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# Product Guideline No.14

*Bulk cellulose based products*

**ASSOCIATION POUR LA CERTIFICATION DES MATERIAUX ISOLANTS**

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## 1 Purpose

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This Product Guideline supplements the measures in the General Guidelines.

This Product Guideline concerns cellulose based products intended to be:

- blown using a pneumatic machine onto the floor of roof spaces;
- injected using a pneumatic machine into a space between two walls;
- sprayed against a wall by adding water and using a machine.

## 2 Additional elements of the certificate application technical file

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The technical file defined in paragraph 2.2 of the General Guidelines is supplemented by the following items.

### 2.1 Proof of fitness for use

- Valid favourable Technical Assessment, Technical Application Document or type A ATEX; Pass'innovation

### 2.2 Description of the product

- Technical sheet for the product including the description and mass content of the various constituents of the product, in particular fungicide treatments, fire-proofing, etc.

### 2.3 Additional justification

Other elements can be indicated, in particular those given under the Technical Assessment procedure, e.g.:

- Declaration of compliance with the regulatory measures, in particular with the Biocide Directive and Regulation (EU) No. 528-2012 concerning the marketing of biocide products, and the proof of this.
- Questionnaire filled in according to the following model:
  - Description of the manufacturing process:
  - Raw materials:
    - geographical origin
    - nature and specifications
    - transport and storage
    - treatments
    - production process
    - description



- treatments and adjuvants
- traceability of the components
- control programme

Provide explicit elements concerning the quality and traceability of each material and the related means of verification (e.g. the geographical origin of each raw material on the delivery slip and the associated batch numbers given on the labels of the packages of this raw material delivered. This information is permanently available in the factory registers)

### **3 Characteristics which can be certified**

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The characteristics likely to be certified according to the characteristics listed below:

- Thermal conductivity
- Thermal resistance
- Settling
- Reaction to fire
- Water absorption in the short term by partial immersion
- Resistance to air flow
- Specific heat capacity.
- Resistance to water vapour diffusion

### **4 Methods of determination of the certified characteristics by the pilot laboratories**

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The test methods applied by the pilot laboratory for each of the characteristics are defined below.

#### **4.1 Thermal conductivity**

The measures of paragraph 4.2 of Technical Specification No.1 apply.

#### **4.2 Thermal resistance**

Certified thermal resistance is defined according to the procedures in Technical Specification No.2.

The thickness of the thermal resistance test specimens is equal to the height of the frames used for the measurements.

#### **4.3 Settling**

The settling class is defined according to the procedures in Technical Specification No.4.



## **4.4 Reaction to fire**

The measures in Technical Specification No.3 apply.

## **4.5 Water absorption**

Short-term water absorption by partial immersion can be certified. It is determined according to standard NF EN 1609: method A.

## **4.6 Resistance to air flow**

The resistance to air flow can be certified. It is determined according to standard NF EN 29053.

## **4.7 Specific heat capacity**

## **4.8 The measures in Technical Specification No.10 apply. Density**

### **4.8.1 Principle**

To determine the value of the filling rate for the product for an application in a ventilated roof space, the insulation product must be blown into a box (2 × 1 × 0.2) m. Another thickness (at least 100 mm) may be chosen according to the planned usage. The thickness and the weight of the box before and after filling must be recorded to calculate the density.

To determine the value of the density for an application in a closed construction, blow the insulation product into a closed space, measure the dimensions of this cavity (height, width, depth of the cavity), take out the insulation and weigh it to calculate the density.

### **4.8.2 Operating procedure for application in ventilated roof spaces**

Weigh the empty box before blowing. Record the weight, w<sub>1</sub>, in kilograms (kg).

Blowing must be performed using a commercial type blower machine which complies with the manufacturer's instructions, including the type, length and diameter of the hose (blown air flow, blown material flow). The machine must be loaded with sufficient insulating material to ensure regular flow during the entire operation when making the test specimen. The frame of the test specimen must be placed a few metres in front of the end of the blowing nozzle. The distance depends on the type and settings of the machine. When the machine is started up, the nozzle must be pointing away from the test specimen frame.

Blowing must be carried out in the direction of the longest side of the frame.

When the flow of insulating material is regular, fill the frame of the test specimen in slow, regular sweeps from side to side, overlapping the two edges of the frame of the test specimen by approximately 0.5 m. The end of the blowing pipe must be held at a height of 0.8 m to 1.1 m above the ground, the end of the pipe being kept horizontal at all times. The operator must stand at a distance from the frame such that the insulation falls in the centre of the frame. While the test specimen is being prepared, the pipe must not be pointed either up or down. When the frame of the test specimen is about half full, the nozzle must be pointed in another direction and the machine must be stopped. Turn the frame through 180° so that the back of the frame is facing the operator. Do not shake the frame if possible to avoid the insulation settling. Restart the machine and finish filling the frame as before.



After blowing, the excess insulation must be removed and the insulation must have a flat surface and be evenly spread over the test specimen. The height of the insulation must be equal to the height of the frame.

The thickness measurements must be done to the nearest 1 mm at eight different points evenly spaced over the surface of the box, in accordance with EN 823 but under a (200 × 200) mm, (20 ± 1.5) Pa panel.

The thickness of the insulation,  $d$ , is the mean value of the eight measurements.

Record the weight of the filled box,  $w_2$ , in kilograms (kg).

The density in kilograms per cubic metre (kg/m<sup>3</sup>) is:

$$\rho_i = \frac{w_2 - w_1}{A \times d}$$

$A$  is the area of the box in square metres (m<sup>2</sup>).

### **4.8.3 Operating procedure for closed constructions**

Measure the dimensions of the closed cavity and calculate its volume.

Fill the closed construction by blowing the insulation product into the cavity.

Blowing must be performed using a commercial type blower machine which complies with the manufacturer's instructions, including the type, length and diameter of the hose, the drilling position and machine settings.

When the cavity is full, remove all the insulation blown into the cavity and record the weight of the insulation,  $w_1$ .

The density in kilograms per cubic metre (kg/m<sup>3</sup>) is:

$$\rho_i = \frac{w_1}{V}$$

where:

$V$  is the volume of the closed cavity.

## **5 Factory production control**

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Production control in the production unit, performed on test specimens in each density range claimed, satisfies the requirements below.



Parameter	Direct tests	Indirect tests	
		Test method	frequency
Weight of the bags (1)	All of the bags	----	----
Density (2)	Once a day	----	----
Thermal conductivity and resistance	Twice a week	----	----
Humidity level (3)	Once a week	----	----
Mechanical settling (according to Technical Specification No.4)	Once every 3 months	----	----
Reaction to fire	See Technical Specification No.3		
Short-term water absorption (optional)	Once a week	----	----
	and indirect test	Manufacturer method	Once/day
Resistance to fungal growth	Type testing once every 3 years	----	----
	and indirect test	Manufacturer method	Once/day
Resistance to air flow (optional)	Once a year	----	----
	and indirect tests	Manufacturer method	Once/day
Corrosion resistance	Type testing once every 3 years	----	----

N.B.: (1) The quantity of material in a sales unit must not be less than the nominal weight of the sales unit.

(2) if several applications are targeted, the tests must be performed on one type of application. The test method is described in §4.8

(3) determination of the humidity level of the manufactured product which has not be stabilised beforehand at equilibrium moisture content 23°C, 50% RH



## 6 Tests performed during follow-up

For characteristics requiring monitoring, random tests are conducted at least once a year according to the table below when relevant to the product in question.

The tests are conducted in accordance with the measures in paragraph 3, supplemented if applicable by the procedures described in the Technical Specifications corresponding to the characteristics tested.

<b>Characteristics</b> (Paragraph 3)	<b>Test methods</b>	<b>Place of performance of the tests</b>
Thermal resistance – Thermal conductivity	NF EN 12667 NF EN 12939	Pilot laboratory
Weight of the sales unit		Production unit and pilot laboratory
Reaction to fire <sup>1</sup>	NF EN 13501-1	Pilot laboratory
<b>Other characteristics or criteria</b>	<b>Test methods</b>	<b>Place of performance of the tests</b>
Density applied (or covering power)	NF EN 1602 <sup>2</sup> + Method of appendix J of standard NF EN 14064-1, with a tank of minimum dimensions 1 m x 1 m x 0.25 m	Production unit and Pilot laboratory for blowing

The certifying body may also perform verification tests to verify other characteristics not listed in the table below, in particular if there is any doubt as to the compliance of the certified values.

Random testing is performed for each line in the case of products in Euroclass A, B or C, once every two years for each plant, for a given group of products and according to a sampling plan drawn up by the lead member in collaboration with the industrial manufacturer concerned, unless the manufacturer supplies a test report produced by other laboratories, with whom recognition agreements have been made or by notified laboratories after assessment of the test report.

<sup>1</sup> The reaction to fire classification is monitored by conducting random tests once every two years.

<sup>2</sup> The density is determined on test specimens kept at  $(23 \pm 2)^\circ\text{C}$  and  $(50 \pm 5)\%$  relative humidity until a constant weight is obtained, i.e. with a weight variation less than or equal to 0.1% on 3 consecutive weight measurements 24 hours apart.





## **7 Certificate maintenance rules**

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The certificate maintenance rules are defined in paragraph 4 of the General Guidelines.

Based on the results of the tests performed by the pilot body, product compliance is verified:

- For the density applied (or covering power), according to the specifications of the technical file;
- For the thermal performance according to the procedures in Technical Specification E:
  - Paragraph 2.1 for one density range;
  - Paragraph 2.2 for several density ranges;
- For the following characteristics certified under these regulations and described in detail in the various Technical Specifications, according to the conditions stipulated in these Technical Specifications:
  - Reaction to fire

## **8 Marking Rules**

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The marking rules laid out in Technical Specification D apply.

In particular, the information label complies with the measures in paragraph 3.2 of this Technical Specification.