

METHOD OF PRODUCING HYBRID POLYHYDROXYURETHANE NETWORK ON A BASE OF CARBONATED-EPOXIDIZED UNSATURATED FATTY ACID TRIGLYCERIDES

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Abstract: A method of obtaining hybrid polyhydroxyurethane compositions cross-linked at ambient temperatures. The method comprises: (a) reacting epoxidized unsaturated fatty acid triglycerides with carbon dioxide in the presence of a catalyst to obtain carbonated-epoxidized unsaturated fatty acid triglycerides, wherein conversion of oxirane groups to 2-oxo-1,3-dioxolane groups (cyclic carbonate groups) for said carbonated-epoxidized unsaturated fatty acid triglycerides ranges from 35% to 85%; (b) mixing and reacting the carbonated-epoxidized unsaturated fatty acid triglycerides with a compound having amine functionality comprising at least one primary amine group realized at stoichiometric or within nearly balanced stoichiometry; (c) mixing and reacting the product of step (b) with a compound having amine functionality comprising at least two primary amine groups realized at excess of an amine-functional compound; (d) subsequently mixing the product of step (c) with a compound having amino-reactive groups.

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