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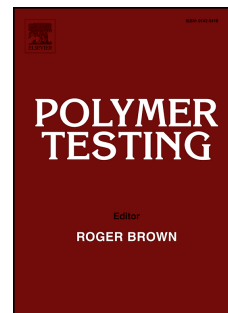
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Investigation of the curing state of ethylene/vinyl acetate copolymer (EVA) for photovoltaic applications through a combination of gel content determination, rheology, DSC and FTIR

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Abstract:

The cure behaviour of a specific ethylene vinyl acetate material as it is used for encapsulation of photovoltaic modules was analysed by rheometer, Differential Scanning Calorimetry and Fourier Transform Infrared Spectroscopy to test for a suitable replacement for the laborious determination of the gel content.

The results show that all applied methods are capable of describing the cross-linking process. Some provide results very similar to those yielded by analysis of the insoluble content, but the question remains as to whether indirect methods should be preferred over the direct measurement of physical properties, e.g. as performed by the curemeter.

Temporarily stored material was also tested, demonstrating the effect of extended storage on cure behaviour. This complements the other methods, which were clearly able to detect the different cure behaviour of the aged EVA, whereas determination of the gel content could not.

Keywords:

EVA; photovoltaic cell encapsulation; incoming goods control; insoluble content; rheometer

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