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**Sample Identification:** Salt Spray Testing of Coated Panels

**Purchase Order#:** 12409

**Project Number:** P19-1124A-2

**Objective:** We were requested to expose eight (8) groups of coated panels to a salt fog environment per ASTM B117-18 until milestones of 10-15% white corrosion and 10-15% red corrosion were achieved.

**Summary:** The test panels were inspected for white and red corrosion after every 24 hours (weekends excluded).

HDG G30 with InterCoat ChemGuard withstood longer exposure to red rust when compared against various heavy metallic zinc coating weights, such as those specified on HDG G90 to G235, even when coated with a hexavalent chromium passivation. HDG G30 with InterCoat ChemGuard also withstood longer exposure to red rust when compared against (Galvalume with Thin-Film Acrylic). All test samples were in the same salt spray testing chamber simultaneously

The following table contains the results of those examinations:

Substrate	Zn Class	Coating	Ct Weight	10-15% White	10-15% Red
HDG	G30	CG315L	100-150	336 Hours	672 Hours
HDG	G30	CG315L	250-300	N/A*	1,800 Hours
HDG	G40	Chemtreat	3.5	144 Hours	240 Hours
HDG	G90	Chemtreat	0.3	24 Hours	408 Hours
HDG	G115	Chemtreat	2.9	144 Hours	1,200 Hours
HDG	G235	Chemtreat	2.2	144 Hours	1,368 Hours
AZ	50	Galvalume-Plus	75-125mg	1,368 Hours	1,704 Hours
AZ	55	Galvalume-Plus	75-125mg	1,368 Hours	1,704 Hours

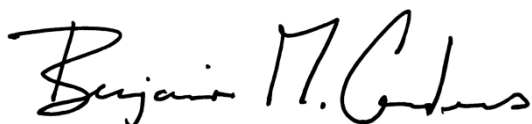
\*Panel group HDG G30-CG315L-250-300mg/ft<sup>2</sup> did not exhibit 10-15% white corrosion prior to the red corrosion milestone

**Procedures and Data:** The conditions inside the chamber were as follows:

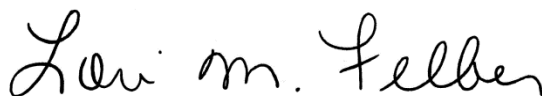
Solution	5% NaCl
Chamber Temperature	95 $\pm$ 1°F
Specific Gravity @ 95 °F	1.025 to 1.040
pH of Collected Solution	6.5 to 7.2
Average Collection Rate	1-2 ml/hr./80 cm <sup>2</sup>

Per the requirements of ASTM B117-18, the test panels were placed at an angle of approximately 15° to 30° from the vertical. Images were taken of the panels prior to the exposure period and at each observed milestone (See Images #1-23).

Anderson Laboratories, Inc.



Ben Cardenas  
Laboratory Analyst - Chemical Testing



Lori Felber  
Quality Assurance Manager

The above tests were performed using one or more of the following specifications: ASTM A48, A247, A262, A370, B117, B328, B368, B748, E2 (SM 11-22), E3, E8, E9, E10, E18, E21, E23, E34, E45, E92, E112, E212, E290, E340, E350, E352, E353, E381, E384, E404, E407, E415, E562, E663, E766, E883, E986, E1019, E1024, E1077, E1086, E1251, E1508, G053, G154, ASME IX, AWS D1.1, MIL-S-867A, NAVSEA S9074-AQ-GIB-010/248, SAE J81, EN 10002 Part 1, EN 10045 Parts 1 & 2, EN 10204 Section 3.1.C and Anderson Laboratories Quality Manual Revision O dated 07/25/18. This report is confidential and shall not be reproduced except in full, without the written approval of Anderson Laboratories, Inc. Results reported apply only to the sample submitted. Summary of P19-0546A and P19-0639A.

**Chemcoaters, LLC C416**  
HDG G30 CG315L, 100-150  
Hours of Exposure: 0  
Image #1



Magnification: 0.4X

**Chemcoaters, LLC C416**  
HDG G30 CG315L, 100-150  
Hours of Exposure: 336  
Image #2



Magnification: 0.4X



**Chemcoaters, LLC C416**  
HDG G30 CG315L, 100-150  
Hours of Exposure: 672  
Image #3



Magnification: 0.4X

**Chemcoaters, LLC C416**

HDG G30-CG315L-250-300mg/ft<sup>2</sup>

Hours of Exposure: 0

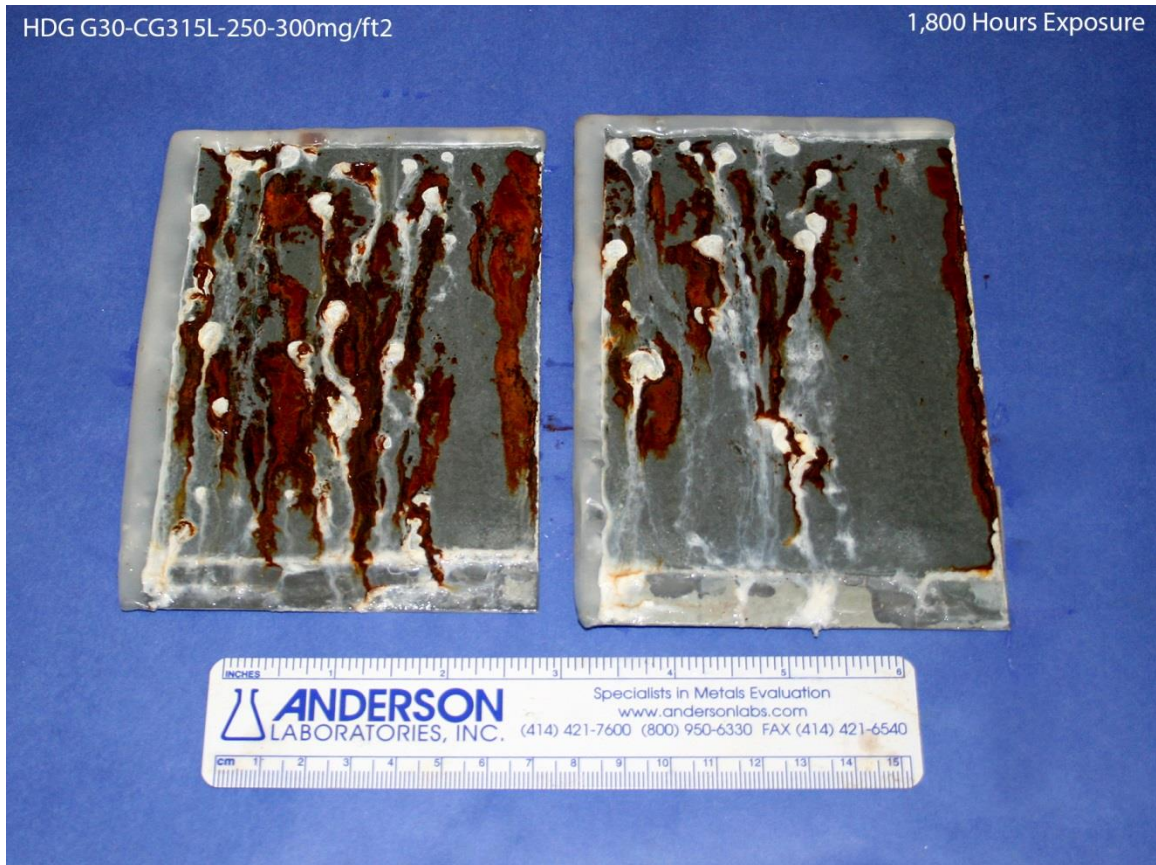
Image #4



Magnification: 0.5X

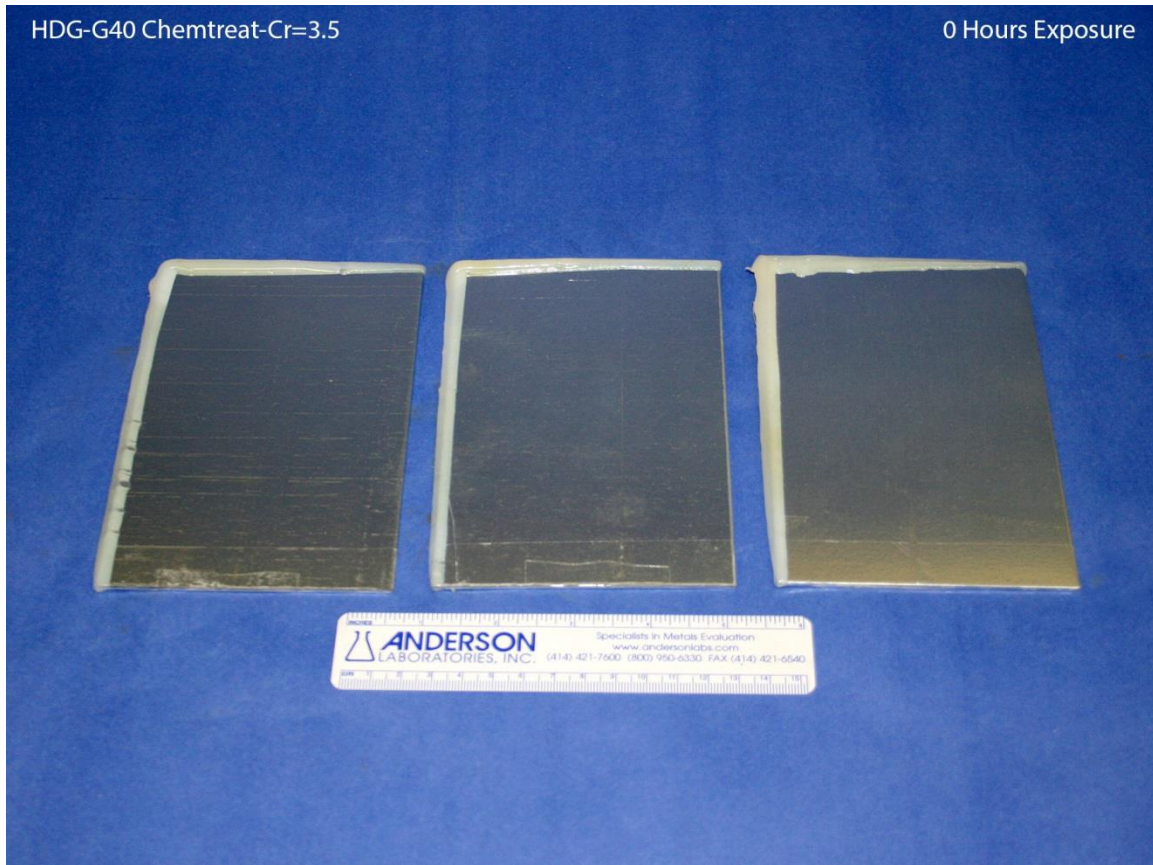


**Chemcoaters, LLC C416**  
HDG G30-CG315L-250-300mg/ft<sup>2</sup>  
Hours of Exposure: 1,800  
Image #5



Magnification: 0.6X

**Chemcoaters, LLC C416**  
HDG G40 Chemtreat Cr=3.5  
Hours of Exposure: 0  
Image #6



Magnification: 0.4X



**Chemcoaters, LLC C416**  
HDG G40 Chemtreat Cr=3.5  
Hours of Exposure: 144  
Image #7



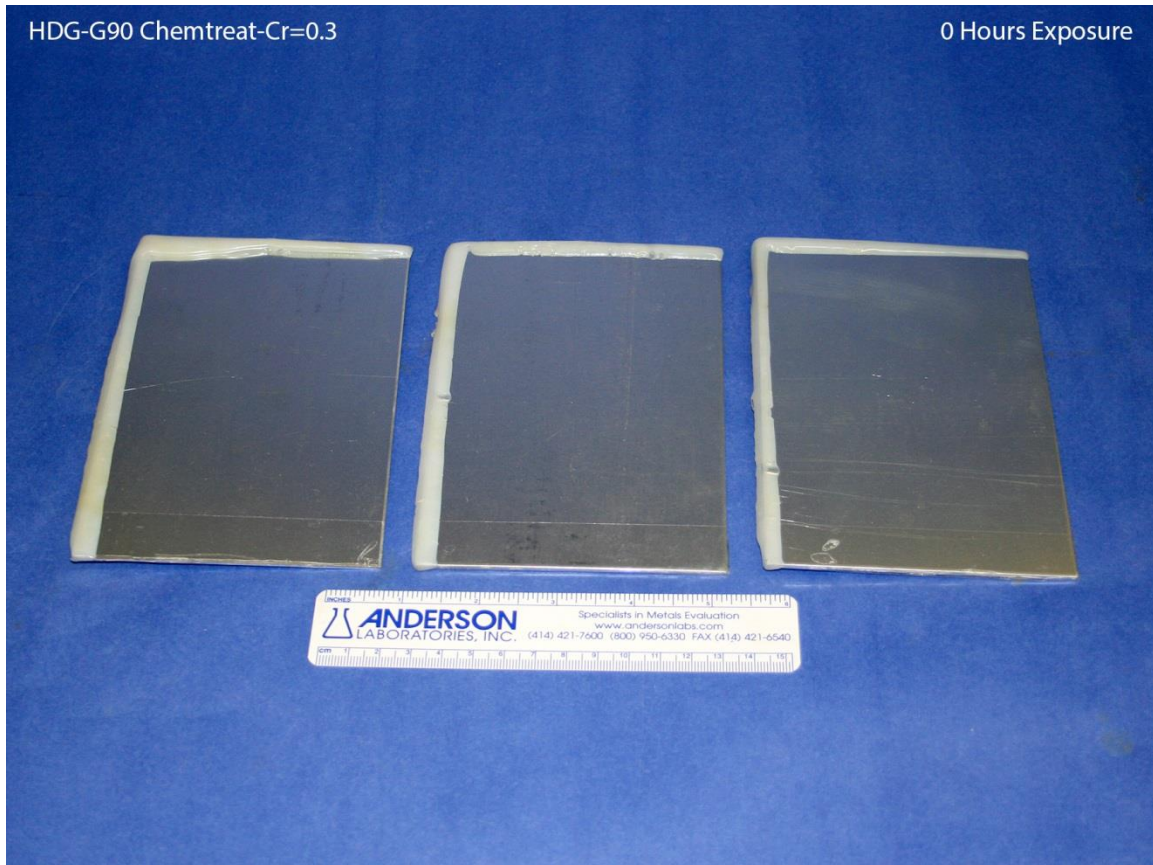
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**Chemcoaters, LLC C416**  
HDG G40 Chemtreat Cr=3.5  
Hours of Exposure: 240  
Image #8



Magnification: 0.4X

**Chemcoaters, LLC C416**  
HDG G90 Chemtreat Cr=0.3  
Hours of Exposure: 0  
Image #9



Magnification: 0.4X



**Chemcoaters, LLC C416**  
HDG G90 Chemtreat Cr=0.3  
Hours of Exposure: 24  
Image #10



Magnification: 0.4X

**Chemcoaters, LLC C416**  
HDG G90 Chemtreat Cr=0.3  
Hours of Exposure: 408  
Image #11



Magnification: 0.4X

**Chemcoaters, LLC C416**  
HDG G115 Chemtreat Cr=2.9  
Hours of Exposure: 0  
Image #12



Magnification: 0.4X



**Chemcoaters, LLC C416**  
HDG G115 Chemtreat Cr=2.9  
Hours of Exposure: 144  
Image #13



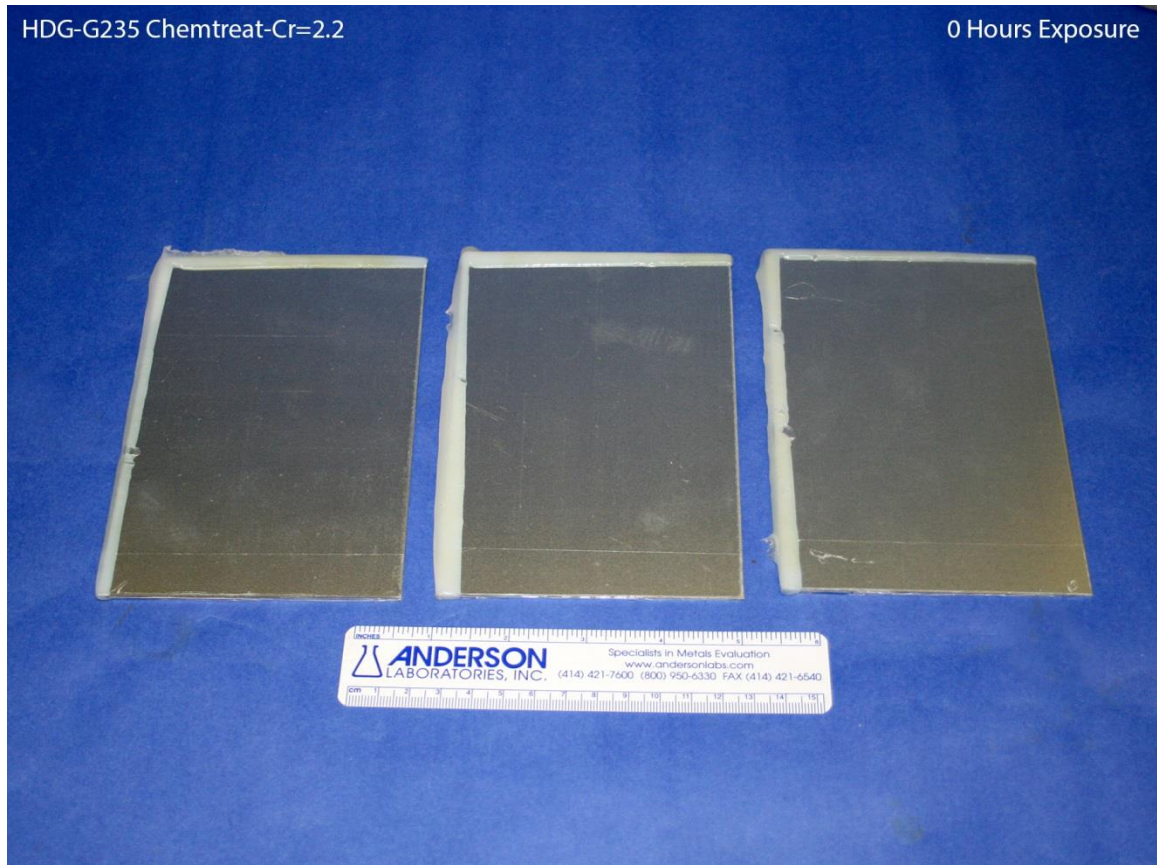
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**Chemcoaters, LLC C416**  
HDG G115 Chemtreat Cr=2.9  
Hours of Exposure: 1,200  
Image #14



Magnification: 0.4X

**Chemcoaters, LLC C416**  
HDG G235 Chemtreat Cr=2.2  
Hours of Exposure: 0  
Image #15



Magnification: 0.4X

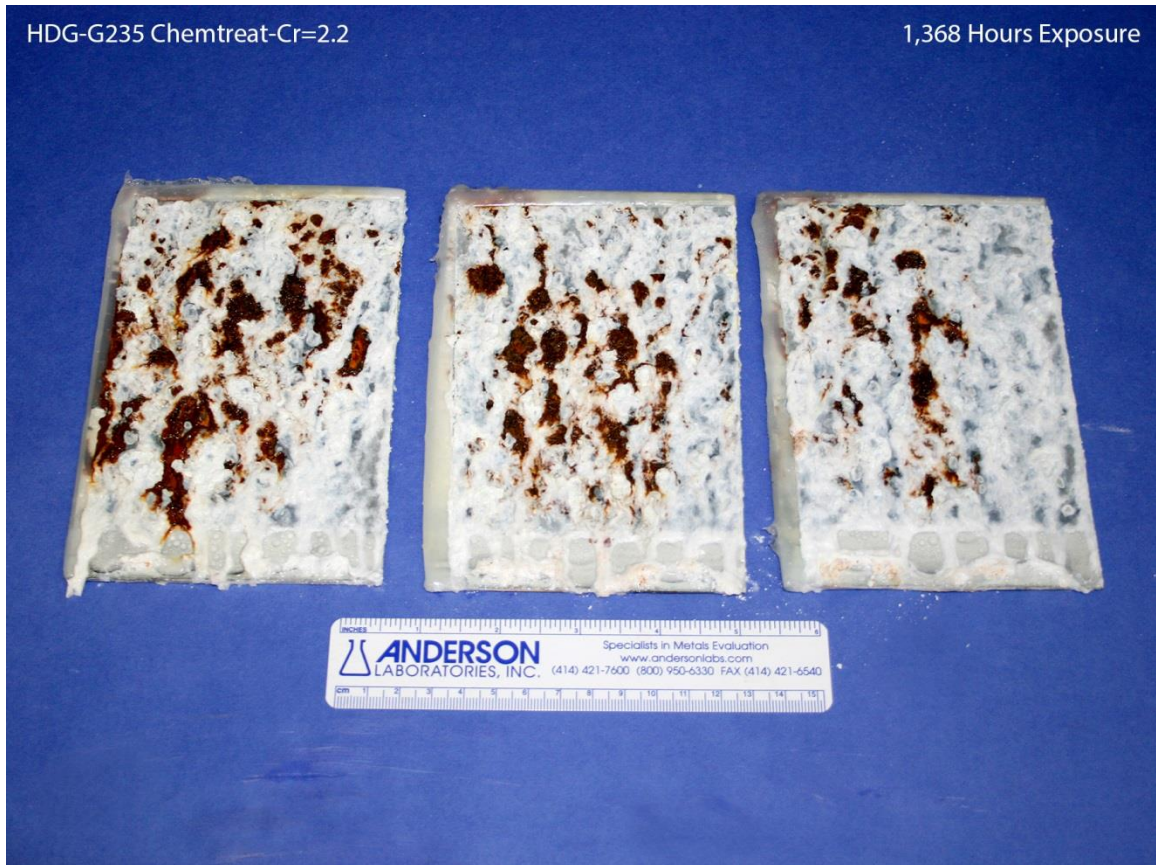


**Chemcoaters, LLC C416**  
HDG G235 Chemtreat Cr=2.2  
Hours of Exposure: 144  
Image #16



Magnification: 0.4X

**Chemcoaters, LLC C416**  
HDG G235 Chemtreat Cr=2.2  
Hours of Exposure: 1,368  
Image #17



Magnification: 0.4X

**Chemcoaters, LLC C416**  
AZ50 Galvalume-Plus 75-125  
Hours of Exposure: 0  
Image #18



Magnification: 0.4X



**Chemcoaters, LLC C416**  
AZ50 Galvalume-Plus 75-125  
Hours of Exposure: 1,368  
Image #19



Magnification: 0.4X

**Chemcoaters, LLC C416**  
AZ50 Galvalume-Plus 75-125  
Hours of Exposure: 1,704  
Image #20



Magnification: 0.4X

**Chemcoaters, LLC C416**  
AZ55 Galvalume-Plus 75-125  
Hours of Exposure: 0  
Image #21



Magnification: 0.4X



**Chemcoaters, LLC C416**  
AZ55 Galvalume-Plus 75-125  
Hours of Exposure: 1,368  
Image #22



Magnification: 0.4X

**Chemcoaters, LLC C416**  
AZ55 Galvalume-Plus 75-125  
Hours of Exposure: 1,704  
Image #23



Magnification: 0.4X