

FUNCTIONALLY GRADED MATERIALS CONCEPTS APPLIED TO ASBESTOS-FREE FIBER CEMENT

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ABSTRACT

Self-optimizing biological materials have been reported in several studies. These materials use environmental stimulus for choosing the best materials distribution in their structures while aiming to improve their mechanical performance under environmental stress. Some of them present nonhomogeneous distributions of properties in their structures. This kind of distribution was predicted for man-made composites as far back as the 1970's, giving origin to the FGM concept. This concept appears promising in improving the mechanical performance and reducing production costs of fiber cement building components. However, it has not yet been broadly applied to fiber cement technology. In this study we analyze the functionally graded fiber cement concept and its potential for industrial application. Some experimental results are also presented.

KEYWORDS

Functionally graded fiber cement; building components; mechanical and long-term performance; reinforce distribution.