

Accepted Manuscript

Resistance to mold development assessment of bio-based building materials

Marie Viel, Florence Collet, Yann Lecieux, Marc François, Valentin Colson,
Christophe Lanos, Atif Hussain, Mike Lawrence



PII: S1359-8368(18)31287-3

DOI: [10.1016/j.compositesb.2018.09.063](https://doi.org/10.1016/j.compositesb.2018.09.063)

Reference: JCOMB 6033

To appear in: *Composites Part B*

Received Date: 25 April 2018

Revised Date: 11 August 2018

Accepted Date: 21 September 2018

Please cite this article as: Viel M, Collet F, Lecieux Y, François M, Colson V, Lanos C, Hussain A, Lawrence M, Resistance to mold development assessment of bio-based building materials, *Composites Part B* (2018), doi: <https://doi.org/10.1016/j.compositesb.2018.09.063>.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

1 Resistance to mold development assessment of bio-based building 2 materials

3 Marie Viel^{a, *}, Florence Collet^a, Yann Lecieux^b, Marc François^b, Valentin Colson^{a, c}, Christophe Lanos^a,
4 Atif Hussain^d and Mike Lawrence^d

5 ^a *Université de Rennes, Laboratoire Génie Civil et Génie Mécanique, BP 90422, Rennes,*
6 *France*

7 ^b *Université de Nantes, Institut de Recherche en Génie Civil et Mécanique, BP 92208, Nantes,*
8 *France*

9 ^c *CAVAC Biomatériaux, Le Fief Chapitre, Sainte Gemme la Plaine, France*

10 ^d *BRE Centre for Innovative Construction Materials, Department of Architecture and Civil Engineering,*
11 *University of Bath, BA2 7AY, United Kingdom*

12 * Corresponding author: marie.viel@univ-rennes1.fr

13

14 Abstract

15 Nowadays, insulating building materials are developed from the valorization of agro-resources. They
16 show high ecological and hygrothermal performance. Before making them available on the market,
17 there is a need to classify them according to their decay resistance. This paper aims to propose a test
18 method that qualifies bio-based composites with respect to their performance. An accelerated aging
19 test was carried out on 5 composites made with two different agro-resources (hemp and rape) and
20 with different binders. It consists of exposing the specimens to (30 °C; 90% RH) for three months.
21 During the test, the specimens are regularly weighed and photographed. The sample mass and the
22 percentage of surface contaminated by fungi are measured along the test. Finally, a microscopic view
23 allows identifying the species of the developed molds.

24

25 Keywords

26 A. Biocomposite; B. Environmental degradation; D. Non-destructive testing; D. Optical microscopy;
27 DIC (Digital Image Correlation).

28

Download English Version:

<https://daneshyari.com/en/article/11020721>

Download Persian Version:

<https://daneshyari.com/article/11020721>

[Daneshyari.com](https://daneshyari.com)