



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁷ : C08G 59/12, 63/60, C09D 163/00, C08G 18/42	A1	(11) International Publication Number: WO 00/27901 (43) International Publication Date: 18 May 2000 (18.05.00)
(21) International Application Number: PCT/EP99/08899 (22) International Filing Date: 3 November 1999 (03.11.99) (30) Priority Data: 98203734.3 5 November 1998 (05.11.98) EP (71) Applicant: SHELL INTERNATIONALE RESEARCH MAATSCHAPPIJ B.V. [NL/NL]; Carel van Bylandtlaan 30, NL-2596 HR The Hague (NL). (72) Inventors: VAN GAALEN, Ronald, Petrus, Clemens; Badhuisweg 3, NL-1031 CM Amsterdam (NL). KOOIJMANS, Petrus, Gerardus; Badhuisweg 3, NL-1031 CM Amsterdam (NL). VOS, Eric, Johannes; Badhuisweg 3, NL-1031 CM Amsterdam (NL).		(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, 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, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, 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). Published <i>With international search report.</i>
(54) Title: EPOXY FUNCTIONAL POLYESTER RESINS, PROCESS FOR THEIR PREPARATION, AND OUTDOOR DURABLE COATING COMPOSITIONS COMPRISING THEM		
(57) Abstract Modified epoxy functional polyesters, obtainable by the reaction of epihalohydrin and preferably epichlorohydrin, in the presence of a base with carboxyl functional polyester resins II obtainable by reacting: (a) at least one aromatic or cycloaliphatic dicarboxylic acid compound A comprising two aromatic- or secondary aliphatic carboxyl groups or the anhydrid thereof; (b) at least one diol compound B comprising two aliphatic hydroxyl groups, which may independently be a primary or a secondary hydroxyl group; and optionally (c) compound C1 comprising one monofunctional primary- or secondary hydroxyl group and/or at least one compound C2 comprising one primary- or secondary hydroxyl group and one tertiary aliphatic carboxyl group; and optionally (d) a dihydroxymonocarboxylic acid compound D comprising a tertiary aliphatic carboxyl group and two aliphatic hydroxyl groups, which may each independently be primary or secondary hydroxyl; and optionally (e) a trihydroxyalkane (E1) or tetrahydroxyalkane (E2), the molar ratio of compounds A:B:C1:C2:D:E1:E2 being X+Y+1:X:M:N:Y:Z:Q wherein M+N is in the range of from 0 to 2, X ranges from 2 to 8 and Y ranges from 0 to 8, Z ranges from 0 to 2 and Q ranges from 0 to 2 at a temperature of from 100 to 220°C, until a predominant part of the non-tertiary carboxyl groups as initially present in the reaction mixture, i.e. 75 % or more, have been converted, and subsequent reaction of said obtained composition of epoxy functional polyester (III) having an EGC in the range of from 500 to 3000 and a number average molecular weight M_n in the range of from 500 to 10,000, with an isocyanate (IV), in a molar ratio of III:IV such that at least all the present terminal hydroxyl groups will be converted. Preferably the molar ratio between the starting epoxy functional polyester and the isocyanate is in the range of from 0.9:1 to 1.2:1 and powder coating compositions comprising said modified epoxy functional polyester.		