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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
4 July 2002 (04.07.2002)

PCT

(10) International Publication Number
WO 02/051896 A1

(51) International Patent Classification[7]: C08F 283/01, 283/00, C09D 5/34, C08F 290/06

(21) International Application Number: PCT/NL01/00923

(22) International Filing Date:
19 December 2001 (19.12.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
00204744.7 22 December 2000 (22.12.2000) EP

(71) Applicants *(for all designated States except US)*: **DSM N.V.** [NL/NL]; Het Overloon 1, NL-6411 TE Heerlen (NL). **HILTI AKTIENGESELLSCHAFT** [LI/LI]; FL-9494 Schaan (LI).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **UDDING, Jan, Henderikus** [NL/NL]; Stadhouderlaan 59, NL-8042 AB Zwolle (NL). **WOLTERS, Agnes, Elisabeth** [NL/NL]; Kolkweg 8A, NL-8055 PV Laag Zuthem (NL). **WILHELM, Heinz** [DE/DE]; Forstgasse 62a, 67454 Hassloch (DE). **PFEIL, Armin** [—/DE]; Ahornring 49, 86916 Kaufering (DE). **BÜRGEL, Thomas** [DE/DE]; Weilheimerstrasse 6e, 86899 Landsberg (DE). **SAGER, Lutz** [DE/DE]; Buchenweg 3a, 86937 Scheuring (DE).

(74) Agent: **DAUTZENBERG, Jozef, Marie, Andreas**; DSM Patents & Trademarks, P.O. Box 9, NL-6160 MA Geleen (NL).

(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, 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, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, 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, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— *with international search report*
— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

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.

WO 02/051896 A1

(54) Title: TWO-COMPONENT CHEMICAL FASTENING SYSTEMS

(57) Abstract: The invention relates to two-component chemical fastening systems, the A-component containing an unsaturated polyester and a reactive diluent, and the B-component containing a peroxide and an extender, wherein the extender is either a monomeric component according to formula 1 $(A\text{-}CH{=}CH\text{-}O)_n\text{-}R$ or a resinous compound comprising, in a covalently built-in manner, a component having vinyl ether group(s), and the content of the peroxide in the B-component is from 0.5 to 99 wt.%. In the formula A, R and n are specified as hydrogen or $C_{1\text{-}3}$ alkyl; $C_{1\text{-}20}$ (hetero)-aliphatic with hydroxyl or amino groups, or poly(C¿2 or 3?)glycol with 2-120 glycol units; and 1 to 4, respectively. The resinous compounds with built-in vinyl ether group(s) (0.5 to 50 wt.%, calculated as indicated) are obtained by reaction of a mixture of appropriate amounts of: a) a first compound (HVE) containing at least one hydroxyl group and at least one vinyl ether group, and b) a second compound (D/HIC), being an isocyanate; and c) a third compound (G/P/HP) from (1) $C_{2\text{-}6}$ glycols, (2) $C_{5\text{-}20}$ polyols having 2-5 hydroxyl groups and (3) hydroxyl terminated polyester compounds, not being alkyd resins, having 1-5 free hydroxyl groups and 2-50 monomeric units, or mixtures thereof. The invention also relates to methods for preparing (the B-component) of such two-component chemical fastening systems, as well as to use of the systems for chemical fastening.