

Photo-Curable Liquid Acrylate And Methacrylate Modified Silsesquioxane Oligomers With Built In Radical Initiators For Additive Manufacturing

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Technology description

Invention

The invention is a new photochemically curable resin with photo initiators for radical curing. This invention allows for faster curing rates using high and controlled concentrations of initiators. The invention also improves upon currently available resins, as this invention reduces the chances of resin chemical leaching and solves plasticization issues. It provides for a more durable and safer product.

Background

The current composition of the photo-curable resin used in practice today are composed of mixtures of acrylate or methacrylate monomers and comonomers which have multiple cross-linked groups. These mixtures permit an application that does not need to use a solvent but then creates pores or results in shrinkage, drying stress and cracking. This also causes plasticization and chemical leaching from the resin. This invention solves this problem by providing a new type of photo-curable resin that eliminates plasticization and makes leaching improbable.

Application area

- Dental Materials
- Photocured adhesives
- 3D stereolithographic printing

Advantages

- Single oligomeric
- No solvent needed
- Permits high and controlled concentrations of initiators
- Faster curing rates compared to conventional resins

- Eliminates plasticization issues that occur with current resins
- Reduces the likeliness of chemical leaching

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