



The perfect
sustainable fit for
NP9 replacement



Berol® 609

Nouryon

Direct drop-in replacement for NP9

The smart chemistry of Berol® 609 is designed to match the key properties of NP9 while providing many additional benefits. It is the heart of high performance degreasing.

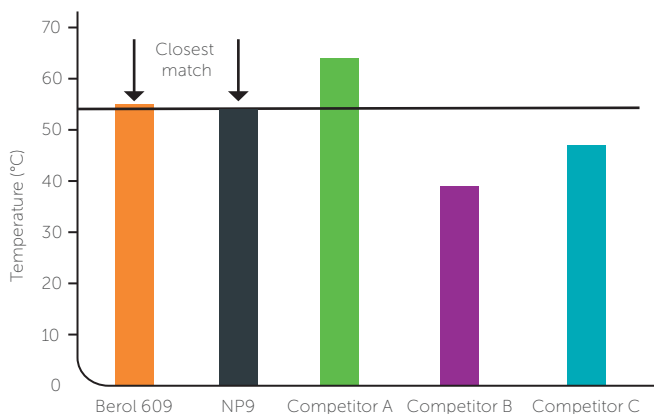
It delivers the excellent cleaning performance of NP9 without all of the environmental concerns and with no need to modify your existing formulations. Berol 609 dissolves faster in cold water, reducing processing times and is much easier to handle at low temperatures.

Berol 609 exceeds the degreasing power of other leading NP9 replacements. Berol 609 is an alcohol ethoxylate that was carefully designed to be a direct drop-in replacement for NP9 in aqueous cleaning formulations, so no further changes are needed to maintain the performance of your existing formulation. Besides, the product has a lower pour point and viscosity than NP9 resulting in easier handling for you.



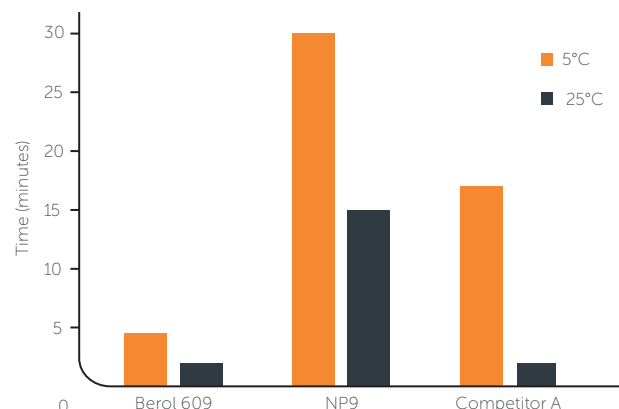
Nouryon is striving to deliver long-lasting solutions to the global market with products that reduce our environmental footprint and raw material consumption. Ready to use in your Safer Choice formulations, Berol 609 is an environmentally friendly product with 0% VOC, specially developed to meet the demands of tomorrow. Berol 609 is a registered CleanGredient and has been reviewed by the U.S. EPA Safer Choice Program and qualifies for use in Safer Choice-certified products.

Cloud points of NP9 replacers (1% surfactant in water)



Berol 609 most closely matches the cloud point of NP9 compared to other alcohol ethoxylates (Competitors A, B, C) used to replace NP9.

Dissolving rates



Berol 609 dissolves much faster in cold water than NP9 and competitive NP9 replacers (5% surfactant in water, stirred @ 400rpm).

Berol 609 is perfect for a wide range of applications

- Multi-purpose hard surface cleaners
- Industrial cleaners (heavy duty degreasers, metal cleaning)
- Vehicle and engine cleaning
- Anywhere you are looking to replace NP9 without losing performance

Berol 609 cleaning formulations have superior stability at elevated storage temperatures

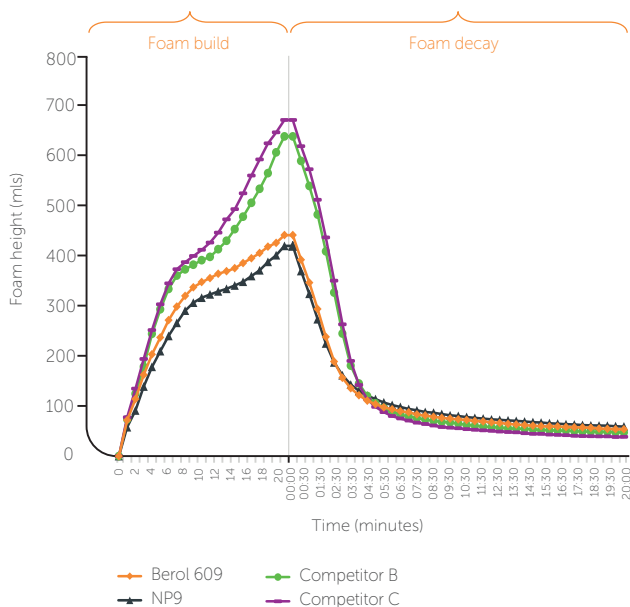
Surfactant	Room temperature	1 day at 40°C	1 day at 50°C
Berol 609	Clear	Clear	Clear
NP9	Clear	Clear	Slightly hazy
Competitor B	Hazy	Cloudy	Cloudy
Competitor C	Clear	Clear	Cloudy



Formulation (% w/w active content)

1.0%	Surfactant as supplied
1.5%	Dissolvine® 100-S (~40% NaEDTA, aqueous solution)
Balance	Water

SITA foam profile of 0.1% surfactant in water at 25°C



Berol 609 exhibits lower foaming than competitive NP9 replacers for better rinsability. SITA foam profile of 0.1% surfactant in water at 25°C (stirred 20 times @1000rpm for 10 seconds with foam height measurement each time, foam decay measured every 15 seconds over 20 minutes).

The low CMC of Berol 609 enables good fragrance emulsification

Product name	CMC (mg/l) at 25°C
Berol 609	57.4
NP9	61.4
Competitor B	113.2
Competitor C	290.5

Features and benefits

- Direct drop-in replacement for NP9 - no need to modify existing formulations
- Dissolves faster in cold water reducing processing time
- Low CMC enables good fragrance emulsification
- Low foam in water and formulation for better rinsability
- Ready to use in your Safer Choice formulation

Contact us directly for detailed product information
and sample request at 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

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