

Title (en)

HYDROXY ESTER PRE-EXTENDED EPOXY-TERMINATED VISCOSIFIERS AND METHOD FOR PRODUCING THE SAME

Title (de)

HYDROXYESTER-VORVERLÄNGERTE EPOXIDGRUPPEN TERMINIERTE ZÄHIGKEITSVERBESSERER UND VERFAHREN ZU DEREN HERSTELLUNG

Title (fr)

AMÉLIORANTS DE VISCOSITÉ TERMINÉS PAR DES GROUPES ÉPOXYDES, PRÉ-ALLONGÉS PAR DES HYDROXYESTERS ET PROCÉDÉ DE FABRICATION DE CEUX-CI

Publication

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Application

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Abstract (en)

[origin: EP1935914A1] New epoxy-terminated polymers (I), carboxy-terminated polymers (II), amino-terminated polymers (XI) and (meth)acrylate-terminated polymers (XII) are based on carboxy-terminated butadiene-acrylonitrile copolymers (CTBN) and polyepoxides (PEP). Epoxy-terminated polymers of formula (I), carboxy-terminated polymers of formula  $R_2-(C(OH)(Y_2)-CH(R_2)-O-CO-R_1-COOH)_n$  (II), amino-terminated polymers of formula  $R_2-(C(OH)(Y_2)-CH(R_2)-O-CO-R_1-CO-NH-L)_n$  (XI) and (meth)acrylate-terminated polymers of formula  $R_2-(C(OH)(Y_2)-CH(R_2)-O-CO-R_1-CO-O-M)_n$  (XII) are new.  $R_1$ : divalent residue of a carboxy-terminated butadiene-acrylonitrile copolymer (CTBN), minus the terminal carboxy groups;  $R_2$ : residue of a polyepoxide (PEP), minus  $n$  epoxy groups;  $R_2 \sim$ : H or group bonded to  $R_2$ ;  $R_3$ : residue of a diglycidyl ether (DGE), minus two glycidyl ether groups;  $Y_1$ ,  $Y_2$ : H or Me;  $n$ : 2-4 (especially 2);  $L$ : 3-(piperazino)-propyl, 5-amino-4-methylbutyl or 2-aminocyclohexyl;  $M$ :  $-CH_2CH(OH)CH_2O-CO-C(R_7)=CH_2$  or  $-R_8-O-CO-C(R_7)=CH_2$ ;  $R_7$ : H or Me;  $R_8$ : divalent residue, preferably alkylene, cycloalkylene or (poly)oxyalkylene. Independent claims are included for: (1) the preparation of (I) and (II); (2) the preparation of functionally terminated polymers of formula  $R_2-(C(OH)(Y_2)-CH(R_2)-O-CO-R_1-Q-R_{10}-Q)_n$  (XVI), by: (a) preextending a polyepoxide component (PEP) by reaction with an excess of a carboxy-terminated butadiene-acrylonitrile copolymer component (CTBN) of formula  $R_1-(COOH)_2$ , at a stoichiometric ratio of carboxy groups to epoxy groups of 2 or more, to give (II); and (b) terminating (II) by reacting with a diglycidyl ether, diamine, (meth)acrylate-functional alcohol or glycidyl ether-functional (meth)acrylate, in a stoichiometric ratio of one functional terminal group of the other reactant per COOH group of (II); (3) compositions containing (I) or (II), preferably together with epoxy resin(s) and optionally also high temperature-activated hardener(s) for the resins; and (4) the (I)- or (II)-containing compositions in hardened form.  $R_{10}$ : divalent group;  $Q$ : NH; and  $Q_1$ : NH<sub>2</sub> or piperazino;  $Q$ : O or  $-OCH_2C(OH)(Y_1)CH_2O-$ ; and  $Q_1$ :  $-O-CO-C(R_7)=CH_2$ ; or  $Q$ :  $-OCH_2C(OH)(Y_1)CH_2O-$ ; and  $Q_1$ : 2-( $Y_1$ )-oxiran-2-ylmethoxy. [Image].

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