



TECHNICAL SERVICE REPORT

AC9919

Elite Crete Systems

Client:

Elite Crete Systems
1151 Transport Drive
Valparaiso, IN, 46383 US

Test Laboratory:

Thor Specialties, Inc.
50 Waterview Drive
Shelton, CT 06484 USA

OBJECTIVES:

To examine two Epoxy Resin samples for microbial contamination.

To determine the dry film fungal resistance of an Epoxy coating formulation, unpreserved as well as with 0.15%, 0.20%, 0.25% and 0.30% of ACTICIDE® 45.

CONCLUSIONS:

Microbiological screening revealed the Epoxy Resin Part A sample was free from contamination upon receipt. Due to the corrosive nature of sample two (Part B), it was not screened.

The two Epoxy Resin samples, Part A and Part B, were combined prior to conducting dry film testing (refer to sample preparation on page 3).

The dry film fungal resistance test results revealed susceptibility could not be established in the unpreserved Epoxy coating formulation under laboratory conditions, therefore the contribution of the biocide could not be determined.

SAMPLES: 2 Crystal Clear Epoxy samples

ADDITIONS: ACTICIDE® 45 at 0.10%, 0.15% and 0.20%

SAMPLE PREPARATION: Final coating formulation was prepared as follows:

Mix ratio = 2 parts A resin to 1 part B hardener by volume

Biocide additions were made to the final coating formulation

EXAMINATIONS:

Microbial Screening: A700

pH and Redox measurements: A625, A626

Dry Film Fungal Resistance Test, Vermiculite Bed A810

RESULTS: Microbial Screening

Sample		Degree of Microbial growth on				pH value	Redox potential (mV)
		NA		PDA	SIM		
		30°C	37°C	25°C	30°C		
1	E100-PT Series Part A Epoxy	0	0	0	-		
2	E100-PT Series Part B Epoxy (Corrosive)	N/A	N/A	N/A	N/A		
1/2	Epoxy coating formulation					11.05	-54

Growth Key:

N/A = not applicable

Bacteria/Yeast:

0 = no growth 1 = very scant 2 = scant 3 = light 4 = moderate 5 = heavy 6 = dense

Mold: 0 = None X= Slight XX = Moderate XXX = Heavy growth XXXX = Dense

Hydrogen Sulfide Producing Bacteria: - = Negative + = Positive ++ = Strong Positive () = Odor

Growth Media:

NA=Nutrient Agar-for the detection and growth of aerobic bacteria.

PDA=Potato Dextrose Agar-for the detection and growth of yeasts, molds and *Acetobacter type species*

SIM=Sulphide Indole Motility Agar-for the detection of hydrogen sulfide producing bacteria.



Dry Film Fungal Resistance Test, Vermiculite Bed A810:

Inoculum: Standard Dry Film Fungal Inoculum

6.6 x 10⁶ cfus/ml

Substrate: Concrete



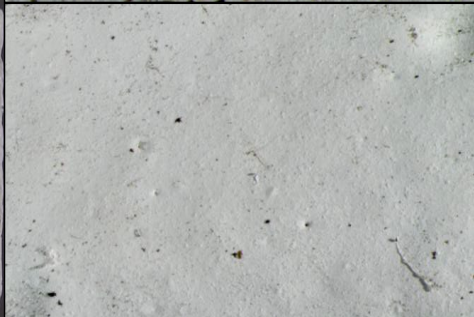

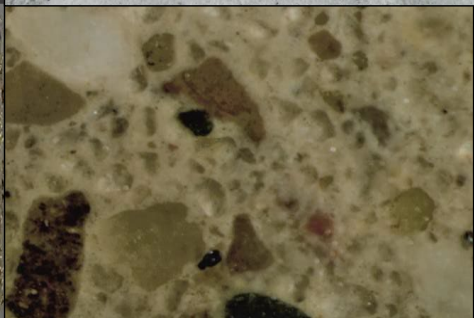
SAMPLE		Degree of Fungal Growth	
		I	II
positive control		3	3
negative control		0	0
1/2	Epoxy coating formulation		
	Unpreserved (Blank)	0	0
	0.15% ACTICIDE® 45	0	0
	0.20% ACTICIDE® 45	0	0
	0.25% ACTICIDE® 45	0	0
	0.30% ACTICIDE® 45	0	0

Film Fungal Growth Ratings Chart for Test Methods A810 & A800.1

<u>AREA</u>		<u>DENSITY</u>
0 = No growth	3 = 11 - 30% Coverage of growth	X = Light
1 = Trace growth	4 = 31 - 70% Coverage of growth	XX = Moderate
2 = 1 - 10% Coverage of growth	5 = 71 - 100% Coverage of growth	XXX = Dense

Dry Film Fungal Resistance Test, Vermiculite Bed A810 Pictures:

Substrate: Concrete

SAMPLE		Picture	
		Macroscopic	Microscopic 1X20
positive control			
negative control			
1/2	Representative of blank and all addition levels tested		

Dry Film Fungal Inocula

1.1 Methods 800.1 and 810 Vermiculite Bed Techniques

Mold Organisms	Culture Collection Reference
<i>Alternaria alternata</i>	ATCC 34509
<i>Aspergillus niger</i>	ATCC 10575
<i>Aspergillus oryzae</i>	ATCC 11488
<i>Aspergillus terreus</i>	IMI 113732
<i>Aureobasidium pullulans</i>	ATCC 9348
<i>Cladosporium cladosporioides</i>	ATCC 16022
<i>Myrothecium verrucaria</i>	IMI 140594
<i>Penicillium funiculosum</i>	ATCC 11797
<i>Penicillium ochrochloron</i>	IMI 061271
<i>Penicillium rubrum</i>	IMI 113729
<i>Phoma</i> species	ATCC 74077
<i>Stachybotrys chartarum</i>	ATCC 16026
<i>Ulocladium atrum</i>	ATCC 52425
<i>Trichoderma viride</i>	ATCC 24687



Disclaimer

All information contained in this Technical Service Report is intended for use by persons having appropriate knowledge, skill and experience in the chemical industry. THOR SPECIALTIES, INC. shall not be responsible for the use, application or implementation of the information provided in this Technical Service Report and all such information is to be used at the risk, and in the sole judgment and discretion, of such persons, their employees, advisers and agents. The information contained in this Technical Service Report is believed to be reliable, but THOR SPECIALTIES, INC. MAKES NO WARRANTIES, EXPRESS OR IMPLIED, IN THIS TECHNICAL SERVICE REPORT, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Please note that unless otherwise stated, the conclusions described in this Technical Service Report are based on information drawn from examination of the samples identified in this report only. The information contained in this Technical Service Report is based on laboratory work with small-scale equipment and does not necessarily indicate end product performance. Variations in methods, conditions and equipment used in commercial settings may also have an impact on end product performance, and we recommend that appropriate monitoring of microbiological properties be carried out. Full scale testing and end product performance are solely the responsibility of the user.