

Technical Service



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Technical Service Report No.0574

**Evaluating the Dry Film Fungal Performance of
BIOCIDE and MICROBIOCIDE in a Paint
Formulation -**

Anti Mould paint

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Client:

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Testing Laboratory:

Independant Testing Laboratory
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Please note that, unless otherwise stated, the conclusions and any recommendations either made or implied, are based on information drawn from examination of the samples identified in this report only. Since these may be influenced by, for example, infection level variations in raw materials, stored component solutions and manufacturing equipment, it is recommended that some appropriate monitoring of microbiological properties be carried out.

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1. Objectives

- Evaluate the dry film fungal preservation performance of **BIOCIDE** and **MICROBIOCIDE**.

2. Results and Discussions

The results detailed in the following Tables indicate that:

- The laboratory blank was susceptible to dry film fungal inoculum.
- All other samples were found to be protected against dry film fungal inoculum.

3. Samples

Samples labelled as detailed below were received at the laboratory on 23/07/2024 and testing commenced on 31/07/2024

Sample 1- **Palatine Paints - Anti Mould Paint**

Samples were tested alongside a Laboratory Blank and Laboratory Standard

4. Additions

An addition of 0.4% w/w **BIOCIDE** was made to sample 1a Sample 1- Anti Mould Paint

An addition of 0.6% w/w **BIOCIDE** was made to sample 1b Sample 1- Anti Mould Paint

An addition of 0.2% w/w **MICROBIOCIDE** was made to sample 1c Sample 1- Anti Mould Paint

An addition of 0.3% w/w **MICROBIOCIDE** was made to sample 1d Sample 1- Anti Mould Paint

These samples plus the blank were tested as described below and detailed in the Appendix.

5. Methods

625 pH Measurement

700 Screening for Microbiological Contamination

800.1 Dry film fungal resistance test

Table 1 Screening for Microbiological Contamination

Item	Test Sample	Growth Rating after 5 days on:	
		Nutrient Agar 30±2°C	Malt Extract Agar 25±2°C
1	Sample 1- Anti Mould Paint	0	0

Growth Ratings

Bacteria and yeasts: 0 = No growth to 6 = Confluent Growth

Moulds: 0 = No growth to XXXX = Heavy Growth

Growth Media

Nutrient Agar for detection of bacteria

Malt Extract Agar for detection of yeasts and mould

Table 2 HPLC Analysis Results – pH Measurement

Item	Test Sample	pH
1	Sample 1- Anti Mould Paint	9.20

Table 1 Dry Film Fungal Resistance Test – Humidity Cabinet Method

Item	Test Samples	Film Fungal Growth Percentage/Intensity	
		Replicate 1	Replicate 2
1	Sample 1- Anti Mould Paint	0	0
1a	Sample 1- Anti Mould Paint + 0.4% w/w BIOCIDE	0	0
1b	Sample 1- Anti Mould Paint + 0.6% w/w BIOCIDE	0	0
1c	Sample 1- Anti Mould Paint + 0.2% w/w MICRBOBIOCIDE	0	0
1d	Sample 1- Anti Mould Paint + 0.3% w/w MICRBOBIOCIDE	0	0
2	Laboratory Blank	80% +	70% +
3	Laboratory Standard (Laboratory Blank + 2% DRY FILM BIOCIDE)	0	0

Growth Ratings:

% coverage + assessment of intensity

Intensity Ratings:

+ = light, ++ = moderate, +++ = dense

Inoculum Density

1st = 1.90 x 10⁶ cfu/ml

Photos Dry Film Fungal Resistance Test – Humidity Cabinet Method



1.1

1.2

1- Anti Mould Paint



1a.1

1a.2

1a- Anti Mould Paint + 0.4%
w/w **BIOCIDE**



1b.1

1b.2

1b- Anti Mould Paint + 0.6%
w/w **BIOCIDE**



1c.1

1c.2

1c- Anti Mould Paint + 0.2%
w/w **MICROBIOCIDE**



1d.1

1d.2

1d- Anti Mould Paint + 0.3%
w/w **MICROBIOCIDE**



2.1

2.2

2.Laboratory Blank



3.1

3.2

3.Laboratory Standard
(Laboratory Blank + 2% **DRY FILM BIOCID**)

Report Review

The work detailed in this report has been carried out according to the Independent Testing Laboratory Standard Methods of Test. All results have been checked by the responsible person and reviewed by the Laboratory/Technical/Regional Technical Manager.

Appendix – Test Methods

Test Method 625 - Measurement of pH

The pH of the samples was measured at ambient temperature using a pH meter with a combination electrode that had been calibrated using two buffer solutions.

Test Method 700 – Screening for Microbial Contamination

The sample to be tested is homogenized and a part of it is transferred to different nutrient media for micro-organisms. By using special nutrients, aerobic bacteria, moulds and yeasts may be assessed separately.

The inoculated nutrients are subsequently stored in the incubator over a certain time period (bacteria at least 48 h, moulds/yeasts at least 72 h). After incubation, the growth on the nutrient media is visually evaluated. The evaluation is done by using an evaluation scale, detailed in the table below, and gives information on the extent of the microbial growth in a sample.

Test Method 800.1 – Dry Film Fungal Resistance Test - Humidity Cabinet Method

Different concentrations of biocide are added to a coating under test which is then applied to a suitable substrate. The coated substrate may be leached or weathered if required and is then inoculated with fungal species known to grow on surface coatings. Inoculation is made by spraying the surface of the test pieces with a suspension of fungal spores adjusted to 10^6 spores per ml. The test pieces are then suspended in a test cabinet with controlled temperature and humidity to ensure optimum conditions for fungal growth.

Following incubation, surface fungal growth is evaluated using a specified rating scale. The comparison of the coverage and intensity of the fungal growth on test pieces containing no biocide with test pieces containing biocide gives an indication of the efficacy and reliability of the film fungal biocide incorporated into the coating.

Test species used:

<i>Alternaria alternata</i>	<i>Phoma violacea</i>
<i>Aspergillus versicolor</i>	<i>Rhodotorula mucilaginosa</i> (x2)
<i>Aureobasidium pullulans</i>	<i>Sporobolomyces roseus</i>
<i>Cladosporium ramotellenum</i>	<i>Stachybotrys chartarum</i>
<i>Penicillium purpurogenum</i>	<i>Ulocladium atrum</i>