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Title: Circular design of coatings and composites

In order to create a circular economy, society should develop coating and composite systems that are fully sustainable and circular. This necessitates not just developing binder systems that are based upon renewable feedstocks, but ultimately redesigning all components of the formulation: Substances that are being classified as substances of very high concern, should be phased out. On top of that, improved end-of-life options of coating and composite systems should be developed; systems should be safe and circular by design.

Developments on biobased aromatics, such as substituted phthalic acid anhydrides will be highlighted; these aromatics could be important building blocks in coating systems like do-it-yourself paints and powder coatings systems. Results of the BBI (BioBased Industries Initiative) funded project CHAMPION (Circular High-performance Aza-Michael Polymers as Innovative materials Originating from Nature) will be discussed. This project focuses on developing biobased binder systems via Aza-Michael chemistry; this type of chemistry will allow to substitute epoxy or polyurethane based systems and results into binder systems that are potentially biodegradable. The presentation will also highlight results of the ongoing EU funded project ESTELLA; Design of biobased thermoset polymers with recycling capability by dynamic bonds for bio-composite manufacturing..