The perfect sustainable fit for NP9 replacement

Berol® 609
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.

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).

Nouryon is striving to deliver long-lasting solutions to the global market with products that reduces 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.
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

<table>
<thead>
<tr>
<th>Surfactant</th>
<th>Room temperature</th>
<th>1 day at 40°C</th>
<th>1 day at 50°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Berol 609</td>
<td>Clear</td>
<td>Clear</td>
<td>Clear</td>
</tr>
<tr>
<td>NP9</td>
<td>Clear</td>
<td>Clear</td>
<td>Slightly hazy</td>
</tr>
<tr>
<td>Competitor B</td>
<td>Hazy</td>
<td>Cloudy</td>
<td>Cloudy</td>
</tr>
<tr>
<td>Competitor C</td>
<td>Clear</td>
<td>Clear</td>
<td>Cloudy</td>
</tr>
</tbody>
</table>

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

The low CMC of Berol 609 enables good fragrance emulsification

<table>
<thead>
<tr>
<th>Product name</th>
<th>CMC (mg/l) at 25°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Berol 609</td>
<td>57.4</td>
</tr>
<tr>
<td>NP9</td>
<td>61.4</td>
</tr>
<tr>
<td>Competitor B</td>
<td>113.2</td>
</tr>
<tr>
<td>Competitor C</td>
<td>290.5</td>
</tr>
</tbody>
</table>

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

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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