



ACUMER™ 1051

Scale Inhibitor for Sugar Process

Description

ACUMER™ 1051 is a low molecular weight (LMW) polyacrylic acid polymer that can be used as a scale inhibitor during sugar processing. The product has U.S. Food and Drug Administration (FDA) clearance for food contact use.

Features and Benefits

- High performance scale inhibition that can be used in sugar evaporators.
- Wide range of activity on calcium oxalate, calcium sulfate and calcium carbonate scales.
- FDA cleared under regulation 21 CFR 173.73 (sodium polyacrylate).
- Intrinsically Kosher (manufactured with no raw materials of animal origin).
- Shows a higher degree of solubility in presence of calcium ions than other higher molecular weight polymers.

Typical Physical Properties

(These properties are typical but do not constitute specifications).

Property	Typical Values
Molecular Weight (average)	2000-2300
pH (fully neutralized)	7
Solids, %	43
Density @ 25°C, lb/gal (g/cc)	10.3 (1.22)
Brookfield Viscosity, mPa.s/cps @ 25°C (#2 @ 30 rpm)	200
Color, APHA	100
Appearance	colorless to straw colored, clear to slightly hazy homogeneous solution, FFVFM*

*free from visible foreign matter

Anti-Precipitation Performance

ACUMER™ 1051 polymer is a general purpose scale inhibitor, as it is effective to inhibit precipitation of calcium carbonate, calcium oxalate, calcium sulphate, barium sulphate, and other low solubility salts.

Sugar Processing Application

Heavy scaling occurs all along the evaporation line where the thin juice must be concentrated before crystallization. Without any treatment, scaling is responsible for progressively dropping the production capacity and increasing the manufacturing costs and the demand of energy. At the final stage the sugar mill must be shut down for cleaning.

Scale inhibitors are necessary to inhibit the deposition taking place in the different evaporators' bodies. ACUMER™ 1051 is particularly recommended in beets and cane sugar mills whenever the scale formed is mainly based on calcium carbonate, calcium oxalate and calcium sulphate. Optimization of the treatment with ACUMER 1051 is generally reached by injecting the product in different injection points of the evaporation bodies.

Performance Data

Scale	Test Conditions	% Inhibition ACUMER 1051	No Polymer
Calcium Oxalate	100 mg/l CaC ₂ O ₄ 50°C/18 hrs	40	0
Calcium Sulfate	5450 mg/l CaSO ₄ 50°C/72 hrs	100	0
Calcium Carbonate	850 mg/l CaCO ₃ 70°C/16 hrs	29	0

Handling Precautions	Before using this product, consult the Material Safety Data Sheet (MSDS)/Safety Data Sheet (SDS) for details on product hazards, recommended handling precautions and product storage.
Storage	Store products in tightly closed original containers at temperatures recommended on the product label.
Disposal Considerations	Dispose in accordance with all local, state (provincial) and federal regulations. Empty containers may contain hazardous residues. This material and its container must be disposed in a safe and legal manner.
	It is the user's responsibility to verify that treatment and disposal procedures comply with local, state (provincial) and federal regulations. Contact your Dow Technical Representative for more information.
Chemical Registration	Many countries require the registration of chemicals, either imported or produced locally, prior to their commercial use. Violation of these regulations may lead to substantial penalties imposed upon the user, the importer or manufacturer, and/or cessation of supply. Ensure that all chemicals are registered as required before use.
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