

## Alcoguard® H 5941

### Readily biodegradable hybrid polymer

Alcoguard H 5941 is a sustainable and versatile hybrid polymer. This novel product based on unique and patented technology is readily biodegradable and derived from 75% bio-based materials.

### A greener choice—Alcoguard H 5941 represents the next generation of hybrid polymers.

Hybrid polymers are a marriage of selected polysaccharides and synthetic monomers combined into one molecule to make the hybrid polymer. Designed to prevent scale formation in detergent applications such as automatic dishwash, laundry and hard surface cleaning, Alcoguard H 5941 hybrid polymer is particularly effective at minimizing filming and spotting in zero phosphate automatic dishwasher formulations and works as effectively as synthetic copolymers.

#### Environmental benefits

Alcoguard H 5941 is primarily made from polysaccharides, not petrochemicals. This eco-premium technology performs similarly to widely available synthetic petrochemicals but is based on 75% renewable resources.

Alcoguard H 5941 has a significantly lower carbon footprint (lifecycle assessment available) than traditional petrochemical based polymers.

Hybrid polymers are significantly more biodegradable than typical synthetic polymers, which makes them an attractive environmentally friendly alternative to traditional polymers.

#### With Alcoguard H 5941:

- buy one ton of product, save more than 500 kg of CO<sub>2</sub> from raw material manufacturing emissions
- renewable carbon index of 75%

- product is readily biodegradable – both aerobically and anaerobically following the OECD 301B and 311 TG protocols
- compliant with EU Ecolabel requirements

#### Alcoguard H 5941 in automatic dishwasher (ADW)

With the newest amendment (No 259/2012) of the EU Detergents Regulation No 648/2004, reducing phosphates and other phosphorous compounds in 'consumer' automatic dishwasher detergents as from 1 January 2017, co-builders play an even more important role. Polycarboxylates, which are used as co-builders need to perform to the highest standard with weaker builders replacing phosphates. They prevent the formation and the deposition of scales on dishes (filming and spotting), glassware, cutlery etc. Polycarboxylates generally used in ADW formulations provide:

- Threshold stabilization (polymer sequesters Ca<sup>2+</sup> and Mg<sup>2+</sup> to prevent the formation of insoluble salts)
- Dispersion (polymers disperse particles using steric stabilization and electrostatic repulsion)
- Crystal growth inhibition

Alcoguard H 5941 provides the same functions as synthetic polycarboxylates in ADW formulations.



P-AA-MA  
copolymer

Alcoguard  
H 5941

Sulfonated  
copolymer

No polymer

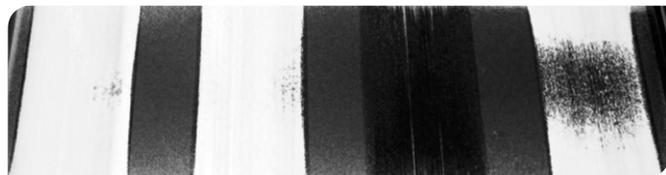
**Rinse performance test method**  
(adapted version of testing conditions, used by several external testing institutes within EU). Formula based on the standard IEC-B for dishwashers; 6% polymer - as 100% active

Dishwasher: Miele G1222SC  
Program: R50° 3'/8'20" Kl65  
Water hardness: 11°dH  
Rinse aid: None  
Soil: 50 g/wash  
3 cumulative tests

## Alcoguard H 5941 in hard surface cleaning (HSC)

Due to the chemical structure of the hybrid polymers, mixing natural and synthetic monomers, they show high stability in alkaline conditions, which makes them suitable for household as well as Industrial & Institutional (I&I) cleaning applications.

A small addition of Alcoguard H 5941 in HSC products boosts the overall cleaning performance of the formulation.



P-AA-MA  
copolymer

Alcoguard  
H 5941

Market reference

No polymer



## Alcoguard H 5941 in laundry detergents

The enhanced solubility of Alcoguard H 5941 makes it an excellent anti-redeposition polymer in laundry detergents. Alcoguard H 5941 powers the electrostatic stabilization of particulate soil, thanks to the steric hindrance of the polysaccharides parts, and is very effective in crystal growth inhibition. All of this makes Alcoguard H 5941 a revolutionary polymer which performs as well as the standard polyacrylate based polymers.



## Bio-based and readily biodegradable

Most polycarboxylates used as builders, antiscalants and dispersants in cleaning applications are synthetic polycarboxylates which have very limited biodegradation and no bio-based content. Alcoguard H 5941 is different. It is majority biobased and is readily biodegradable in the environment – characteristics that are desired by today's consumer. A key deliverable in the development of this product was to achieve the same or enhanced technical performance in cleaning formulations as synthetic polycarboxylates, while being more sustainably sourced, with lower overall impact on the environment. Alcoguard H 5941 has been reviewed by EPA's Safer Choice Program and qualifies for use in Safer Choice-certified products. Alcoguard H 5941 also complies with EU Ecolabel requirements.

Contact us directly for detailed product information and sample request at [cleaning@nouryon.com](mailto:cleaning@nouryon.com)

**USA and Canada**  
Chicago, USA  
T +1 312 544 7000

**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](http://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