Flame-Retardant Polyhalogencontained Unsaturated Polyesters

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In present work, as a result of continue the investigations of synthesis of flame-retardant unsaturated polyether resins and composition materials on their base have been shown the results of synthesis and investigations of new polyhalogenated unsaturated polyesters, which obtained from polycondensation reaction of ethylene glycol, diethylene glycol and propylene glycol with maleic and 1,4,5,6,7,7-hexabromo- or 1,4,5,6,7,7-hexachlorocyclo[2.2.1]-hept-5-en-2,3-dicarboxylic anhydride accordingly. Have been studied the optimal conditions of process and has been established that stable high effective flame-retardant polyhalogenated unsaturated polyether resins can be obtained by two methods.

At the first case the initial reagents simultaneously put into reaction flask and polycondensation carried out at 180-190°C in nitrogen medium.

\[ \text{HO-R-OH} + \text{CO-CO} \rightarrow \text{H}_2\text{O} \]

\[ \text{R} = \text{CH}_3, \text{CH}_2\text{CH}_3, \text{CH}_2\text{CH}_2\text{OH}, \text{CH}_2\text{CH}_2\text{Br} \]

\[ X = \text{Cl, Br} \]

Accordingly to the second method the polyhalogencontained unsaturated polyesters were obtained by addition of hexabromocyclpentadiene or hexachlorocyclpentadiene of maleinat fragment in the chain of synthesized polyglycolmaleinate polyester resins by scheme:

\[ \text{HO-R-OH} + \text{CO-CO} \rightarrow \text{H}_2\text{O} \]

\[ \text{Has been established that synthesized polyhalogencontained unsaturated polyesters obtained} \]
\[ \text{the compositions with improved physico-mechanical performances and self-extinguishing properties} \]
\[ \text{at the hardening with styrene.} \]