

عنوان مقاله:

The influence of silica nanoparticles on the Tensile strenght of Novolac based epoxy vinyl ester / silica nanocomposites

محل انتشار:

دومین همایش ملی فناوری نانو از تئوری تا کاربرد (سال: 1392)

تعداد صفحات اصل مقاله: 5

نویسندگان:

V.r Moghimi - *Department of Farassan R&D GRVE lab, Islamic Azad University, Shiraz*

A Aghili - *Department of Azad University, Islamic Azad University, Shiraz*

خلاصه مقاله:

The of this research goal is to eliminate main disadvantages of technology through the use of nanoscaled additives and, at the same time, to increase the material composite qualities. Particularly the most critical FRP parameters, which are strength, stiffness and tensile resistance need to be improved. Epoxy vinyl ester based Novolac-silica nano composites are investigated for their suitability as a new type of matrix for polymers The key focus is the determination of the processing characteristics of the nano composites. The silica nano particle content varies between 0 and 7 wt% for the high performance epoxy resin. Scanning Electron Microscopy (SEM) analysis performed on the liquid and cured epoxy-silica nano composites indicate a nearly homogeneous distribution of the nano scaled silica in the epoxy matrix, even at rather high weight percentages. Depending on the silica content of the composite, its stiffness, strength and tensile can be increased significantly compared with neat resin The initial viscosity of the resin increases slightly depending on the nano particle content, while the gel-time slightly decreases. The optimum filler content is at approx.7 wt% silica. Epoxy-silica nano composites are now proven to be a new high performance polymer matrix for FRP structures manufactured

کلمات کلیدی:

Epoxy vinyl ester resin; Nano-SiO₂; tensile strength; Modification

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/289216>

