON, GB, vol. 28, no. 3, March 2001 (2001-03), pages 463-472, XP001076571 ISSN: 0267-8292 scheme 2, compound 7 and scheme 3 paragraphs [02.6], [2.6.2], [02.7]; figure 2 -----	1,2,4,35
X	GB 749 923 A (THE WELLCOME FOUNDATION LIMITED) 6 June 1956 (1956-06-06) page 1, line 18 - line 32 page 1, line 38 - line 53; claim 1; example 5 -----	1-3,33
Y		4,34
X	US 5 130 454 A (HICKMANN ET AL) 14 July 1992 (1992-07-14) column 1, line 1 - line 56 column 1, line 61 - line 65 column 2, line 14 - line 16 compounds 2.,3.,5.-7. on column 2 column 2, line 27 - line 64; claim 1; examples 1,7-10 -----	1-3,34
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International Application No

PC 2005/017018

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>YELAMAGGAD C V ET AL.: "SYNTHESIS AND THERMAL BEHAVIOUR OF SALICYLALDIMINE-BASED LIQUID CRYSTALLINE SYMMETRICAL DIMERS" LIQUID CRYSTALS, TAYLOR AND FRANCIS LTD, LONDON, GB, vol. 30, no. 8, August 2003 (2003-08), pages 899-907, XP001168221 ISSN: 0267-8292 scheme on page 901: compound 1b and step (iv) to aldimine 80S0nS08 paragraphs [04.3], [04.4] -----</p>	1,2
X	<p>H. LOEWE ET AL.: "6-Amidino-4-amino-chinaldine, ein neuer Typ aromatischer Amidine" ARZNEIM. FORSCH., vol. 15, no. 6, 1965, pages 604-608, XP009054243 compound (VII) on page 604; synthesis on page 606 for bis-(4-[4-amino-phenoxy]-butyl)ether -----</p>	1-3,33
X	<p>DATABASE CAPLUS CHEMICAL ABSTRACTS SERVICE, COLUMBUS, OHIO, US; XP002348857 Database accession no. 1992:73028 abstract &amp; JIN JUNG IL ET AL.: "Dimesogenic compounds consisting of two identical terminal N-(4-oxybenzylidene)-4-butylaniline units and a central polymethylene spacer." BULLETIN OF THE KOREAN CHEMICAL SOCIETY, vol. 12, no. 5, 1991, pages 583-588, -----</p>	1,4
X	<p>DATABASE CAPLUS CHEMICAL ABSTRACTS SERVICE, COLUMBUS, OHIO, US; XP002348858 Database accession no. 1959:72607 abstract &amp; R. JAUNIN ET AL.: "Macrocyclic synthesis. II. action of sodium on the dianils of 2,2'-polymethylenedioxydibenzaldehydes." HELVETICA CHIMICA ACTA, vol. 42, 1959, pages 328-334, -----</p>	1,4
A	<p>GB 1 182 377 A (FARBENFABRIKEN BAYER AKG) 25 February 1970 (1970-02-25) page 2, line 16 - line 24 page 4, line 3 - line 34 ----- -/-</p>	17-19, 22-24

## INTERNATIONAL SEARCH REPORT

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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 3 060 221 A (THOMAS TELFER L) 23 October 1962 (1962-10-23) cited in the application column 1, line 12 - column 2, line 30; claim 6; example 5 -----	17-19, 22-24
L	DATABASE CHEMCATS [Online] Chemical abstract service, COLUMBUS, OHIO, US; XP002360904 retrieved from STN Order Number: A2300/0096930 & "Ambinter Product Nr: 56 141" 1 January 2004 (2004-01-01), AMBINTER STOCK SCREENING COLLECTION -----	20,21, 63,64
X	DATABASE REGISTRY [Online] Chemical abstract service, COLUMBUS, OHIO, US; 10 January 2002 (2002-01-10), "RN: 381671-45-0" XP002360905 retrieved from STN	20
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Information on patent family members

International Application No.

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