

PROCESS AND PRODUCT TECHNOLOGY

新型含萘环/环氧二烯环结构固化剂的合成及性能

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摘要 A novel novolac curing agent containing both naphthalene and dicyclopentadiene (DCPD) moieties was prepared to produce a highly heat-resistant cured polymer network. The chemical structure was characterized using Fourier transform infrared spectroscopy, nuclear magnetic resonance, mass spectrometry, and gel permeation chromatography analyses. The thermal properties of the resulting polymer from diglycidyl ether of bisphenol A epoxy resin cured with the novel curing agent were evaluated using dynamic mechanical thermal analysis and thermogravimetric analysis. Compared with the conventional curing agent, the resulting polymer cured with naphthalene/DCPD novolac shows considerable improvement in heat resistant properties such as higher glass transition temperature (T_g) and thermal stability. The result also shows better moisture resistance because of the hydrophobic nature of naphthalene/DCPD structure.

关键词 epoxy curing agent, heat resistance, naphthol, dicyclopentadiene.

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Synthesis and curing properties of a novel novolac curing agent containing naphthyl and dicyclopentadiene moieties

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Abstract A novel novolac curing agent containing both naphthalene and dicyclopentadiene (DCPD) moieties was prepared to produce a highly heat-resistant cured polymer network. The chemical structure was characterized using Fourier transform infrared spectroscopy, nuclear magnetic resonance, mass spectrometry, and gel permeation chromatography analyses. The thermal properties of the resulting polymer from diglycidyl ether of bisphenol A epoxy resin cured with the novel curing agent were evaluated using dynamic mechanical thermal analysis and thermogravimetric analysis. Compared with the conventional curing agent, the resulting polymer cured with naphthalene/DCPD novolac shows considerable improvement in heat resistant properties such as higher glass transition temperature (T_g) and thermal stability. The result also shows better moisture resistance because of the hydrophobic nature of naphthalene/DCPD structure.

Key words epoxy curing agent, heat resistance, naphthol, dicyclopentadiene.

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