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EcoCorr ESD Film

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Background: This report investigated corrosion inhibition efficacy and film disintegration in composting for EcoCorr ESD film.

Sample Received: 20 sheets of 2mil EcoCorr ESD film (11" x 8.5"), manufactured on 11-12-20

Method: NACE Standard VIA Test, TM 0208-2018
Razor Blade Test, CC-004*
SO₂ Test, CC-003*
Thermophilic aerobic composting according to ASTM D 6400*
*The tests marked are not covered under Cortec Laboratories, Inc. ISO 17025 Scope of Accreditation

Materials: VIA test kit (testing jars with lid apparatus, steel plugs, 400grit sandpaper)
Steel panels, SAE 1008/1010 (Q-Panel, S-35 DG, 3"x5"x0.032")
Copper panels
Glycerol (lot #W20E023)
Methanol, ACS grade (lot #18F066507)
DI water
Kimwipes
Plain PE film (control)

SO₂ Test supplies:

one gallon size jars with lid
25ml and 50ml plastic beakers
Sodium thiosulfate (Na₂S₂O₃•5H₂O), lot #8100 KMEK
1.0 N sulfuric acid (H₂SO₄)
Ammonium chloride (NH₄Cl), reagent grade
Sodium sulfate (Na₂SO₄), lot #J51636
Plain PE film (control)

Procedure: For VIA testing, the procedure was followed according to the NACE VIA Test, TM0208-2018 option 2 (option 2 uses machine-aided grinding and polishing for the steel plugs).

Note- the VIA test was conducted using two strips of sample per jar (1" X 6" per strip)

The razor blade testing and SO₂ test were followed according to standard procedure.

For disintegration of EcoCorr ESD film via composting, the procedure according to ASTM D6400 and ISO20200 was followed.

Results: The following results were found:

Razor Blade Test- Steel Panels

Sample	Panel #1	Panel #2	Panel #3	End Result
EcoCorr ESD film	Pass	Pass	Pass	Pass
Control	Fail	-	-	Fail

Razor Blade Test- Copper Panels

Sample	Panel #1	Panel #2	Panel #3	End Result
EcoCorr ESD film	Pass	Pass	Pass	Pass
Control	Fail	-	-	Fail

Results: The following results were found:

SO₂ Test

Sample	Panel #1	Panel #2	Panel #3	Pass / Fail
EcoCorr ESD film	Grade 4	Grade 4	Grade 3	Pass
Control film	Grade 0	-	-	Fail

SO₂ Test Grades- Grade 3 and 4 are passing

Grade 0 - Extensive corrosion covering 25% or more of panel surface

Grade 1 - Moderate corrosion covering 10-25% of panel surface

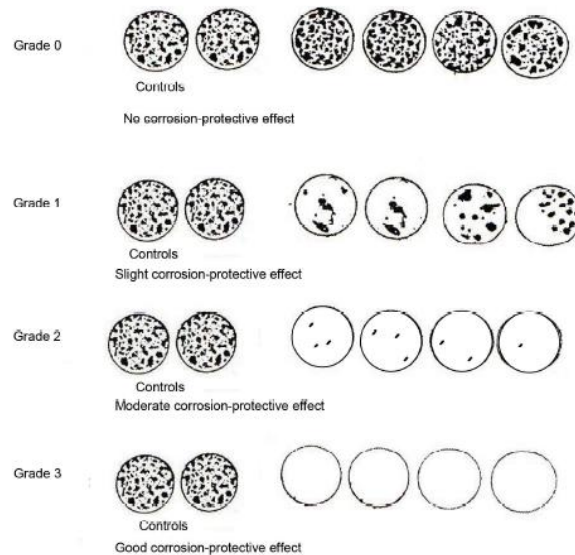
Grade 2 - Slight corrosion 5-10% of panel surface

Grade 3 - Very slight corrosion 0-5% of panel surface

Grade 4 - No visible corrosion on panel surface

NACE VIA Test



Sample	Plug #1	Plug #2	Plug #3	End Result
EcoCorr ESD film	Grade 3	Grade 3	Grade 2	Good corrosion-protective effect
Control	Grade 0	-	-	No corrosion-protective effect



Photos from the NACE VIA test:



EcoCorr ESD Film disintegration via composting

EcoCorr ESD Film	
	
Day 1	Week 4



Week 6



Week 8



Week 9



Week 10

	
Week 11	

Interpretations:

The EcoCorr ESD film provides good contact and vapor phase corrosion protection.

EcoCorr ESD film met the disintegration requirement specified by ASTM D6400. It left less than 10% of the original film mass after 10 weeks of composting, less than the 12 weeks allowed by the Standard.