# Influence of surface modified nano silica on alkyd binder before and after accelerated weathering - DTU Orbit (08/11/2017)

**Influence of surface modified nano silica on alkyd binder before and after accelerated weathering**

Introduction of nano fillers in exterior wood coatings is not straight forward. Influence on aging of polymer binder needs to be taken into account along with possible benefits that nano fillers can provide immediately after application. This study shows the influence of two differently modified hydrophobic nano silica on an alkyd binder for exterior wood coatings. One month after application, the highest strength and energy required to break the films was obtained with addition of 3% disilazane modified silica. Changes in tensile properties were accompanied with a small increase in glass transition temperature. However, the highest stability upon accelerated weathering, measured by ATR-IR and DMA, was for nano composites with the highest amount of nano filler. The reasons for the observed changes are discussed together with the appearance of a feature that is possibly a secondary relaxation of alkyd polymer.

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