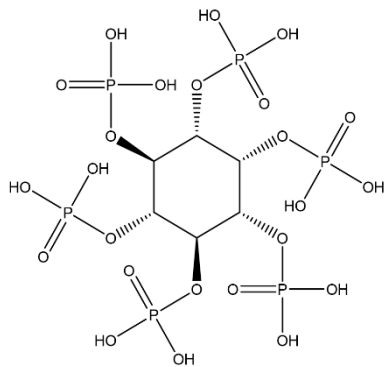


Phytic acid coating

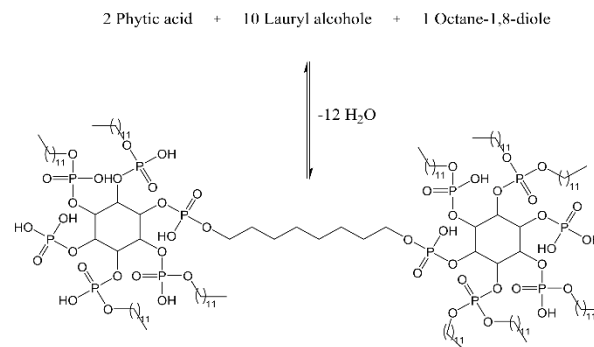
Phytic acid binding agent

Invention

A new invention from the Hochschule Niederrhein encompasses an environmentally friendly binding agent consisting of alkyl phytic acid oligomers, which can be thermally combined with such substances as epoxy resins (as amine substitutes) and OH-functional binding agents (as crosslinkers).



Phytic acid



Idealized reaction to the modified phytic acid derivatives

Commercial Opportunities

Sustainable binding agents from renewable raw materials are important for sustainable coating applications. Phosphorus is not a sustainable raw material, but exhibits excellent corrosion protection effects in the form of phosphates in organic compounds. Synthesizing a phytic acid-based binding agent produces the first sustainable phosphorus source for integrating phosphate groups into organic binding agents. These binding agents were combined with OH acrylates and epoxies to create stable coatings based on sustainable raw materials. The binding agents also have outstanding dispersion properties, so that they can be used to grind pigments without any dispersion additives.

Current Status

A patent application has been submitted to the German Patent and Trade Mark Office. Within the priority year, a PCT application was also submitted. We are offering interested companies the opportunity to license and refine the technology in collaboration with the inventors and the Hochschule Niederrhein.

Relevant Publications

P. Böhm, M. Dornbusch, J. Gutmann, Phytic acid oligomers as bio-based crosslinkers for Epoxy-Polyolresins, J. Coat. Technol. Res., 2023, accepted

An invention of Hochschule Niederrhein.

Competitive Advantages

- Simple synthesis
- Sustainable chemistry
- Environmentally friendly products
- “adjustable” properties

Technology Readiness Level

123456789

Technology validated in relevant environment

Industries

- Chemistry
- Coatings industry
- Corrosion inhibitor
- Environment

Ref. No.

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