STRESS RELAXATION IN THERMOSETS BY PHOTOREVERSIBLE CROSSLINK EXCHANGE

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ABSTRACT

Most coating failures are due to stress-related problems. Enabling coating materials to relieve stress can drastically decrease failures and enhance the lifetime of coatings. Stress relaxation can be achieved by reversible exchange of crosslinks. Upon stress (for example due to curing), the reversible crosslinks redistribute and achieve a stress free state. Solar radiation, which is generally available to outdoor coatings, can be used as stimulus for crosslink association (and dissociation) in thermoset coatings. Visible light responsive derivates are used as photoreversible crosslink in thin thermoset materials, which dimerise photochemically under UV irradiation.