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HAJ SOL 425 N Detergent Polymer

Description

HAJSOL 425N is an acrylic acid copolymer which provides superior threshold effect and scale inhibition in automatic dishwashing, industrial and institutional cleaners.

Chemistry and Mode of Action

Anti-precipitation: HAJSOL 425N will increase solubility of precipitating salts by threshold effect. Solubility enhancement by threshold effect, which reduces precipitation of low solubility inorganic salts (calcium carbonate in particular). This will prevent film formation on glass and dishware as well as mineral encrustation (graying) on the fabrics.

Crystal distortion: the polymer gets entrapped into crystal lattices, preventing their growth and facilitating their breakage. Crystal growth modification, which deforms the growing inorganic salt crystal to give small, irregular, readily fractured crystals that do not adhere well to surfaces and can be easily removed during cleaning operations.

Dispersing properties: dispersing activity which prevents precipitated crystals or other inorganic particles from agglomerating and depositing on surfaces.

Binding: the chemical nature of this functionalized acrylate enables its use in specific applications where higher binding capacity vs. Ca²⁺, Mg²⁺ and divalent metal ions is required.

Benefits

HAJSOL 425N is a suitable cobuilder in automatic dishwashing, institutional and industrial cleaners. It can also be used in advanced laundry detergents with a high content of soluble and/or precipitating builders.

The following

advantages can be obtained from its use:

- Especially high performance in carbonate rich, low to no phosphate systems
- Inhibition of crystal growth, enabling it to prevent precipitation of insoluble salts
- Dispersion of precipitates in the cleaning bath to avoid settling and scale formation on hard surfaces and fibers
- Improve filming on glassware, ceramic plates, and flatware
- Can be used across a wide range of alkalinity levels, from medium to very alkaline formulations. Has a moderate to high solubility in caustic media (can be incorporated in NaOH or KOH based formulations).
- Use in chlorinated formulation due to its bleach stable structure. In addition, HAJSOL 425N can contribute to an increase of chlorine stability by binding heavy metals which act as catalysts to reduce chlorine species.

Typical Physical Properties

These properties are typical but do not constitute specifications.

| | | |
|---------------------------------------|---|--|
| Appearance | : | Clear fluid, free of visible foreign matter |
| Chemical nature | : | Acrylic copolymer |
| Grade | : | Neutralized form Sodium salt |
| Average molecular weight (Mw) | : | 1900 |
| Total solids | : | 50% |
| pH as is (at 25°C) | : | 7.5 |
| Brookfield Viscosity (at 25°C) | : | 2000 mPa.s/cps |

**Mineral Encrustation Inhibition in Laundry Formulation Without Zeolite
Effect of Various Polycarboxylates on Film Inhibition**

(No Phosphate/Intermediate-High Carbonate)

% Ash After 25 Cycles – Silicate/Carbonate/Bicarbonate 2/1/1

4% dry polymer - 60°C - 500 ppm as CaCO₃ hardness

% Ash After 25 Cycles – Silicate/Carbonate/Citrate 1/1/1

4% dry polymer - 60°C - 500 ppm as CaCO₃ hardness

Kenmore Dishwashers, 5 Cycles, 300 ppm (3/1 Ca⁺⁺/Mg⁺⁺) Water Hardness,
130°F, No Food Soil, ASTM Rating System (1 = Clean Glass, 5 = Heavily Filmed)

Dose Rates

An optimal effectiveness will be obtained when using this polymer at levels between 125 and 500 ppm in wash baths for household applications, and between 100 to 500 ppm for industrial purposes.

This will generally correspond to 2 to 8% of polymer as is in powdered formulations.

HAJSOL 425N is an excellent scale inhibitor for phosphate free automatic dishwashing formulations, based on a carbonate/silicate/citrate combination. HAJSOL 425N is a high performing threshold agent for very alkaline and chlorinated cleaners. HAJSOL 425N is particularly effective when used in zeolite free laundry detergents to maintain whiteness and avoid mineral encrustation on the fabrics. Performance superiority is maximized in high carbonate formulations.

Material Safety Data Sheets

HAJ EXPORTS Company maintains Material Safety Data Sheets (MSDS) on all of its products. These contain important information that you may need to protect your employees and customers against any known health and safety hazards associated with our products.