

Abstract

Research and development (R&D) in fiber cement manufacturing has undergone a profound transformation over the last century, driven by technological innovation, regulatory pressure, and sustainability demands. Early research focused on industrial scalability and mechanical performance using asbestos-reinforced cement composites, enabled by the Hatschek process. The worldwide prohibition of asbestos represents a critical disruptive milestone that reshaped the research landscape, triggering intensive R&D on alternative fibers, composite formulations, and process optimization.

This study presents a bibliometric analysis of the scientific literature on fiber cement and inorganic-bonded fiber composites, aiming to identify key thematic clusters, leading countries, key journals, and collaboration networks, as well as their temporal evolution. Keyword co-occurrence and clustering analyses reveal a shift from asbestos-related durability and processing topics toward research on cellulosic and synthetic fibers, fiber-matrix interactions, durability modeling, accelerated aging, sustainability, and low-carbon cementitious systems. Emerging clusters highlight increasing attention to recycled materials, life-cycle assessment, and multifunctional performance.

Geographical and journal analyses show a concentration of early research in Europe, followed by significant growth in Asia and South America, reflecting industrial relocation and market expansion.

The results underscore the need for stronger academia–industry integration to accelerate the translation of advanced composite research into next-generation fiber cement products.
