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Evaluation of Excor's Flame Retardant Film

Purpose: To evaluate the VCI properties of the submitted sample of flame retardant film, which was manufactured by Excor.

Materials: Excor flame retardant film (80 microns)
Razor Blade Test Kit
VIA Test Kit
Perkin Elmer FT-IR 1000 Spectrometer
EM Quant Nitrite/Nitrate Test strips (Lot # OC555062, Exp 9/08)

Method: Razor Blade Test
VIA Test
FT-IR Analysis
Nitrite Test

Procedure: The above tests were performed according to the standard procedures for each

Results:

Razor Blade Test (carbon steel)

Material	Panel #1	Panel #2	Panel #3
Excor Flame Retardant Film	Fail	Fail	Fail
Control	Fail	Fail	Fail

Razor Blade Test (copper)

Material	Panel #1	Panel #2	Panel #3
Excor Flame Retardant Film	Fail	Fail	Fail
Control	Fail	Fail	Fail

VIA Test

Material	Panel #1	Panel #2	Panel #3
Excor Flame Retardant Film	Grade 1	Grade 0	Grade 0
Control	Fail	Fail	Fail

Nitrite Test: The Excor flame retardant film contains trace amounts of nitrite.

Conclusion: The submitted sample of Excor flame retardant film did not pass either of the razor blade tests, nor the VIA test. According to FT-IR spectra, analyzed film contains some amount of corrosion inhibitors (salt of carboxylic acid, probably sodium benzoate), but the protective properties of the inhibitor are destroyed by the flame retardant used in the formulation. The film may be flame retardant, but it does a poor job at protecting against corrosion.

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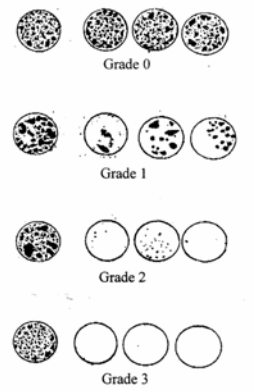
VIA Test Grades (Grade 2 or 3 are passing)

Grade 0:	Blind test No corrosion inhibiting effect
Grade 1:	Blind test Minute corrosion inhibiting effect
Grade 2:	Blind test Medium corrosion inhibiting effect
Grade 3:	Blind test Good corrosion inhibiting effect



FT-IR Analysis

submitted film sample