

METHOD FOR PRODUCING FOAMS USING AMINO ACID N-CARBOXYANHYDRIDE

Novel method using amino acid N-carboxyanhydrides (NCAs) for in-situ CO₂ generation to produce diverse polymer foams (epoxy, polyamide, etc.) for construction, automotive, aeronautics and packaging. Advantages include safety (isocyanate-free) and versatility.

TYPE OF DEVELOPMENT

Polymer foams

DESCRIPTION

To produce self-foaming cellular materials such as foams—characterized by a cellular structure with gas bubbles embedded in a solid matrix—it is crucial to optimize and harmonize three key parameters: Viscosity of the Reactive Mixture; Crosslinking Reaction; Foaming Reaction.

The current invention primarily addresses the third parameter. In essence, this invention offers a foam production kit in which one key component is an amino acid anhydride.

In summary, this invention serves as a platform for creating innovative foams with a wide range of properties, including biobased, flexible, semi-rigid, and rigid foams.

INDICATION

The technology is applicable across multiple sectors, including construction (insulation, lightweight structures), building materials, automotive (interior components, sound dampening), composites (core materials), electronics (protective packaging, thermal management), flooring (underlayment), furnishings (cushioning), agriculture (biodegradable mulches, controlled release), marine (buoyancy aids, insulation), and packaging (protective inserts, sustainable alternatives).

NOVELTY/ADVANTAGE

This invention provides a versatile platform for producing self-expanding polymeric foams from a variety of polymerizable mixtures containing amine or hydroxyl groups through an innovative reaction with amino acid anhydrides.

Reference: ECOFOAMS



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IPR STATUS

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Applicant: University of the Basque Country

COOPERATION GOAL

Company interested in the license and Industrial collaboration.