

## **Sustainable Material Innovation: Engineered Polysaccharides**

**Christian Lenges**

**IFF**

Polysaccharides are important biopolymers with a wide range of industrial and consumer product applications. For example, cellulose and starch are broadly utilized as industrial materials across many end use markets. Overall, momentum is building for the selection of inherently sustainable material choices manufactured in more benign processes but without compromising established product performance. At the same time, increased focus is placed on material and process innovation that also enables green-house gas avoidance or even removal. This is driving the continued need for material innovation which is aligned with the circular economy principles avoiding undesired end-of-life profiles. At the same time, new materials need to adopt ideally to existing conversion processes derived from a fungible feedstock to enable a supply chain that can go to industrial scale.

IFF Health & Biosciences has developed a family of engineered polysaccharides through the enzymatic polymerization of sucrose to provide materials ranging in molecular weights, polymer architecture and particle morphology. The underlying enzymatic polymerization process offers the opportunity to design unique polysaccharide structures which provide numerous performance advantages across formulated products.

This presentation will focus on the status of this bioprocess development and the targeted material innovation opportunities within the larger commercialization strategy.