

Replacement Products for Castrol

Background: Customer needs to find replacement products for the rust preventative oil and coolant they are using for storing tubing. The products currently used by customer do not provide long lasting corrosion protection. Customer needs something that will eliminate any corrosion for tubing stored indoors for up to 24 months.

Purpose: To find a replacement product for the coolant and the oil.

Materials: Castrol WY3-086B water based coolant
 Castrol R03-126A oil based rust preventative
 VpCI-325
 VPCI-345
 VpCI-329D
 Ecoline Cutting Fluid
 Carbon Steel Panels

Method: ASTM D-1748 (Humidity chamber)

Procedure: The following procedure was used:
 1) Prepare the following solutions:

Panel ID	Oil	Coolant	VpCI-325	VpCI-329D	DI Water	VpCI-345	Ecoline CF
A26	100%	-	-	-	-	-	-
B26	-	100%	-	-	-	-	-
C26	-	-	100%	-	-	-	-
D26	-	-	-	100%	-	-	-
E26	-	-	-	-	95%	5%	-
F26	-	-	-	-	95%	-	5%

*Note- percentages are based on weight

- 2) Coat each of the prepared samples onto clean carbon steel panels.
- 3) Hang the panels to dry for a minimum of 2 hours.
- 4) Place the panels in the humidity cabinet and inspect them for any signs of corrosion on a regular basis.
- 5) Record the time and date of the first appearance of corrosion.
- 6) Panels B26, E26, and F26 were taken out of the cabinet after 432 hours, hung to dry, and then photographed.
- 7) Panels A26, C26, and D26 were taken out of the cabinet after 530 hours, hung to dry, and then photographed.



Results: The following results were found for the Humidity Cabinet Test:

Panel ID	Time to Failure
A26	330 hours
B26	50 hours
C26	525 hours
D26	437 hours
E26	75 hours
F26	430 hours

Conclusion: Cortec's EcoLine Cutting Fluid at a concentration of 5% would be a good replacement product for the Castrol WY3-086B coolant. This product based on soybean oil and it is very environmentally friendly. A good replacement for the Castrol R03-126A oil would be VpCI-325, in which mineral oil is replaced by Canola oil, to make the product very safe for environment.

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