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Comb-shaped silicone-alkyd resins with high solid content

María C. Mejía ^a, Juliana Palacio ^b, Edwin A. Murillo ^c  Show more  Outline |  Share  Cite<https://doi.org/10.1016/j.porgcoat.2017.02.002>[Get rights and content](#)

Highlights

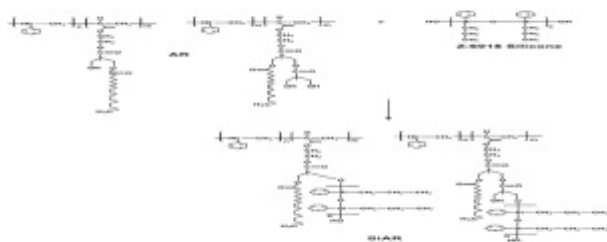
- All resins present in their structures residual OH groups.
- The viscosity and hydroxyl value of the alkyd-silicone resins were higher than unmodified alkyd resin.
- Thermal stability and molar mass of the silicone-alkyd resins increased with the silicone content.
- The chemical resistance of the resins was good against water, hydrochloric acid and sodium chloride solutions.

Abstract

FEEDBACK 

An unique comb-shaped silicone-alkyd resins (SiAR) were synthesized with high solid content (65 wt%) prepared from an alkyd resin (AR) and a varying weight% (5, 10, 15, 20) of silicone moiety (Z-6018) by etherification reaction. The viscosity and the hydroxyl value (OHV) of the SiAR were found to be higher than those of the AR. The formation of the SiAR was confirmed by infrared spectroscopy and mass spectrometry analysis. The glass transition temperature (T_g), thermal stability, and molecular weight of the SiAR, increased with increasing the silicone content and compared with those of the AR. The results of chemical resistance showed that the SiAR exhibited a better resistance than AR against 0.1 M sodium hydroxide (NaOH) solution.

Graphical abstract



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Keywords

Alkyd-silicone resins; VOCs; Comb; Properties

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