

NA-SUL[®] SS

Rust Preventive Performance Data

NA-SUL SS is a unique sodium sulfonate that differs from ordinary sodium sulfonates in several important ways. **NA-SUL SS** is a totally synthetic sulfonate based on dinonylnaphthalene. It has high molecular weight with narrow molecular weight distribution, resulting in a very hydrophobic molecule. As a result, rust preventive coatings based on **NA-SUL SS** show little tendency to re-emulsify on the metal surface. This results in outstanding rust preventive performance. **NA-SUL SS** is highly recommended as the basis of high performance emulsion type rust preventives. **NA-SUL SS** is not an emulsifier, but can usually be added to existing emulsion systems to substantially increase rust preventive performance without destabilizing the emulsion. **NA-SUL SS** is also highly recommended for oil and oil / solvent rust preventive formulations.

Emulsions

FORMULATIONS	3.5% NA-SUL SS 6.5% Oxidized Petrolatum 90.0% Tap Water at 80°C	2.5% NA-SUL SS 2.5% Emulsifier 95.0% Tap Water
TESTS		
Salt Fog (ASTM B 117) Average Hours to Failure	20+	--
Humidity Cabinet (ASTM D 1748) Average Hours to Failure	--	350

Comparative Sodium Sulfonates: Emulsion System *

FORMULATIONS	NA-SUL SS	Sodium Alkyl Benzene Sulfonate (400 mw)	Sodium Alkyl Benzene Sulfonate (430 mw)	Sodium Alkyl Benzene Sulfonate (460 mw)
TESTS				
Salt Fog (ASTM B 117) Average Hours to Failure	6 - 8	< 1	< 2	< 2
Humidity Cabinet (ASTM D 1748) Average Hours to Failure	500 - 600	< 250	< 300	350 - 400

* 10.00% Sodium Sulfonate in Oil
 2.00% Stearic Acid
 1.65% Diethylethanolamine
 86.35% Tap Water

(see reverse side)

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Comparative Micro-emulsions *

FORMULATIONS	NA-SUL SS	Sodium Petroleum Sulfonate
TESTS Humidity Cabinet (ASTM D 1748) Average Hours to Failure	600	72

* 2.5% Sodium Sulfonate
 2.5% Mineral Oil
 5.0% Phosphate Ester
 90.0% Tap Water

The results shown reflect data generated by King Industries' Technical Service Laboratory. Actual results may vary depending on the additive package, base oil, and test equipment design.

For Samples or Technical Service, contact King Industries or your King representative.

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