

E2-05 Quantitative determination of glycerides in preparation of alkyd resin

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Alkyd resins are used in the paint industry for the production of enamel paints, which are widely used as protective coatings for metal surfaces.

The resin preparation is carried out in 2 stages, first to produce monoglycerides and then to polymerise with phthalic anhydrides. The consistent quality of the final resin depends on the amount of monoglycerides formed in the first stage. The objective of this work is to design a simple physical method to determine the amount of different glycerides formed in the first stage.

Monoglycerides were prepared by reacting one mole semidrying oil (Rubber seed oil) with 2 moles glycerol at 240°C for 30 min.

The mixture was separated by TLC rods and was detected by Iatoscan TH-10 TLC analyser. The corresponding R_f values and peak areas, indicated in the recorder were used to estimate the amount of mono, di and tri glyceride, free fatty acids and unreacted glycerols.

In general for the production of quality resin, at least 40% of monoglyceride should be present. Increasing cooking time and cooking temperature decreases the monoglyceride content resulting in inferior quality resin in the 2nd stage.

This method is commercially important to industrialists, and will enable them to produce good quality air drying enamel paints. This is a simple quick method which can be used to analyse 10 samples in 11 min.