

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
13 January 2005 (13.01.2005)

PCT

(10) International Publication Number
WO 2005/003204 A3

(51) International Patent Classification⁷: **C08G 18/02**,
18/28

(21) International Application Number:
PCT/NL2004/000470

(22) International Filing Date: 2 July 2004 (02.07.2004)

(25) Filing Language: Dutch

(26) Publication Language: English

(30) Priority Data:
1023817 3 July 2003 (03.07.2003) NL

(71) Applicant (for all designated States except US): **STAHL
INTERNATIONAL B.V.** [NL/NL]; Sluisweg 10,
NL-5145 PE Waalwijk (NL).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **HESELMANS,
Laurentius, Cornelius, Josephus** [NL/NL]; Vughterstraat
151b, NL-5211 GB 's Hertogenbosch (NL). **DERKSEN,
Andries, Johannes** [NL/NL]; Bosbesstraat 27, NL-6542
Nijmegen (NL). **MUNNEKE, Jacob, Christian** [NL/NL];
Hoofdstraat 108, NL-5171 DG Katsheuveel (NL).

(74) Agent: **KUPECZ, Arpád**; Octrooibureau Los en Stigter
B.V., Weteringschans 96, NL-1017 XS Amsterdam (NL).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
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, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, 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, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,
SK, TR), OAPI (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

(88) Date of publication of the international search report:
10 March 2005

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: PROCESS FOR THE PREPARATION OF STABLE POLYCARBODIIMIDE DISPERSIONS IN WATER, WHICH
ARE FREE OF ORGANIC SOLVENTS AND MAY BE USED AS CROSSLINKING AGENT

(57) Abstract: A process for the preparation of stable aqueous polycarbodiimide dispersions, to be used as crosslinking agent, which are free of organic solvents is described. Said process is characterized in: reacting a polyisocyanate in the presence of a carbodiimide catalyst to form a polycarbodiimide, terminating and/or chain extending the polycarbodiimide chain by the addition of a compound containing a hydrophilic group and one or more amine and/or hydroxy functions during or after the polycarbodiimide formation dispersion of the resulting compound in water, wherein pH is adjusted to a value between 9 and 14 by the addition of a base and/or a buffer to the water used for the dispersion and/or to the obtained aqueous dispersion. According to the present process said terminating or chain extending with the compound containing a hydrophilic group and one or more amine functions may also occur during or after the dispersion of the polycarbodiimide in water. The preferred pH of the polycarbodiimide dispersions is between 11 and 13. Furthermore the invention relates to a coating mixture comprising the polycarbodiimide dispersions obtained by the invention as crosslinking agent and an aqueous resin containing carboxylic acid functions. Finally the invention comprises cured material obtained by applying said coating mixture to a substrate, and evaporating the water.



WO 2005/003204 A3