Application Leaflet

NALZIN® FA 179

Flash rust inhibitor for
waterborne coating systems

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Key Benefits

- Effective reduction of flash-rust formation
- Minimization of in-can corrosion
- Improves long term corrosion resistance

NALZIN® FA 179

Composition	Complex zinc compound in a mixture with solvents
Appearance	Clear liquid
Solubility	Dispersable in water
Density at 20°C [g/ml] ASTM D 1172	app. 1.08
Viscosity at 20°C [mPas] ASTM D 2196	max. 250
Flash point [°C] ASTM D 65	>62°C

Overview

NALZIN® FA 179 is an organic-zinc based compounds providing excellent flash-rust and in-can corrosion inhibition for both waterborne industrial and decorative coating systems.

NALZIN® FA 179 is a very powerful flash-rust inhibitor suitable for most applications. The product contains a small amount of sodium nitrite that guarantees effective and reliable performance.

Additionally, the products can also be used efficiently to inhibit in-can corrosion.

During drying of the coating film, the zinc-complex in both additives becomes insoluble and so helps to improve long-term corrosion resistance.

Incorporation

NALZIN® FA 179 should be added at the final let-down stage of the paint production process. In-can corrosion resistance typically requires 0.1-0.3 % of the additive. Flash-rust inhibition typically requires a loading level of 0.1-0.5%.

NALZIN® FA 179 is best added into the grinding process to ensure uniform distribution. Optimum corrosion resistance is typically achieved at a loading of 0.1 – 0.6%.

A loading ladder study is recommended to determine the ideal addition level for either flash-rust inhibitor.

TABLE 1

	Flash rust formation area [%] after			
	1 hour	2 hours	4 hours	24 hours
Blank	5	5	10	80
NALZIN® FA 179	0	0	2	5

FIGURE 1

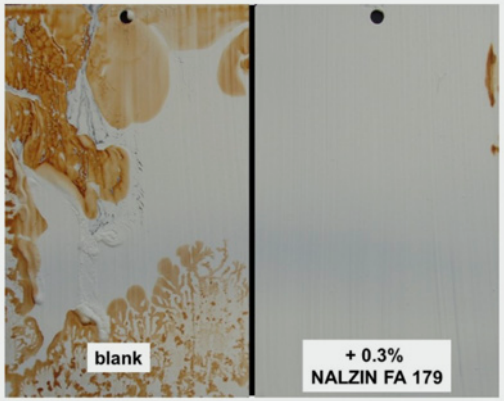

TABLE 2

	Flash-rust formation after 2 h	Scrub resistance index after 4 week
Blank	80 %	100
NALZIN® FA 179	0 %	113
Sodium benzoate (10% in water)	45 %	48

Features

- Effective reduction of flash-rust formation
- Improvement of in-can corrosion resistance
- Enhancement of coatings long-term corrosion resistance
- Provides excellent storage stability

Practical examples

The significantly improved flash rust resistance with NALZIN® FA 179 is shown in the example (**TABLE 1**).

A loading of 0.3% NALZIN® FA 179 was added to a standard styrene-acrylic latex paint system, PVC 77%. The coating was then applied to a degreased steel panel and tested as above.

Remarkably less flash-rust formation was seen with the NALZIN® FA 179 treated paint. Despite a very high humidity during the drying period, and a low loading of additive, nearly no flash-rust formation occurred even after 24 hours.

FIGURE 1 demonstrates the excellent appearance with NALZIN® FA 179 compared to that of.

In comparison to sodium benzoate, both NALZIN NALZIN® FA 179 gives significantly improved flash-rust resistance (**TABLE 2**).

Moreover, unlike sodium benzoate, the NALZIN® product does not promote water sensitivity. This effect is visualized as scrub resistance.

Conclusion

The results have shown that NALZIN® FA 179 acts an effective flash rust inhibitor for aqueous paint and coating systems.

- Better long-term stability
- Form water-insoluble complex in paint film during drying
- Minimized effect on water sensitivity of paint film: better salt spray stability
- Water dispensable
- Better in-can corrosion resistance than sodium benzoate, sodium nitrite

FIGURE 2

Test methods

The standard method for the evaluation of flash-rust resistance is carried out in a humid, closed atmosphere. A cleaned and degreased steel panel is coated with the test paint and fixed vertically in a shallow dish which is filled with 40°C warm water. The panel is covered with a glass beaker and the flash-rust formation is reported visually over time (see **FIGURE 2**), initially at 30 minutes intervals and up to 24 hours.

The test paint is specifically chosen to show flash-rusting. Typically a standard high PVC latex paint is used.

NOTE:

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