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**Corrosion Protection of Zerust Unico Foam
Compared to Similar Cortec Products**

To: Customer

From: Cortec Laboratories, Inc.
4119 White Bear Parkway
St. Paul, MN 55110

cc: Boris Miksic
Cliff Cracauer
Robert Kean
Jay Zhang

Project #: 16-158-1125

Results reported by:

A handwritten signature in black ink, appearing to read "Anne Carlson".

Anne Carlson
Lab Technician

Approved by:

A handwritten signature in black ink, appearing to read "Eric Uutala".

Eric Uutala
Technical Service Manager



Background: Customer currently uses Zerust Unico foam for corrosion protection at an engine. Cortec Laboratories was asked to test this foam's corrosion protection properties, as well as compare it to similar Cortec products.

Sample Received: Zerust Unico foam, about 5 mm thick, received in good condition

Method: VIA Test, CC-027
Razor Blade Test, CC-004*
Nitrite/Nitrate Test*

*Cortec Laboratories, Inc. is not accredited for the test(s) marked.

Materials: VIA Test kit
Razor Blade Test kit
Nitrite/Nitrate strips (lot HC 553793)
VpCl-136 foam (lot 028616), about 5 mm thick
BioPad foam (lot 038916), about 1 mm thick
Non Coated foam (plain foam with no corrosion inhibitors present, used as a control foam), about 5 mm thick

Procedure: All tests were followed according to standard procedure.

Results:

Razor Blade Test Results- Carbon Steel

Sample	Panel 1	Panel 2	Panel 3	Control	Overall
Zerust Unico	Pass	Pass	Pass	Fail	Pass
VpCl-136	Pass	Pass	Pass	Fail	Pass
BioPad	Pass	Pass	Pass	Fail	Pass

Razor Blade Test Results- Copper

Sample	Panel 1	Panel 2	Panel 3	Control	Overall
Zerust Unico	Pass	Pass	Pass	Fail	Pass
VpCl-136	Pass	Pass	Pass	Fail	Pass
BioPad	Pass	Pass	Pass	Fail	Pass

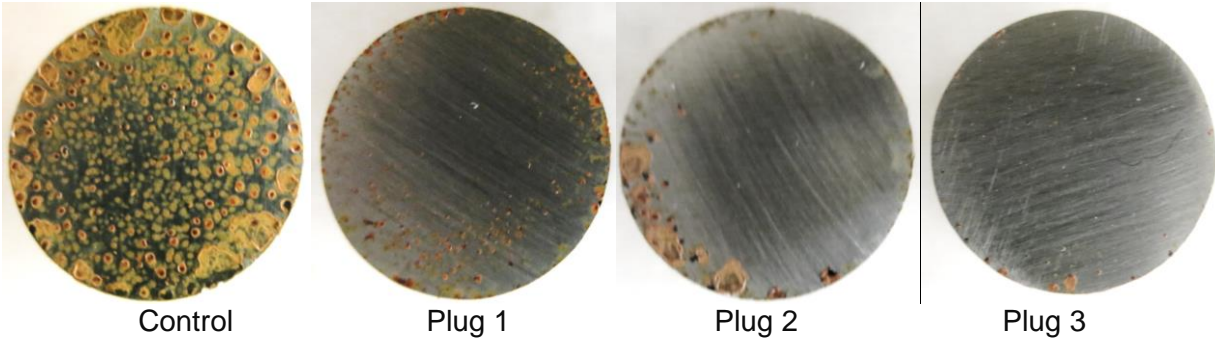
VIA Test Results

Sample	Plug 1	Plug 2	Plug 3	Control	Overall
Zerust Unico	1	2	2	0	Fail
VpCl-136	2	3	2	0	Pass
BioPad	3	3	3	0	Pass
Non-VCl Foam	0	0	-	-	Fail

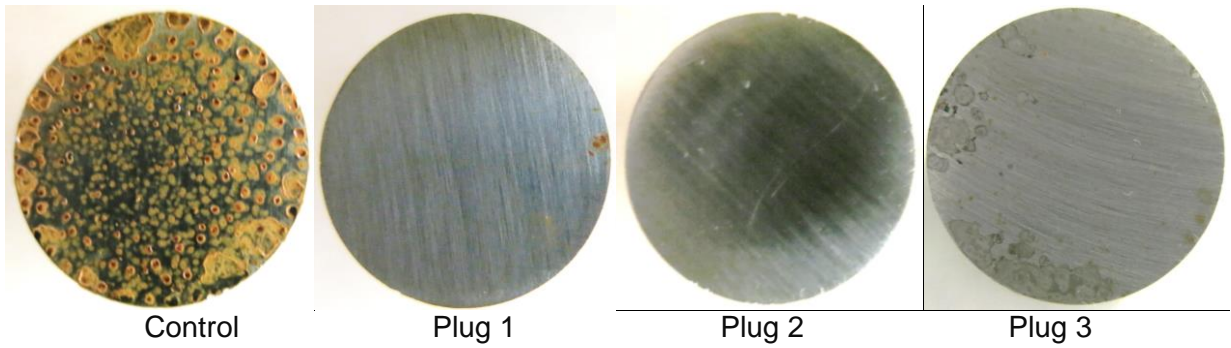
Results relate only to the items tested

Photos:

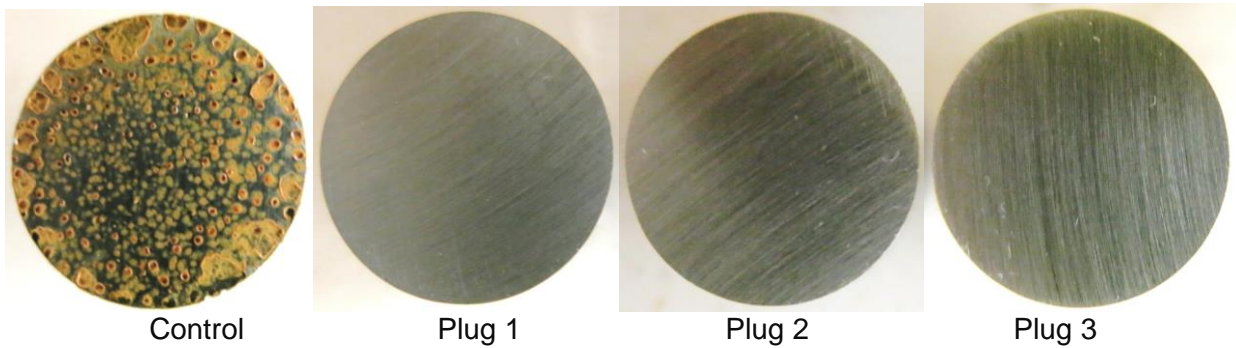
Zerust Unico VIA Results



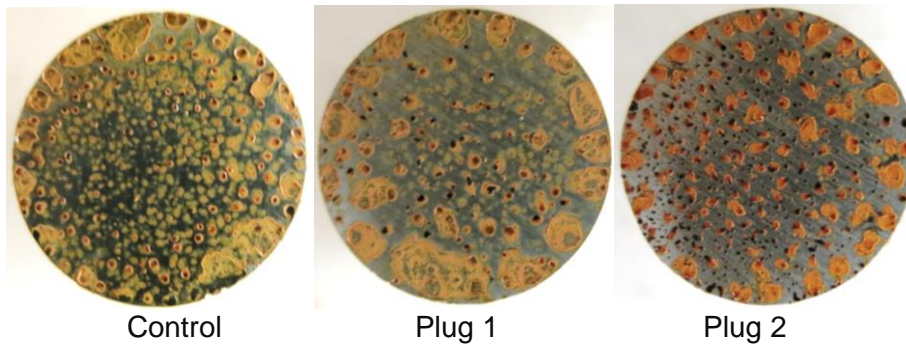
VpCI-136 VIA Results



BioPad VIA Results


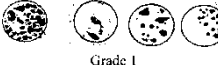

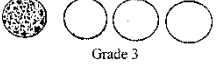


Non-Coated Foam VIA Results



VIA Test Grading

All three plugs must be grade 2 or better to pass the test

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

Interpretations: According to the tests above, Zerust Unico foam does not provide adequate vapor phase corrosion protection to pass VIA testing. Conversely, both Cortec products pass this test. All three foams tested provide sufficient protection in contact corrosion testing for both carbon steel and copper.

Zerust Unico foam was found to contain nitrite/nitrate.