

MethaForm

From biobased itaconic acid and methacrylic acid building blocks to performance materials



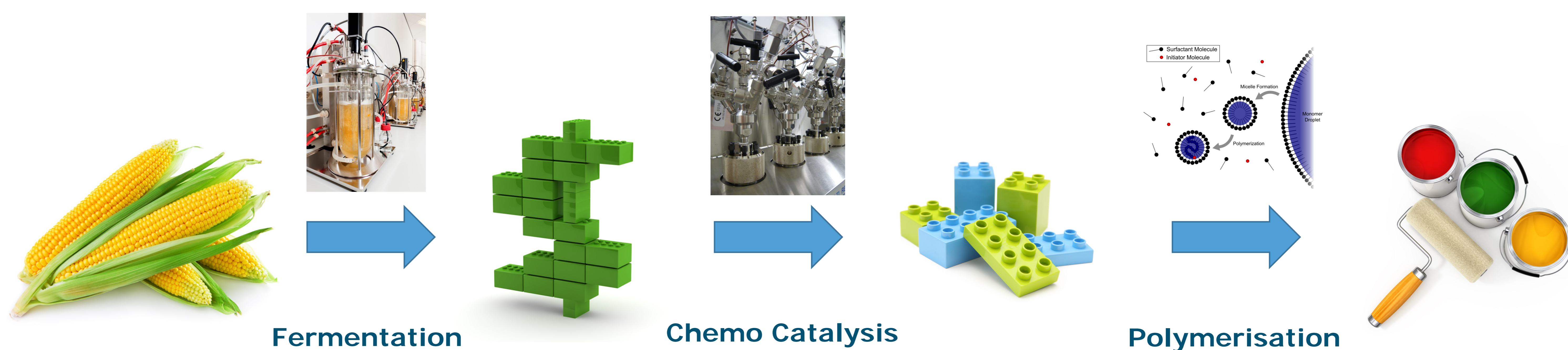
Background

Acrylate and methacrylate esters are important monomers for the coatings and adhesives industry. Polyacrylate polymers are an essential ingredient in many of the current water borne coatings and paint formulations, including wall paints. The introduction of water borne paints has led to a vast reduction in VOC (volatile organic components) emissions. Nevertheless, acrylate binders are still produced from petrochemical feedstocks. Hence, there is a growing demand for biobased acrylate resins that combine the environmental benefits of water borne coatings, with the use of sustainable, renewable feedstocks.

Objectives

Project Methaform has several objectives:

1. Further development of biotechnological production of itaconic acid from sugars
2. Development of a chemo-catalytic process for the conversion of itaconic acid to methacrylic acid
3. Emulsion polymerisation of itaconic and methacrylic acid
4. Evaluation of these materials in waterborne coating systems



Approach

- Archer Daniels Midland Company (ADM) will focus on the production of itaconic acid by means of fermentation, and supply this material to the other project partners.
- Together with ADM, Wageningen UR Food & Biobased Research will further develop chemo catalytic technology to convert itaconic acid into biobased methacrylic acid.
- Wageningen UR Food & Biobased Research, together with EOC Belgium will evaluate the use of itaconic acid and biobased methacrylic acid in emulsion polymerisation, with the aim to produce resins for water borne coating system.
- Finally EOC and van Wijhe Verf will evaluate the new biobased resins in their water borne products and systems.

Project partners

- **Archer Daniels Midland Company (ADM)**
Archer Daniels Midland Company is one of the world's largest agricultural processors and food ingredient providers. With a global value chain that includes 428 crop procurement locations, 280 ingredient manufacturing facilities and 39 innovation centers, ADM connect the harvest to the home, making products for food, animal feed, industrial and energy uses.

Project partners

- **EOC Belgium**
The EOC Group develops compounds, latices, adhesives, surfactants and emulsions in production units in Europe and Asia. EOC Group offers a wide range of high quality products for the textile, carpet, construction, automotive, non-woven, paper cardboard, paint, adhesive, detergents and cosmetic industries.
- **Van Wijhe Verf**
The Dutch based family owned company Van Wijhe Verf B.V. develops, produces and supplies decorative and protective coatings for the professional painter, joinery (TIFA) and the DIY market. Focus of Van Wijhe Verf is to increase the usage of biobased and renewable raw materials in our paints, with the goal to obtain the well-known high performance level of Wijzonol products.
- **Wageningen UR Food & Biobased Research**
Food & Biobased Research (FBR) is highly experienced in developing new (catalytic) routes towards bio based building blocks and polymers, in close cooperation with partners in the value chain.

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