

عنوان مقاله:

Bio-epoxy resin coating with improved fire resistance by the addition of modified tannic acid

محل انتشار:

ششمین کنگره بین المللی پوشش های حمل و نقل، ترافیک و ایمنی (سال: 1398)

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خلاصه مقاله:

The paper presents a new process for obtaining eco-epoxide materials with reduced combustibility or completely non-combustible, which are synthesized from bio-renewable raw materials, whose production process consists of two stages. A particular aspect of multiple environmental significance is the use of bio-renewable resources and the reduction of the share of the toxic epoxy component in the production of epoxy materials. The first stage considers the synthesis of furan derivatives (2,5-furancarboxylic acid dichloride), 2,5-furancarboxylic acid diglycidyl ester (2,5-FDAGli), the synthesis of maleic anhydride (AMK) from fructose, epoxy resin components: epoxy functionalized tannic acid (TA) – ETA, and TA modified by AMK to obtain carboxyl derivatives of TA (KTA) and synthesis of phosphate derivatives of TA (glycidol ester of TA modified by phosphoric acid (TA-PO3-Gli)). The second stage considers the synthesis of bio-epoxy resins using ETA, KTA, TA-PO3-Gli and 2,5-FDAGli that are used as a replacement of the epoxy resin component (A) in a ratio 25-100% as a reactive diluent to obtain products that can be used in the construction and other industrial fields and have reduced combustibility or completely non-combustible. The addition of 25% of TA derivate improved the toughness as well as the tensile strength of epoxy material. Partial or full replacement of the epoxy component with a tannin component produces eco-friendly material with while significantly .(increased fire resistance (V-2 to V-0

کلمات کلیدی:

.bio-epoxy resin – fire resistance – tannic acid – mechanical properties

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