



Hybrid polymer technology

Combining plant based polysaccharides and petrochemical based synthetic monomers

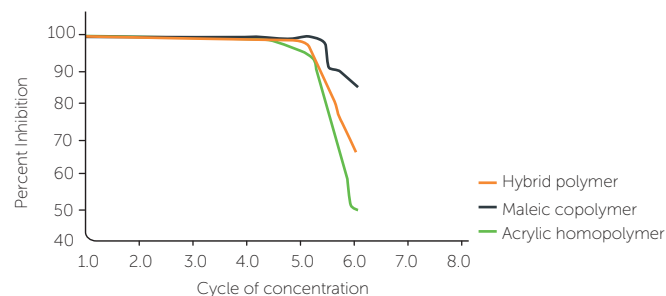
Aquatreat® hybrid polymers combine the benefits of both synthetic and natural materials in one molecule to provide improved performance and greater sustainability in industrial water treatment.

Benefits

- Less dependence on synthetic monomers
- Greater sustainability
- Favorable environmental impact
- Improved performance over synthetics
 - Superior calcium carbonate inhibition
 - Excellent stability to hypochlorite/bleach
 - Improved iron stabilization properties
 - Remarkable prevention of adherent deposits
 - Directly replaces synthetics in formulations

Pilot evaluations

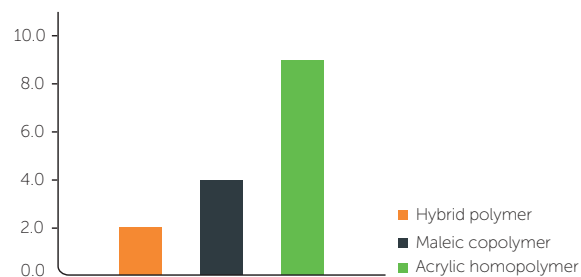
Calcium threshold inhibition



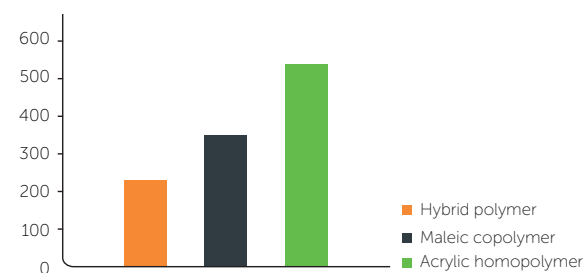
Hybrid polymer selection guide

Product	Name composition	Total solids (%)	pH	Use pattern
Aquatreat® HP 365	Polysaccharide with acrylic acid and maleic acid	45	5.5	Severe calcium scaling conditions
Aquatreat® HP 250	Polysaccharide with acrylic acid	40	5.0	General purpose antiscalant / dispersant

Iron deposition on heat exchangers



Calcium deposition on heat exchangers



Nominated for "P2 recognition" by the EPA
P2 honors companies for developing innovative technologies that address the environment.

- Safer substitutes
- Lowering toxicity
- Pollution prevention and source reduction
- Reductions in exposures or releases
- Conserving energy and water

Operating parameters

Flow velocity = 0.9 m/sec,
Bulk water temp. = 106–110°F,
Heat flux = 16,000 BTU/ft²/hr.

Water chemistry at 1.0 cycle of concentration:

100.0mg/L Ca as CaCO₃, 49.2mg/L Mg as CaCO₃,
0.20mg/L Fe,
162.1 M Alkalinity.

Contact us directly for detailed product information and sample requests.

USA and Canada

Chicago, USA
T +1 800 906 9977

China

Shanghai, China
T +86 21 2220 5000

Europe

Stenungsund, Sweden
T +46 303 850 00

South America

Itupeva, Brazil
T +55 11 4591 8938

South East Asia

Singapore
T +65 6635 5183

Middle East

Dubai, United Arab Emirates
T +971 (0) 4 2471500

Central America and Caribbean

Mexico City, Mexico
T +52 55 5261 7895

India

Mumbai, India
T +91 22 6842 6700

Russia

Moscow, Russia
T +7 495 766 1606

About Nouryon

We are a global specialty chemicals leader. Markets worldwide rely on our essential chemistry in the manufacture of everyday products such as paper, plastics, building materials, food, pharmaceuticals, and personal care items. Building on our nearly 400-year history, the dedication of our 10,000 employees, and our shared commitment to business growth, strong financial performance, safety, sustainability, and innovation, we have established a world-class business and built strong partnerships with our customers. We operate in over 80 countries around the world and our portfolio of industry-leading brands includes Eka, Dissolvine, Trigonox, and Berol.

For more information visit surfacechemistry.nouryon.com

All information concerning our products and/or all suggestions for handling and use contained herein (including formulation and toxicity information) are offered in good faith and are believed to be reliable. However, Nouryon makes no warranty express or implied (i) as to the accuracy or sufficiency of such information and/or suggestions, (ii) as to any product's merchantability or fitness for a particular use or (iii) that any suggested use (including use in any formulation) will not infringe any patent. Nothing contained herein shall be construed as granting or extending any license under any patent. The user must determine for itself by preliminary tests or otherwise the suitability of any product and of any information contained herein (including but not limited to formulation and toxicity information) for the user's purpose. The safety of any formulations described herein has not been established. The suitability and safety of a formulation should be confirmed in all respects by the user prior to use. The information contained herein supersedes all previously issued bulletins on the subject matter covered.

Products mentioned are trademarks of Nouryon and registered in many countries.

Nouryon