



Flexisperse™ 835

Bleach stable detergent polymer

Overview

- Aqueous, acrylic acid/maleic acid copolymer
- Designed as an excellent antiscalant and co-builder, effective in highly alkaline hypochlorite bleach solutions
- Cost effective alternatives to maleic homopolymers
- Prevents formation of a wide variety of scales through multiple mechanisms, primarily threshold effect and crystal distortion
- Superior crystal modifier for carbonate and sulfate scales
- Effective threshold inhibitor for common scales
- Effective at reducing fiber encrustation of insoluble salts in high hardness wash conditions

Applications

- HI&I Hypochlorite-based formulations
- Industrial Water Treatment as a General Purpose Antiscalant for severe service conditions
- Hard surface and Clean-in-Place cleaning formulations
- Advanced laundry detergents
- Oil Field scale inhibitor for preventing scale in well formation and production equipment

Technical Information

Flexisperse 835 is a maleic copolymer specifically designed as a co-builder for effectiveness in alkaline pH hypochlorite solutions. With unique composition and optimized molecular weight, Flexisperse 835 is a high performance scale inhibitor polymer used to control the formation of CaCO_3 , CaSO_4 and other mineral salt scales on heat exchange surfaces.

Flexisperse 835 is a functional co-builder ingredient in automatic warewashing, Industrial and Institutional clean-in-place formulations where high pH and bleach stability are required. Benefits include decreases organic soil deposition, reduces precipitation and scale formation, and prevents buildup of calcium carbonate on fabrics and allows extended use of soda ash as an economical builder.

Formulary

Use at a rate of 5-10 ppm solids to control scale build-up on equipment and heat exchange surfaces. In Oil Field applications, 5-10 ppm solids is effective for scale control on equipment and downhole.

Typical Properties

PROPERTY	VALUE
Appearance	Clear to hazy liquid
Color	Colorless to light yellow
Odor	Mild
Ionic character	Anionic
Water solubility	Soluble
Average molecular weight (Mw)	9,000-11,000
Viscosity @25°C (Brookfield), MPa·s/cps	100-500
Total solids, %	40.0-43.0
pH (as is)	6.5±0.5
Density@25°C	1.20±0.1 g/ml
Boiling Point	100°C
Flash point	None (aqueous)
Storage	Stable to freezing
Shelf life	12 months

Packaging and Handling

Flexisperse 835 is available in:
Bulk (44,000 lbs)
275 gallon totes (Net Wt. 2750 lbs)
55 gallon plastic drums (Net Wt. 550 lbs)

Refer to the Safety Data Sheet (SDS) for information on the safe use, handling, and disposal of this product.

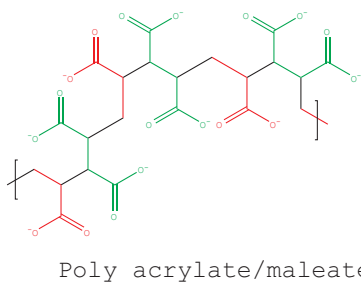
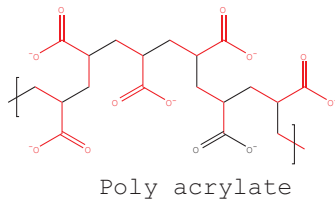
DOT Classification: Non-Regulated

Whether you're looking for a replacement product or an ingredient for a specific attribute, give us a call. We can provide assistance based upon your particular formulation requirements and composition; please feel free to contact us.

Please refer to back page for important information

Flexisperse 835 Effective Scale Inhibition in highly alkaline conditions

Stressed conditions comprising environments of high-alkalinity, high-hardness, high-electrolyte concentrations and/or high-temperature, with hypochlorite stability represent extreme conditions that can overwhelm the functionality of simple polyacrylates in controlling hard water scale and deposits.



Developed to overcome the deficiencies of acrylic homopolymers for effective scale and deposit control performance in stressed conditions, maleic copolymers exhibit a higher charge density and resist polymer “coiling” and “balling” that can lead to precipitation and loss of functionality. Maleic copolymers have been developed through applications testing and proven in the field as effective tools in controlling scale and hard water salt deposits.

Unlike sequestering agents that function necessarily on a stoichiometric basis, Flexisperse 835 functions at very low ratios of polymer to precipitating salt, for example as little as 5 ppm Flexisperse 835 can avoid precipitation of as much as 500 ppm CaCO₃. Similarly unlike stoichiometric sequestering agents, the mixed mechanism of Threshold and Crystal Distortion effects exhibited by Flexisperse 835 does not result in metal complexes that can react or catalyze reactions.

Flexisperse 835 Functionality

With an optimal molecular weight and molecular weight distribution in the recognized effective range of 9,000-11,000, Flexisperse 835 treatment inhibits scale formation by two primary non-stoichiometric mechanisms: **Threshold effect** and **Crystal Distortion effect**.

Threshold effect

Flexisperse 835 exhibits a Threshold/Solubility enhancement effect, associating and complexing with hard water ions to retard the formation of insoluble hard water salts or scale “seeds,” and preventing scale seeds from growing into scale crystals, thereby reducing the precipitation of low solubility inorganic salts.

Crystal Distortion effect

For formed and growing crystals, Flexisperse 835 polymer strands adsorbed into the crystal matrix distort and disrupt the crystal matrix. Crystal Distortion effect results in irregular, readily fracturable particles that do not effectively adhere to surfaces and are more easily removed during cleaning processes.

Flexisperse 835 Applications

Flexisperse 835 is a functional co-builder ingredient in automatic warewashing, Industrial and Institutional clean-in-place formulations, and highly concentrated detergents. Benefits include decreased organic soil deposition, reduced precipitation and scale formation, and prevention of buildup of calcium carbonate on fabrics and allows extended use of soda ash as an economical builder.

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