Organoboranylsiloxanes and Silsesquioxanes as Thermal- and UV Photo- Cross-Linking Resin Precursors

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Title: Organoboranylsiloxanes And Silsesquioxanes As Thermal-And UV Photo- Cross-Linking Resin Precursors

Invention:
The technology is a new method to facilitate cross linking in UV or Photo-cured resins. A specific application of this would be in the manufacturing of acrylic adhesives of many kinds. Acrylate adhesives are commonly made to be light activated, and this technology extends this practice. It enables new chemicals to be used in the formation of UV cured resins. The chemicals have distinct benefits over other precursors used for UV curing of adhesives.

Background:
Other resin precursors used in acrylic adhesives include ketone amine, peroxides, azo and benzophenones. Ketone amine outpaces the others in terms of shelf life and cure speed. However, ketone amine precursors are vulnerable to discoloration from amine oxides.
The technology replaces the latter precursors with organic compounds that initiate polymerization in vinyl groups. These produce distinct advantages over adhesives composed of other precursors.

**Applications:**

? New method of creating methacrylate adhesives.

o Can be used in applications that use other vinyl groups to compose an adhesive

? Methacrylate adhesives are commonly used as structural adhesives

o These have many industrial applications:

o Transportation (Aerospace, automotive and marine), Construction and for other industrial processes in need of a heavy load bearing adhesive.

**Advantages:**

? Eliminates discoloration while maintaining good bond strength and UV curing properties expected of acrylic adhesives.

? Uses components which are easy to prepare from existing precursors with carboncarbon double bonds.

? Precursor facilitates very fast curing with a pre-polymerized network.

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