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# Testing according to EN 15457

**Report no.: 840377-1**

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**Danish Technological Institute,  
Wood and biomaterials**

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## 1 Assignor

Unicell Poland  
Ul. Supraslska 25  
PL-16-010 Wasilkow

## 2 Background and Purpose

In this test, one product Luxdecor Njord-impregnating agent for wood facade with fungicide were tested for its ability to resist growth of mould. The product with fungicide and without fungicide were tested for its ability to resist growth of mould.

## 3 Method

The test was carried out according to EN 15457, 2014: Paint and varnishes – Laboratory method for testing the efficacy of film preservatives in a coating against fungi.

Assessment according to assessment scale in EN 16492, 2014: Paints and varnishes – Evaluation of the surface disfigurement caused by fungi and algae on coatings.

Modifications of the standard:

In the standard test the sporesuspension shall contain a mixture of two chosen fungi more likely to grow in an exterior environment and two chosen fungi more likely to grow in an interior environment.

In this test a sporesuspension with a mix of five fungi more likely to grow in an exterior environment were chosen as the product is intended for use in the exterior environment.

The five chosen fungi are all mentioned as test fungi in the standard.

## 4 Period

The test was carried out from 27-11-2018 to 10-01-2019.

## 5 Materials

Products were received from the assignor at Danish Technological Institute on 26-11-2018.

One product Luxdecor Njord-impregnating agent for wood facade – with fungicide.

One product Luxdecor Njord-impregnating agent for wood facade – without fungicide.

## 6 Fungi

<i>Alternaria alternata</i>	DSM 62010
<i>Aureobasidium pullulans</i>	DSM 2404
<i>Cladosporium cladosporioides</i>	DSM 62121
<i>Phoma violaceae</i>	IMI 49948ii
<i>Ulocladium atrum</i>	DSMZ 63068

## 7 Procedure

### 7.1 Culturing of fungi

The fungi applied were grown on 9 cm V8 agar plates for 5-7 days at 26°C. The plates were added 10 mL 0.9% NaCl-solution, and the spores harvested with a Drigalski spatula. The spore-suspension was collected in a jar with glass beads and whirled to ensure an even distribution of the spores. Subsequently, the suspension was filtered through a thin layer of cotton wool to remove mycelia residues and remaining spore clutches, if any.

The number of spores was  $\sim 10^7$  determined by counting in a counting chamber. The spore-suspensions were mixed.

### 7.2 Treatment

3 pieces of filter paper with a diameter of 50 mm were treated by brushing according to assignor's directions.

Two layers were applied with an interval of min. 12 hours.

#### Luxdecor Njord with biocide

Specimen no.	1st application g/specimen	1st application g/m <sup>2</sup>	2nd application g/specimen	2nd application g/m <sup>2</sup>
1	0.33	137	0.29	124
2	0.30	128	0.24	102
3	0.32	136	0.24	103
<b>Mean</b>	<b>0.32</b>	<b>134</b>	<b>0.26</b>	<b>110</b>
<b>Min</b>	<b>0.30</b>	<b>128</b>	<b>0.24</b>	<b>102</b>
<b>Max</b>	<b>0.33</b>	<b>137</b>	<b>0.29</b>	<b>124</b>

#### Luxdecor Njord without biocide

Specimen no.	1st application g/specimen	1st application g/m <sup>2</sup>	2nd application g/specimen	2nd application g/m <sup>2</sup>
4	0.35	149	0.26	109
5	0.30	126	0.29	124
6	0.30	127	0.31	130
<b>Mean</b>	<b>0.32</b>	<b>134</b>	<b>0.29</b>	<b>121</b>
<b>Min</b>	<b>0.30</b>	<b>126</b>	<b>0.26</b>	<b>109</b>
<b>Max</b>	<b>0.35</b>	<b>149</b>	<b>0.31</b>	<b>130</b>

The treated specimens and another 3 pieces of untreated filter paper were sterilized by gamma irradiation of 15 kGy before exposure to fungi.

### 7.3 Inoculation

The filter papers were placed in the middle of Petri-dishes with malt agar as culture medium and inoculated with 0.2 mL of the mixed spore-suspension with a pipette.

### 7.4 Incubation

21 days at  $24 \pm 2^\circ\text{C}$  from 19-12-2018 to 10-01-2019.

## 8 Assessment

Growth of fungi were rated according to EN 16492: 2014, Annex A – Table A.3.

Rating	Percentage area of disfigurements
0	No growth on the surface of the specimen
1	Up to 10% growth on the surface of the specimen
2	More than 10% up to 30% growth on the surface of the specimen
3	More than 30% up to 50% growth on the surface of the specimen
4	More than 50% up to 100% growth on the surface of the specimen

## 9 Results

### 9.1 Biological assessment

Growth on surface

Treatment	Specimen no.	10-01-2018 21 days exposure
<b>Product Luxdecor Njord with biocide</b>	1	0
	2	0
	3	0
<b>Product Luxdecor Njord without biocide</b>	4	4
	5	4
	6	4
<b>Untreated filter-paper</b>	REF 1	4
	REF 2	4
	REF 3	4

Photo documentation is given in appendix 1.

### 9.2 Validity

Growth on untreated reference specimens were rated 4 after 1 week's exposure. The test is valid.

## 10 Evaluation/conclusion

After 21 days of exposure no growth was seen on the specimens treated with the products with fungicide.

Severe growth on specimens treated with product without biocide was seen after 1 week's exposure.

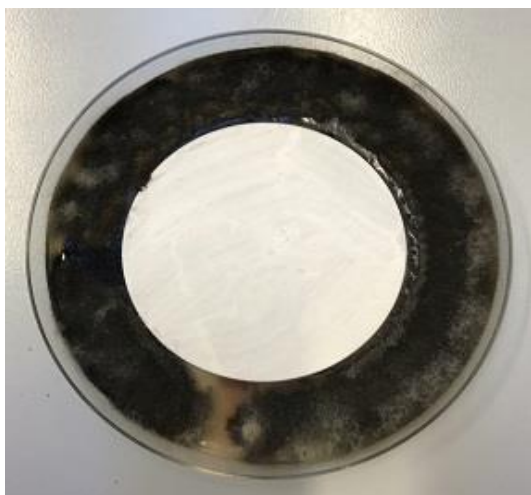
Note: Interpretation of this report and the conclusions that can be drawn from it requires a basic knowledge of moisture and mould growth. This report is not an official approval of the tested materials.  
Terms: The test was carried out according to the General Terms and Conditions regarding Commissioned Work Accepted by the Danish Technological Institute, which apply at the time of signing the agreement. The test is only valid for the tested specimen. The test report may only be extracted, if the laboratory has approved the extract.

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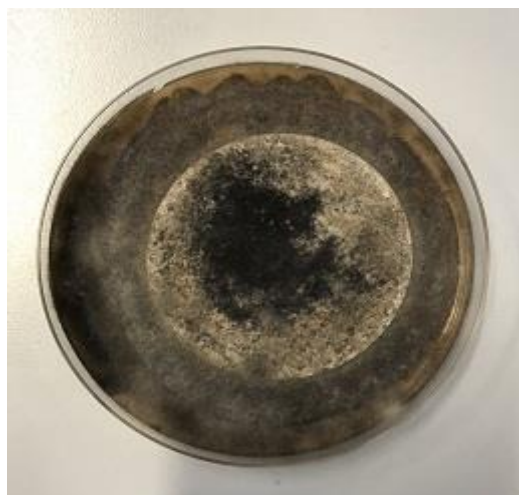
Signature: Test responsible  
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## Appendix 1



21 days of exposure  
Product: Luxdecor Njord with biocide



21 days of exposure  
Luxdecor Njord without biocide



21 days of exposure  
Untreated filterpaper



21 days of exposure  
Sporesuspension on maltagar