

FORMULATION CI-207 (PM-12)

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**OEM PRIMER COMPARING NACORR® and HALOX®
 SZP-391 to STRONTIUM CHROMATE**

This formulation demonstrates the effectiveness of NACORR® corrosion inhibitors combined with strontium zinc phosphosilicate in an OEM primer. Results demonstrate that this system can provide similar corrosion protection to chromate-based systems.

MATERIAL	DESCRIPTION	CONTROL WEIGHT %	SZP-391 WEIGHT %	NACORR WEIGHT %
GRIND				
POLYMAC® HS 5776 ¹	Polyester resin	32.9	32.9	32.9
EPON® 828 ²	Epoxy resin	2.3	2.3	2.3
CYMEL® 1161 ³	Melamine resin	4.6	4.6	4.6
NACURE® 3525 ⁴	Catalyst	1.6	1.6	1.6
DISPARLON® L-1984N ⁵	Flow/leveling agent	0.1	0.1	0.1
Titanium Dioxide	Pigment	3.2	3.2	3.2
Red Iron Oxide	Pigment	3.2	3.2	3.2
Magnesium Silicate	Pigment	4.2	4.2	4.2
Barium Sulfate	Pigment	21.0	21.0	21.0
Strontium Chromate	Anti-corrosive pigment	3.5	-	-
HALOX SZP-391 ⁶	Anti-corrosive pigment	-	3.5	3.5
NACORR 1351	Corrosion inhibitor	-	-	2.0
n-Butanol	Cosolvent	6.0	6.0	6.0
Methanol	Cosolvent	2.4	2.4	2.4
Butyl CELLOSOLVE® Acetate ⁷	Cosolvent	8.3	8.3	8.3
SOLVESSO® 100 ⁸	Cosolvent	6.8	6.8	6.8
	TOTAL	100.0	100.0	102.0

PAINT PROPERTIES	
Pigment solids, % by weight	35
Vehicles solids, % by weight	35
Total solids, % by weight	70
Substrate	E-coated panels (ACT U32AD214)
Primer cure schedule	30 minutes at 325 F
Primer film thickness, microns (mils)	22.5 – 27.5 (0.9 -1.1)
Topcoat	Commercial high solids white enamel
Topcoat cure schedule	17 minutes at 265 F
Topcoat film thickness, microns (mils)	40 – 50 (1.6 – 2.0)

TEST RESULTS: Salt Fog Exposure			
After removal from salt fog cabinet, scribes were taped immediately	Strontium Chromate	Halox SZP-391	NACORR 1351 + Halox SZP-391
Salt spray, 240 hours			
Creep, millimeters	1-2	3-4	1-2

TEST METHODS	
Creep evaluation – millimeters from scribe	ASTM D1654
Salt fog exposure – 5% sodium chloride fog, 100°F	ASTM B117-90

SUPPLIER REFERENCES	
1.) Hexion Specialty Chemicals - 85% solids in PM Acetate, acid number 10, OH # 178	5.) Kusumoto Chemical Company Ltd. - 100% active, Polyacrylate flow/leveling agent
2.) Hexion Specialty Chemicals - Bis A epoxy resin, Epoxy equivalent weight 185-192	6.) Halox Pigments
3.) Cytec Corporation: Highly alkylated melamine resin, 98% solids	7.) The Dow Chemical Company
4.) King Industries: Blocked DNDSA catalyst	8.) ExxonMobil Chemical
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