

**Title**

Bio-based dual cure binders for high quality solvent-based and solvent-free paints, wood oils and clear coats

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**Abstract**

Alkyd resins are an important product group that can be used in a wide variety of coating systems. By definition, they are based on high proportions of bio-based raw materials - mostly vegetable oils. However, the growing demands pose some challenges for alkyd resins. For example, the solvent content is to be further reduced and cobalt-containing siccatives and oxime-containing anti-skin agents are to be dispensed with.

The silane-functional polyurethane-urea binders of the WorléePur Si series achieve exceptional properties, especially in terms of drying speed, hardness and chemical resistance. Before application, a catalyst must be added so that the hydrolysis and polycondensation of the silane groups contained in the binder can take place. Although the pot life can be several days, weeks or even months, for many consumers it is not an alternative for 1K paint systems. These are usually easier to apply and have an infinite pot life.

However, the technology could be significantly further developed. The first prototypes combine high proportions of bio-based raw materials with the oxidative drying of alkyd resins and the moisture curing of silane-functional systems. In addition, properties such as hardness development and chemical and mechanical resilience are optimised. This technology can thus contribute to the adaptation of many coating systems to current and future requirements.