INITIA® 585

Enhanced Polymaleic Acid™

overview

INITIA® 585 is an enhanced polymaleic acid (empa) that improves upon the exceptional performance of traditional polymaleic acid (pma). INITIA® 585 is differentiated from traditional pma in that it is optimized for adsorption onto forming mineral scales such as calcium carbonate. This optimization and improved surface adsorption results in profound distortion of forming crystal habits and provides effective threshold inhibition in demanding applications. INITIA® 585 is designed for control of mineral scales such as calcium carbonate, calcium sulfate, and barium sulfate in a wide variety of water treatment applications.

typical properties

appearance	dark amber liquid
solids content	46-51%
pH (as is)	< 2.5
viscosity at 25°C	< 100cps
density at 20°C	1.18 +/- 0.04 g/ml
solubility in water	complete
residual monomer	<0.1%

INITIA® 585 DELIVERS

- exceptional stability in severe applications
- best-in-class crystal habit modification
- highly effective calcium carbonate inhibition
- improved polymerization process
- enhanced quality, low residual monomer

SUGGESTED APPLICATIONS

- cooling towers
- boilers (<400psi)
- reverse osmosis
- thermal desalination
- mining
- oilfield and natural gas
- pulp and paper

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radical polymers®

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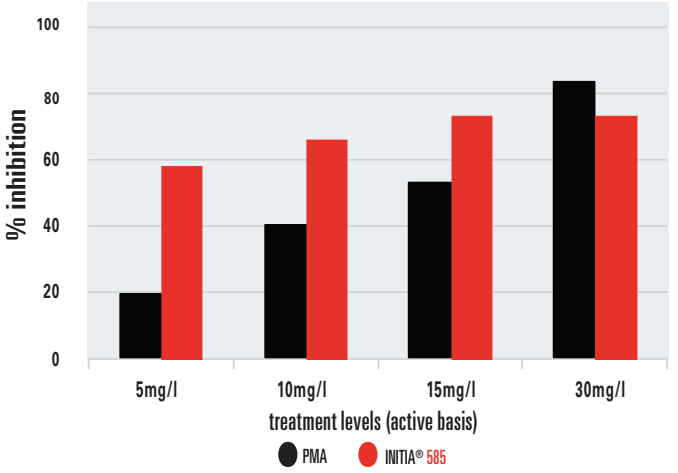
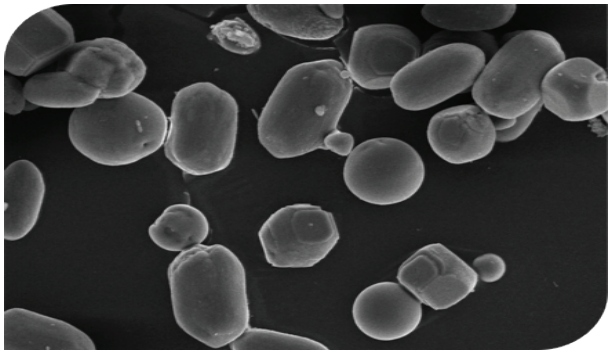
threshold inhibition

A comparison of **INITIA® 585** and traditional pma as threshold inhibitors was conducted using a severe calcium laboratory static testing method. In this method, 50 ml of a solution containing 1200mg/l Ca^{2+} was added to a french square bottle and treated with the indicated polymer dosage (as active.) Then 50 ml of a solution containing sodium carbonate (150 mg/l as CO_3^{2-}), sodium bicarbonate (450 mg/l as CO_3^{2-}), and a borate buffer (98 mg/l $B_4O_7^{2-}$) was added to the calcium/polymer solution. All samples had a measured pH of ~9.0 and were capped and placed in a water bath at 50° C for 18 hours. The Langelier Saturation Index was calculated to be ~ 3.0. In this evaluation, **INITIA® 585** and pma were compared across increasing dosages of 5, 10, 15, and 30 mg/l on an active polymer basis. The results are show both materials to be effective with **INITIA® 585** outperforming pma at lower treatment levels.

calcium carbonate inhibition - severe calcium



crystal habit modification with INITIA® 585

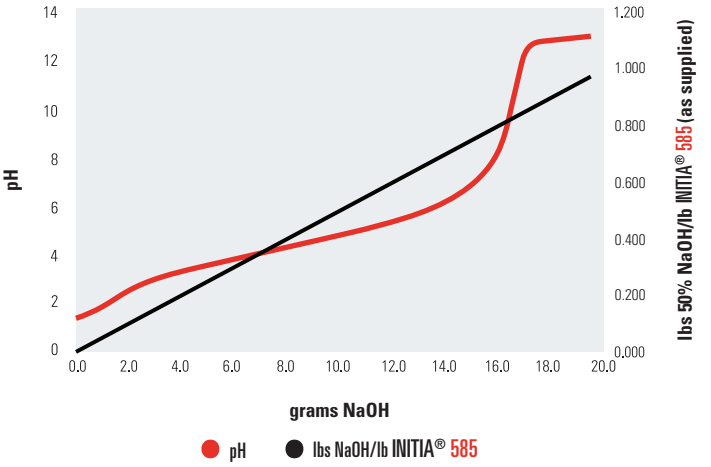


product neutralization

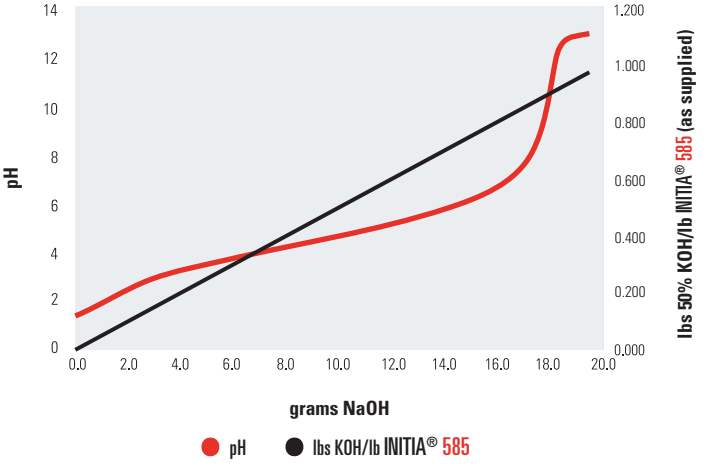
INITIA® 585 is supplied as a concentrated (~50%) enhanced polymaleic acid at a pH of <2.0. The neutralization **INITIA® 585** is exothermic and can produce a rapid increase in heat during formulation.

INITIA® 585 should be diluted to the desired final formulation concentration with deionized water prior to adding a neutralizing agent. Neutralizing agents should be added slowly until the desired pH is achieved. Effective neutralization is possible without observing product precipitation using either NaOH or KOH. The graphs below indicate the approximate amount of NaOH or KOH required to neutralize **INITIA® 585** to a given final pH.

INITIA® 585 neutralization - 50% NaOH



INITIA® 585 neutralization - 45% KOH



safety use and handling

Consult the Safety Data Sheet (SDS) for further information regarding the safe handling and use of **INITIA® 585**. This product should be stored in a cool/dry place and must be protected from freezing. Avoid storage at high temperatures (>90°F), direct sunlight, and exposure to surface, airborne or other common environmental contaminants such as debris, bacteria, yeast, and mold.