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Laboratoire de Biologie

TEST REPORT
n° 401/19/226Z/e of 22/06/2020

Mycology

Insulation product « IQ3 CELLULOSE »

Assessment of the resistance of an insulation product to mould development
Annex F of NF EN 15101-1 +A1 standard

Laboratory test

ISOPROC – PCIM SA

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Institut technologique FCBA : Forêt, Cellulose, Bois - Construction, Ameublement

INSULATION TEST PRODUCT (1)

General information	
Test method	Annex F of NF EN 15101-1+ A1 (April 2019) standard Method for determining mould fungi resistance
Customer	ISOPROC PCIM SA
Name of the laboratory in charge of the test	FCBA Biology Laboratory

Insulation test product : description(1) and manufacturer		
Name of the test product (1)	**IQ3 CELLULOSE**	
Test product description (1)	**Loose-fill cellulose wadding**	
Additional information (1)	FCBA reference	Manufacturing date (in Achêne, Belgium) (1)
	19/226Z/1.1	15.11.19 (13 :32 :11)
	19/226Z/1.2	18.11.19 (11 :26 :19)
Composition of the test product (% m/m)(1)	Newsprint ± 89 %, boric acid <4%, magnesium sulfate <7%	
Active ingredients in the test product (% m/m) (1)	Boric acid <4% (CAS n° 10043-35-3) ; Magnesium sulfate <7% (CAS n° 10034-99-8)	
Date of supply	09.12.2019	
Test specimen details	See Annex 5 (Sampling carried out by SECO on the 20/11/2019)	

(1) Information provided by ISOPROC PCIM SA company

Test method information	
Test method	Annex F of NF EN 15101-1+ A1 (April 2019)
Control of the cultivability of fungal spores	Growth of mould on filter papers in Petri dishes with culture medium
Number of insulation test specimens	4 test specimens for the final visual assessment 3 additional test specimens to control moisture content during the mould test + 8 wood specimens (comparative material: Scots pine sapwood)
Pre-conditioning of the test specimens	At least 4h at 28°C (+/- 2°C) and 95%(+/- 4%) relative humidity on the 19.12.2019
Fungal strains (mould)	- *Trichoderma viride* (MNHN 88-3354) - *Penicillium funiculosum* (MNHN 56-1527) - *Chaetomium globosum* (BAM ATCC 6205) - *Paecilomyces variotii.* (MNHN LCP 793210) - *Aspergillus niger* (MNHN 48-521)
Date of exposure to fungi	19.12.2019

Date of final examination	16.01.2020
Duration of test and climatic test conditions	4 weeks at 28°C (+/- 2°C) and 95% (+/- 4%) relative humidity : from 19.12.2019 to 16.01.2020
Type of final assessment	• Observation of mould growth according to the table below (« intensity of fungal growth in relation to comparative material ») • Mould Resistance ranking in accordance with a « BA Class »
Validity of the test	The test is valid: • Mould developed over the entire surface of the three filter papers between 3 and 7 days of incubation (Annex 3) • At least 50% of the surface of the comparative material (Scots pine sapwood) was covered with mould visible to the naked eye (Annex 4)
Variation / Deviation from the test method	• Minor variations with no effect on the test results: the preparation of mould cultures was done over a period of 14 to 28 days to promote sporulation. The size of paper (controls) was 70 mm in diameter instead of 2x 3 (number of spores / cm^2 compliant with the standard). The malt agar medium was oat-free because mould sporulation did not require oats. • During the test of 28 days, the temperature dropped from 28 to 19 degrees Celsius for 5 days, with no impact on the test results (control validity).

The visual rating scale and the interpretation criteria of the results are described in the table below.

Class BA	**Intensity of fungal growth in relation to comparative material**
0	No mould growth visible on the test specimen surface with a microscope with reflected light (50x magnification)
1	No mould growth visible or hardly visible to the naked eye, but clearly visible with a microscope (50x magnification)
2	Mould clearly visible to the naked eye – considerably weaker than on the comparison material
3	Mould clearly visible to the naked eye –equal or more intensive than on the comparison material

Test results

Visual assessment after 28 days of exposure at 28°C and 95% of relative humidity

- The visual assessment is the mean value obtained from each test series
- The moisture content results are mean values (% m/m) ± 95% confidence interval (α risk of 5%)

Insulation test product name (and FCBA ref.)	Initial moisture content of the insulation product (mean) % m/m	Final moisture content of the insulation product (mean) % m/m	Mean visual assessment of mould growth	**BA Class**
IQ3 - CELLULOSE (19-226Z)	9.3 ± 1.1	36.7 ± 4.8	0	**0**
Comparative material	NA	NA	3	NA

NA : Non applicable

Detailed results are shown in Annex 1.

Declaration of compliance / Conclusion and interpretations

The tests results (Annex 1) show that, at the end of the test, there was no mould growth visible with a microscope (ranking 0) on the insulation test product, whereas there was mould growth visible to the naked eye on the comparative material (Annex 1 and Annex 4).

CONCLUSION

When exposed to mould fungi at the tested climatic conditions (28°C ± 2°C and 95% ± 4% relative humidity), the insulation product « IQ3 - CELLULOSE» was found resistant to mould growth.

Adeline JASICK
Mycology Technician
Biology Laboratory

Isabelle LE BAYON
Technical Manager - Mycology
Biology Laboratory

Note: The results contained in this test report apply only to the sample of insulation product tested and described in this report.

ANNEX 1: Insulation test product n°19/226Z (« IQ3 CELLULOSE ») - Detailed results

Visual assessment of the insulation test product 19/226Z at the end of the test

Test specimen reference	Visual assessment of fungal growth (mould ranking)
19/226Z/1.1.1	0
19/226Z/1.1.2	0
19/226Z/1.2.1	0
19/226Z/1.2.2	0
Mean	**0**

Visual assessment of the comparative material (Scots pine sapwood) at the end of the test

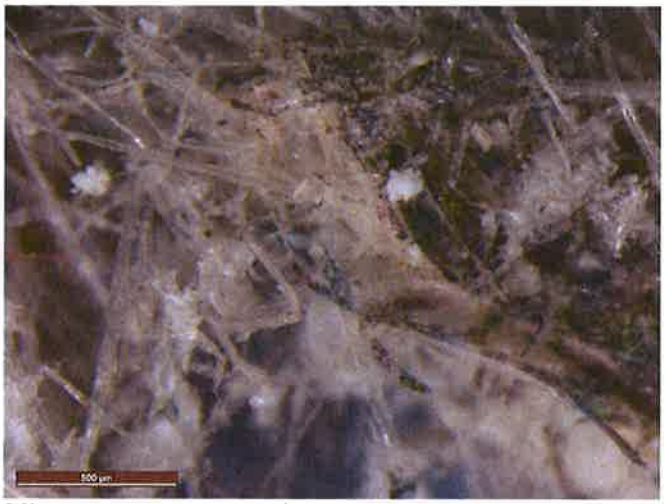
Test specimen number	Visual fungal growth (mould ranking)
1	3
2	3
3	3
4	3
5	3
6	3
7	3
8	3
Mean	**3**

ANNEX 2: Pictures of the insulation test product (at the end of the test)

Insulation product « IQ3 – CELLULOSE » (FCBA ref n° 19/226Z)

28°C / 95% RH

Insulation test product



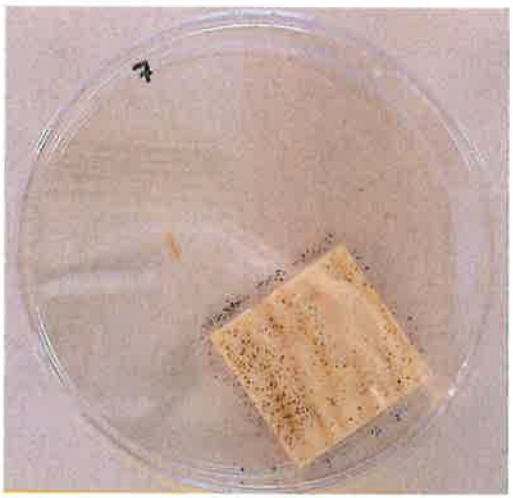
Microscopic aspect of the insulation product (magnification x50)

Microscopic aspect of the insulation product (magnification x 7.8)

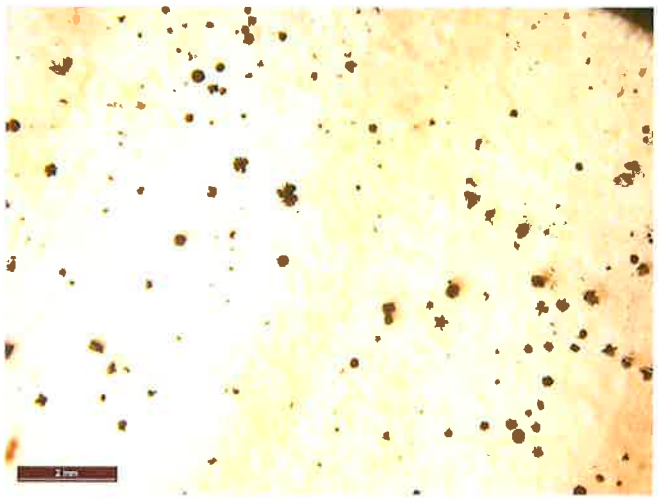
ANNEX 3: Pictures of the filter paper controls after 4 days at 28°C and 95% RH

Controls are covered by mould

ANNEX 4: Pictures of the comparative material (Scots pine sapwood) showing mould growth after 28 days at 28°C and 95% RH



Scots pine specimen



Microscopic aspect of Scots pine (magnification x7.8)

Annex 5 : Traceability sampling form of the insulation test product (provided by the customer)

SECO

SAMPLING FORM

Identification laboratory:

Product:	In-situ formed loose fill thermal and/or acoustic insulation products made of vegetable fibres (EAD 040138-01-1201)	Mark:	ETA
Certification body:	BCCA		

File number SECO: (A-B-C)	BE-610-12914	Sampling number:	MN.03
Certificates: (D)	AG 190706-E	Date:	20/11/2019
		Location:	Achêne (Ciney)
Inspector:	Mr. Daniël Vanweddingen	Visit number:	IC
Contact person BCCA:	Mr. Daniël Vanweddingen	Tel. : E-mail :	+32 2 238 24 03 d.vanweddingen@bcca.be
Manufacturer:	PCIM S.A.	Contact person:	Mr. Arnaud Ben Haddou
Address:	Rue de Gorimont 8 5560 Achêne (Ciney)	Tel.:	+32 473 69 05 66
		Fax:	
		E-mail:	arnaud.benhaddou@isoproc.be

	Samples	Dimensions (mm)	Identification – Marking	Production date
A	IQ3 CELLULOSE (1 bag)		SECO-DAV 20/11/2019	15/11/2019 (13:32:11)
B	IQ3 CELLULOSE (1 bag)			18/11/2019 (11:26:19)

	Test	Test method	Number of tests	Dimensions of test sample (mm)	Samples
1	Biological resistance (growth of mould fungus)	EN 15101-1:2013, Annex F			
2					

Laboratory:	FCBA Institut Technologique, Bordeaux, France		
Test report available before:	ASAP (initial dossier)		
Invoice must be sent to:	PCIM S.A.		
Number of reports:	2	Report language:	ENG
Reports must be sent to:	SECO - PCIM S.A.		

Remarks:
- Alternative commercial names of the product are IQ3 and CELLULOSE IQ3.

Inspector SECO:	Manufacturer: (2) for acceptance	Carrier: (3) for acceptance of the mission	Laboratory: (4) for reception of the samples and acceptance of the mission
Name: D. Vanweddingen	Name: Y. TISSERAT	Name: W. [illegible]	Name: I. LE BAYON (FCBA)
Signature	Signature	Signature	Signature
Date: 20/11/2019	Date: 21/11/2019	Date: 06/12/2019	Date: 9/12/2019

Remarks:
(1) The laboratory shall follow the confidential rules given in the NBN EN ISO 17025.
(2) The manufacturer accepts by the signature of his delegate the all modalities mentioned in this document. He will send an order form for ditto to the laboratory.
(3) The carrier of the sample confirms by his signature the delivering of the sample at the laboratory.
(4) The laboratory confirms by the signature of his delegate the arrival of the sample, the test modalities and the term of execution of the tests. He will send within 7 days after arrival of the sample a copy of this document to SECO.
(5) If the laboratory cannot accept the mission, SECO shall be informed within 4 days, so the necessary actions can be taken.
(6) The laboratory shall inform SECO of every failure detected on the samples and every problem appearing during the handling and the testing, as soon as possible.