



NACORR®

Guide to Rust & Corrosion Inhibitors
For Solvent and Water Based Coatings

King Industries' **NACORR** rust and corrosion inhibitors consists of barium, calcium, zinc, magnesium and sodium sulfonates that protect various metal substrates from corrosion. The NACORR molecule protects the metal with its hydrophobic tail and polar sulfonate group.



Hydrophobic tail - The hydrophobic tail orients itself away from the metal substrate and prevents water from reaching it.

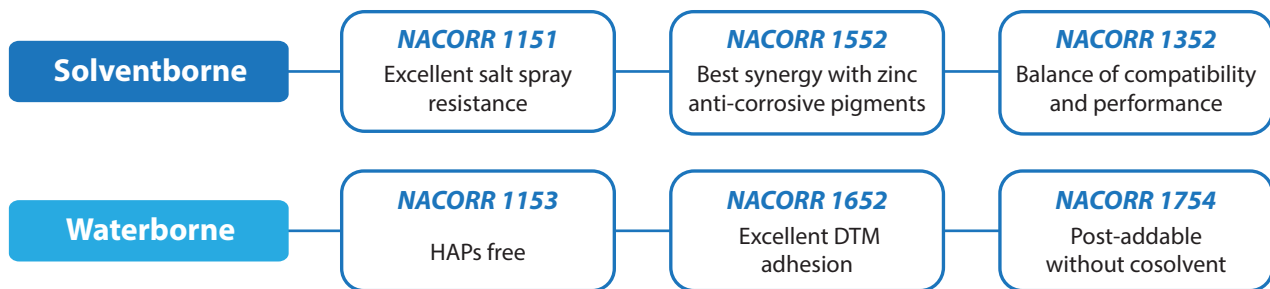
Polar sulfonate group - The polar sulfonate groups have a strong attraction to the metal substrate. This passivates the metal surface and prevents the formation of potential anodic sites.



NACORR - Synergy with Anti-Corrosive Pigments

NACORR liquid organic corrosion inhibitors allow the formulation of anti-corrosive primers and direct-to-metal (DTM) topcoats. Although they perform well on their own, NACORR products are also known for their synergy with anti-corrosive pigments to boost the salt spray resistance of the coating.

NACORR Selection Chart



NACORR Performance

Salt Spray, 500 Hour Performance
Waterborne Acrylic Emulsion

Cleveland Humidity, 700 Hour Performance
Baked Water Reducible Alkyd



Control

5% Anti-Corrosive Pigment (ACP)

5% ACP +
2% NACORR 1352

Control

ACP +
NACORR 1151



Highly pigmented systems or pigments with high surface areas may require higher levels of NACORR.

Coating System	Best Practices: 1-3% on total weight
Solventborne	Post add with a mild mix or add to the mill base.
Water Reducible <i>With or without water in the mill base</i>	<p>With Water: Post-add under high agitation, or if possible, remove water from base and add it to the letdown.</p> <p>Without Water: Pre-mix NACORR, solvent and resin, and add 0.5 - 1.0% to the mill base. Add balance to letdown prior to any water addition.</p>
Emulsions Colloids Dispersions <i>With or without co-solvents or amines</i>	<p>No Co-solvent: Post-add under high agitation during letdown prior to adding water.</p> <p>With Co-solvent: Pre-mix NACORR with coalescing solvent prior to addition. A typical ratio of 1:1 is recommended. Next add mixture under high agitation prior to any water addition.</p> <p>With Co-solvent & Amines: Pre-mix NACORR with coalescent and amine. Add under high agitation prior to any water. A typical starting ratio for pre-mix: 50% NACORR, 45% coalescent and 5% amine by weight.</p>

NACORR				
Product	Metal / Sulfonate	Solvent*	% Active	Attributes / Uses
1151	Barium	Mineral Spirits	50	Excellent performance in waterborne and solventborne systems. Best for low pH applications.
1153	Barium	n-Propoxypropanol	50	HAPs free
1352	Calcium	2-Butoxyethanol	50	Excellent in waterborne applications.
1552	Zinc	2-Butoxyethanol	50	Excellent adhesion with outstanding performance in primers. Catalytic in amino crosslinked coatings.
1652	Magnesium	2-Butoxyethanol	50	Excellent adhesion with outstanding performance in waterborne primers.
1754	Amine	2-Butoxyethanol n-Butyl Alcohol	35	Excellent compatibility in waterborne systems, emulsions and dispersion.
4426	Sodium	Complex Polymer / Water	50	For waterborne emulsions. Effective on steel, galvanized steel and aluminum.
XR-419	Sulfonic Acid/ Carboxylate Salt	-	50	Designed for aluminum and zinc alloys.

*Many NACORR products are available in alternate solvents. Contact King for more information.

NACORR Starting Formulations

Formulation	System Type	Synergy With	NACORR
CI-101	WB Acrylic Primer	Halox® SZP-391 (strontium zinc phosphosilicate)	1351 & 1651
CI-102	WB Acrylic Primer	Halox® SW-111 (strontium phosphosilicate)	1651 & 1652
CI-103	WB Acrylic Primer	Boroguard® ZB (zinc borate)	1351 & 1651
CI-104	WB Acrylic Primer	Busan® 11M-1 (barium metaborate)	1351 & 1651

Trademark References

1. Halox	ICL Phosphate Specialty	3. Busan	Buckman
2. Boroguard	Rio Tinto		

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