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Evaluation of Process Fluids

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Background: The manufacturer uses various products like metalworking/process fluid, process oil, grind oil and cleaners. They are having corrosion issues when using these and packing with VpCI-126 film and VpCI-137 foam. An alternative was requested that could provide sufficient corrosion protection.

Sample Received:

1. Dascolene 617: Metalworking and process liquid, received 3-7-11, good condition
2. Dascolene 598 DF-R: Metalworking and process oil, received 3-7-11, good condition
3. Sintogrind 353: Grind Oil, received 3-7-11, good condition

Method:

- 1) Humidity Cabinet Test , CC-018

Materials:

- 1) BioCorr
- 2) VpCI-347
- 3) DI Water
- 4) Carbon Steel Q panels

Procedure:

Humidity Cabinet Test

- 1) The carbon steel panels were cleaned with methanol. The panels were then coated with the following samples:
 - a. Dascolene 617
 - b. Dascolene 598 DF-R
 - c. Sintogrind 353
 - d. 3% VpCI-347 in DI water (% by weight)
 - e. BioCorr
- 2) The panels were then hung so excess product was allowed to drip off.
- 3) After two hours, the panels were placed into the humidity cabinet.
- 4) The panels were regularly inspected for signs of corrosion.
- 5) When corrosion was identified on the panel, the time to failure was recorded. Time to failure is how long it took the panel to corrode.
- 6) After 264 hours, the panels were removed from the humidity chamber and inspected for sings of corrosion.

Results:

Humidity Cabinet Test Results

Sample	Time To Failure
Dascolene 617	144 Hours
Dascolene 598	144 Hours
Sintogrind 353	24 Hours
BioCorr	168 Hours
3% VpCI-347	264 Hours

Photos:



Figure 1. Humidity chamber test results



Figure 2. Humidity chamber test results

Interpretations:

- 1) Based on the test results, the submitted samples (Dascolene 617, Dascolene 598, and Sintogrind 353) did not provide sufficient corrosion protection.
- 2) The test results determined that using 3% VpCI-347 provided the best corrosion protection, and this could be considered as a replacement for the submitted samples.
- 3) The results for BioCorr determined it lasted longer than the submitted samples.