



INTERNATIONAL SPECIALTY PRODUCTS

ISONEM
(TURKEY)

Report reference: SR 10/049

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CRM#: 8192-3808

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OBJECTIVE:

To find the right dry film biocide and dosage for a water proofing coating.

CONCLUSION:

The unprotected sample proved to be highly susceptible to fungi and algae growth.

None of the tested additions in the blank sample was able to ensure a perfect outdoor film protection.

Noticeable results were observed with an addition of **1%** of **Fungitrol® OTZ4** which showed quite good performances against fungi and algae.

We, therefore, highly recommend using a dry film protection to avoid severe defacement of the surface coating by fungi and algae. An higher addition dose of **Fungitrol® OTZ4** must be tested in order to find the minimum efficient percentage which is able to ensure a perfect protection of the water proofing coating.



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SAMPLES IDENTIFICATION:

- **Type of product:** Water proofing coating
- **Samples number:** 1
- **References:**
 - ISONEM MS POLYMER
- **Remark:** /

CONTAMINATION CONTROL:

Samples	pH	Total viable at 30° C	Fungi + yeasts at 25° C
ISONEM MS POLYMER	7.8	< 10 C.F.U/g	NONE

Results given in C.F.U. (Colony Forming Units) per gram of product.

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DRY FILM RESISTANCE

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MAIN TEST PROCEDURE STEPS FOR MOULDS RESISTANCE

Based on EN 15457:

- 1°/- Coating of an inert support made of glass fiber cloth with the paint without and with a fungicide according to the recommendation of the interested part.
- 2°/- Drying of the obtained panels according to the given directives. Minimum: 48 hours.
- 3°/- Ageing during 2 days at 50°C.
- 4°/- Leaching during 3 days in cold water of the panels. General case: 8 hours/day during 2 days with a volume of approximately 1L/minute.
- 5°/- U.V. exposure during 2 days.
- 6°/- Lay down of the panels on a nutritive medium placed in Petri boxes, in order to carry out a fungistatic efficiency determination.
- 7°/- Preparation of two fungi spores suspensions in a mix: one with, the other without *Alternaria*.
- 8°/- Inoculation of the panels and the nutritive medium with one or with the two mixes of fungi spore suspension.
- 9°/- Incubation of the inoculated panels at 26° C ± 1° C in an humid chamber and at 30 C ± 1° C in a tropical chamber.
- 10°/- Visual evaluation with the naked eye and then if necessary with the stereoscopic microscope of the obtained growth after 3 weeks incubation and rating from 0 to 5 according to the following scale.

STANDARD INOCULUM COMPOSITION:

- <i>Aspergillus niger</i>	MNHN LCP 48.521
- <i>Aureobasidium pullulans</i>	MNHN LCP 3494
- <i>Chaetomium globosum</i>	MNHN LCP 87.3518
- <i>Cladosporium cladosporioides</i>	MNHN LCP 52.484
- <i>Gliocladium virens</i>	MUCL 31700
- <i>Paecilomyces varioti</i>	MUCL 19015
- <i>Penicillium funiculosum</i>	MUCL 19010
- <i>Alternaria alternata</i>	MNHN LCP 95.3827

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MAIN TEST PROCEDURE STEPS FOR ALGAE RESISTANCE

Based on EN 15458:

- 1°/- Coating of an inert support made of glass fiber cloth with the paint without and with a fungicide according to the recommendation of the interested part.
- 2°/- Drying of the obtained panels according to the given directives. Minimum: 48 hours.
- 3°/- Ageing during 2 days at 50°C.
- 4°/- Leaching during 3 days in cold water of the panels. General case: 8 hours/day during 2 days with a volume of approximately 1L/minute.
- 5°/- U.V. exposure during 2 days.
- 6°/- Coated panels are put on a specific nutrient medium laid in Petri boxes.
- 7°/- Repeated inoculations with a blend of green and blue-green micro-algae with a regeneration of the nutrient.
- 8°/- Incubation at 22°C into a humid chamber under fluorescent bulbs: 12 hours light and 12 hours darkness a day.
- 9°/- Visual observation and evaluation of algae growth covering the panels after each inoculation.

STANDARD INOCULUM COMPOSITION :

- | | |
|----------------------------|-----------------|
| - Chlorella vulgaris, | MNHN 89-44 |
| - Stichococcus bacillaris, | MNHN 330 89-145 |
| - Trentepohlia aurea, | CCAP 483/1 |
| . | |



RESULTS:

Trial 1 : Blend of mould species without *Alternaria*.

Trial 2 : Blend of mould species with *Alternaria*.

Samples		FUNGI RESISTANCE		ALGAE RESISTANCE			
		With leaching		1 st	2 nd	3 rd	4 th
		Trial 1	Trial 2	Inoculations			
ISONEM MS POLYMER		5	5	0	0	2	4+
ISONEM MS POLYMER + FUNGITROL ZO3	0.4%	5	4	0	0	2	3*
	0.6%	4	4	0	0	0	3*
	0.8%	3	3	0	0	0	3*
	1%	3	3	0	0	0	3*
ISONEM MS POLYMER + FUNGITROL OTZ4	0.4%	5	4	0	0	2	3+
	0.6%	4	4	0	0	0	2+
	0.8%	4	4	0	0	0	2+
	1%	2	2	0	0	0	2+

Fungal contamination scale

- 0 No mold growth at the microscope.
- 1 Scant growth with the naked eye, but well detectable at the microscope.
- 2 Growth detectable with the naked eye, covering up to 25 % of the surface under test.
- 3 Growth detectable with the naked eye, covering up to 50 % of the surface under test.
- 4 Strong growth, covering more than 50 % of the surface under test.
- 5 Very strong growth, covering the whole surface under test.

Algae contamination scale :

- 0 No growth on the panel. No inhibition zone > 2 mm around the panel.
- 1 Scant growth lower than 5 % of the surface.
- 2 Light growth, covering less than 25 % of the surface.
- 3 Moderate growth covering less than 50 % of the surface.
- 4 Significant growth covering more than 50 % of the surface.
- 5 Strong growth covering the whole panel surface.

Growing density

-Low.

*Medium.

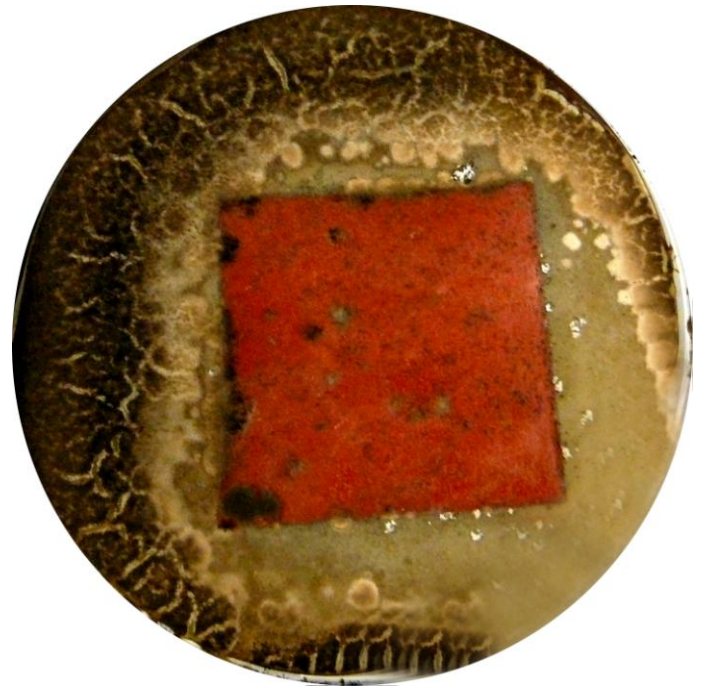
+High.

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FUNGI RESISTANCE



ISONEM MS POLYMER



ISONEM MS POLYMER
+ 1% FUNGITROL ZO3

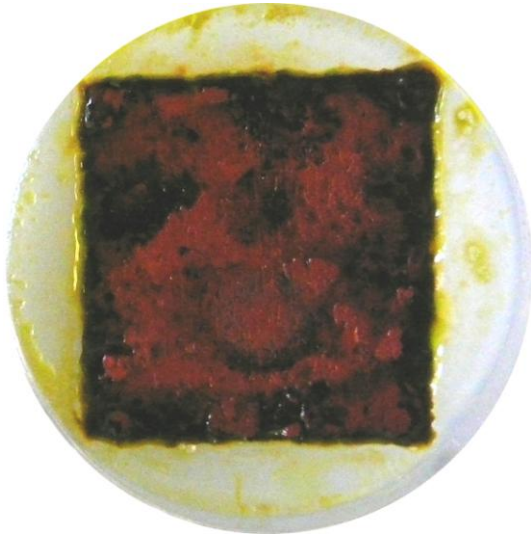


ISONEM MS POLYMER+ 1% FUNGITROL OTZ4

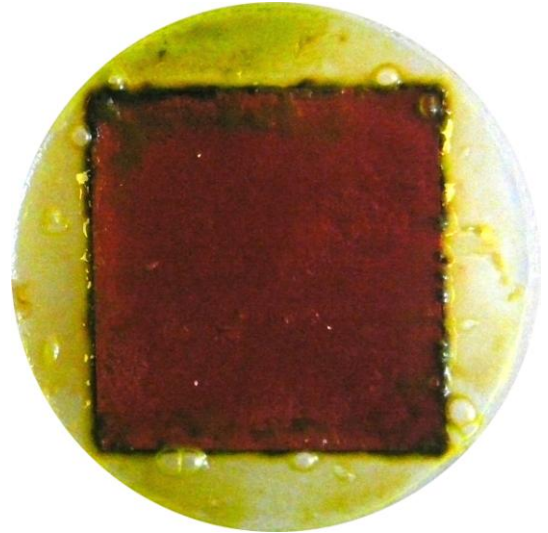
Observation of the panels after leaching, inoculation and 14 days incubation at 26°C / 70% Relative Humidity (Trial 2).

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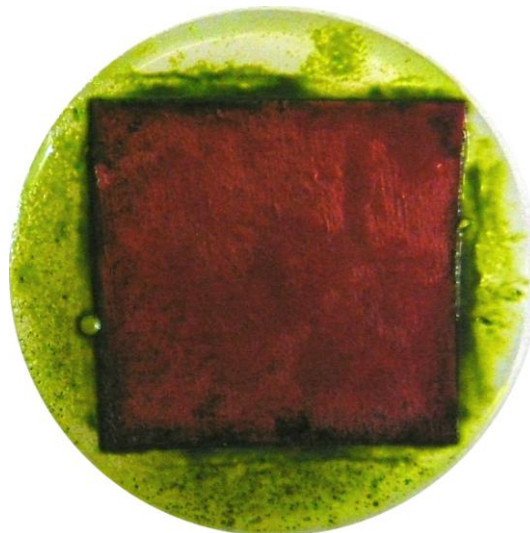
ALGAE RESISTANCE



ISONEM MS POLYMER



**ISONEM MS POLYMER
+ 1% FUNGITROL ZO3**



**ISONEM MS POLYMER
+ 1% FUNGITROL OTZ4**

Observation of the panels after leaching, 4 inoculations at 3 weeks interval.



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(Turkey)
SR 10/049

PERSONNAL CARRYING OUT PROJECT:

PROJECT REQUIRED BY: Ozgul OZKAN
Account Manager
Request approval date: 06/05/2010

STUDY CARRIED OUT BY: Séverine ROUGEOT
Technician
Start: 10/05/2010
Finish: 20/08/2010

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