

Alkyd Resins Technology Handbook

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Alkyd resins are any of a large group of thermoplastic resins that are essentially polyesters made by heating polyhydric alcohol with polybasic acids or their anhydride and used chiefly in making protective coatings and good weathering properties. These resins are useful as film forming agents in paint, varnished and enamels & as thermosetting plastics that can be moulded into solid objects. Hence, alkyd resins are one of the important ingredients in the synthetic paint industry. Alkyd resins are the synthetic resins which have a dominant position among the synthetic resins with respect of production volume & the frequency of the use in paint & varnish materials. Despite the growing popularity of acrylic, polyurethane and epoxy resins, alkyd resins remain highly favoured among paint producers for its variability of compositions & better value for money. Originally, alkyd resins were merely the reaction products of phthalic anhydride and glycerine. But these products were too brittle to make satisfactory coatings. The use of oils or unsaturated fatty acids in combination with the brittle alkyds resulted in the air-drying coatings which revolutionized the chemical coating industry. The oil or fatty acid portion of the alkyd is one of the factors which determine the paint formulator's choice of resin to be used. In general, the lower the phthalic content of an alkyd, the higher the amount of oil used. Alkyd resins products are suitable for wide range of products with application in decorative, maintenance and contractor paints where excellent gloss and good durability are required. Experts believe that the total consumption of paint & varnish materials will rise to a great extent in the coming years. Both cost wise & performance wise, alkyds have proven themselves over a wide swath of demands, from agriculture/construction equipment to general industrial metal and even architectural finishes. Some of the fundamentals of the book are the basic chemistry of unsaturated polyesters, factors affecting alkyd production, monitoring the alkyd reactions, alkyd calculations, alkyd formulations based on theory, practical alkyd formulations, assessment of the performance of single and multicoat red iron oxide alkyd paint systems, styrenated alkyd resins based on maleopimaric acid, mechanical properties of alkyds resin varnish films and the effect of different weathering conditions on them, modification of alkyds, copolymerization of alkyd silicons for coatings, styrene copolymers in alkyd resins, etc. This book contains alkyd formulation, modification of alkyds, styrene copolymers in alkyd resins, copolymerization of alkyd silicon, polyblends of polystyrene glycol and alkyd in surface coatings, alkyd calculations, and alkyd nomograms. This book will find very helpful to all its readers, entrepreneurs, scientists, technical institution, existing industries, paint technologist etc.

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