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Comparing Rust Preventatives on Steel Panels

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Background: The customer would like to determine which rust preventative will provide the best performance on their steel panels.

Sample Received:

- One bottle (approximately 100 mL) of Ferrocote 673 BF
- One bottle (approximately 100 mL) of Ferrocote EGL 1
- One bottle (approximately 100 mL) of Pro-Cote 838C
- Six steel panels (13 cm x 8 cm)

Method: ASTM D-1748 Humidity (120°F, ~99% relative humidity)

Materials: Metal test panels
Competitor rust preventatives
VpCI-325 (05412)
VpCI-329 D (03182)
Laboratory grade methanol
VpCI-414

Procedure: The following procedure was used:

- 1) Clean all 6 steel panels with VpCI-414 and let dry.
- 2) Clean each panel with methanol and wipe dry.
- 3) Set one panel aside to not be treated (Control).
- 4) Coat the last 4 panels each with a different rust preventative:
 - a. VpCI-329 D
 - b. Ferrocote 673 BF
 - c. Ferrocote EGL 1
 - d. VpCI-325
 - e. Pro-Cote 838C
- 5) Label all 6 of the panels and hang in ASTM D-1748 humidity cabinet.
- 6) Monitor the panels daily to check for visual corrosion.
- 7) Remove all panels and photograph after 5 panels reach failure.

Results: The following results were found:

ASTM D-1748 Humidity, 500 hours

Rust Preventative	Time to Failure (Hours)
None (Control)	24
Ferrocote 673 BF	DNF*
VpCI-329 D	456
Ferrocote EGL 1	336
VpCI-325	DNF*
Pro-Cote 838C	288

*DNF = Did not fail during 500 hours of testing

Interpretations:

The tests indicate that the best rust preventatives are VpCI-325 and Ferrocote 673 BF. The panel coated with VpCI-329 D also performed well, as it did not fail until 456 hours of testing. Pro-Cote 838C and Ferrocote EGL 1 did not provide good protection to the steel panels. The photos of the test panels after 528 hours in the humidity cabinet verify these results.

One significant factor should be considered when evaluating these test results. The panel treated with Ferrocote 673 BF left a thick oily residue behind after testing. This would require a thorough cleaning before the part could be used. The Cortec rust preventatives did not require significant cleaning after testing as it did not leave a thick film.

Photos:

Photos of parts taken after 528 hours in humidity cabinet:



Ferrocote 673 BF

VpCI-325



VpCI-329 D



Ferrocote EGL 1



Pro-Cote 838C



Control