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Characterization of marine biopolymers

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Abstract

Marine biopolymers are polymers produced in the marine environment by living systems such as microorganisms, animals, and macroalgae. Some biopolymers can directly replace synthetically generated materials in typical uses, while others have unique features that might lead to a plethora of new commercial applications. Marine biopolymers are intriguing biomaterials for industrial applications because of their excellent biocompatibility, biodegradability, affordability, abundance, stability, simplicity of surface modification, and nontoxic nature. This chapter will provide a detailed insight on the characterization of marine biopolymers in terms of their structural, morphological, vibrational, thermal, mechanical, swelling behavior, and rheological properties. The last part of the chapter will focus on recent developments of marine biopolymers in various applications and their challenges. © 2025 Elsevier Ltd. All rights reserved.

Author Keywords

application in industry; characterization of marine biopolymers; Renewable biomaterials; structural characterization; thermal characterization

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