Patent Search

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Abstract:

The present invention relates to an oxazine ring-substituted benzoxazine monomers Formula 1. wherein R1 is selected from H, alkyl, aryl, functional groups, R2 is sele Ph, Ar, het,R3 is selected from phenyl, aryl, heterocyclic and A is selected from H, alkyl, aryl, functional groups and their utility as single or composite hybrid materials from small to large industrial applications like these thermosetting polymers employed for applications such as construction, locomotive, packaging industry, coating healants, sealants, adhesives, flame-retardants, rocket and missile components, defense industry, aerospace and spacecraft manufacturing.

Complete Specification

FIELD OF THE INVENTION

The present invention relates to polymer chemistry. The present invention relates to a variety of oxazine ring-substituted benzoxazine monomers, alternative 4th generation polybenzoxazines, which are fully- and partly- sustainable, and their utility as single or composite hybrid materials are spread over small, medium to larg industrial applications.

BACKGROUND OF THE INVENTION

Polybenzoxazines (PBZs) have attracted attention because of ease of handling for material processing, excellent mechanical and thermal properties, and high-perfo composite manufacturing. The polymerization of benzoxazines can be achieved through the cationic ring-opening reaction of the oxazine ring, under heating condi general, no strong acid or alkaline catalysts are required for the polymerization reaction. However, some acids, such as phenols, aldehydes and carboxylic acids, as known in the art, will accelerate the rate of polymerization. Another unique characteristics is that polybenzoxazines offer greater molecular design flexibility than m other polymers. They release no by-product during polymerization reactions. Furthermore, no volatiles are released and almost no shrinkage is achieved upon polymerization.

Some of the Prior arts are listed below

US20200216429A1 relates to Benzoxazine compounds, methods of making them, polymers made therefrom and methods of polymerizing the benzoxazines. These renewable benzoxazine monomers and polymers that utilize a variety of building blocks found in renewable plant biomass, demonstrate excellent processability an temperature windows for processing of resin systems

View Application Status