Cellulose Acetate – How a Material Predating Modern Polymer Chemistry Provides Solutions for Today

Cellulose Acetate, namely cellulose diacetate (CDA), was the second type of man-made polymer to be produced in larger quantities after celluloid. First commercialized in 1905 it has found multiple applications in areas like coatings, films, thermoplastics and fibers. CDA was quite successful for several decades, but in the second half of the 20th century it was largely replaced by other polymers in many applications. The fact that production volumes did not decline as well has been largely owed to its use as filter media in cigarette filters, due to its unique set of properties.

In recent years, the environmental impact of man-made polymers has increasingly become the focus of attention, which is also reflected in corresponding regulations, e.g., on microplastics or single use plastics. There is a need of renewable alternatives to existing mostly fossil based materials in numerous applications.

In many cases CDA, being predominantly derived from natural resources and fully biodegradable in all kinds of environments, can deliver the requested processing and product properties.

Therefore, CDA provides a good example of how a man-made polymer material that predates modern macromolecular chemistry can provide the sustainable and versatile solution the industry is looking for today but is also challenged by the political and regulatory framework.

This presentation will give a brief introduction to cellulose acetate, its application, opportunities, and environmental aspects.