INSTRUCTIONS

Surfact-Amps® NP-40

28324

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>28324</td>
<td>Surfact-Amps® NP-40, 6 x 10 ml ampules, contains 10% aqueous Nonidet P-40 packaged under nitrogen</td>
</tr>
</tbody>
</table>

Storage: Upon receipt store product at room temperature protected from light.

Introduction

Surfact-Amps® NP-40 is a nonionic, nondenaturing detergent that has been highly purified and packaged under nitrogen for maximum stability. This product provides convenience, quality and consistency for all detergent applications. Because this detergent breaks up lipid:lipid and lipid:protein interactions, it is commonly used to study lipids and subunit membrane structures of membrane proteins. Surfact-Amps® NP-40 has dual hydrophobic/hydrophilic properties and a polyoxyethylene chain length (~14 Å) that allows lipid displacement and provides a lipid-like environment for membrane proteins. Other applications for NP-40 include cell lysis, delipidation, protein dissociation into subunits and isoelectric focusing. NP-40 has been used in detergent blotting techniques to screen integral membrane proteins after separation by SDS-PAGE and to prevent nonspecific binding in affinity column chromatography applications.

Important Product Information

- Surfact-Amps® NP-40 is packaged under nitrogen in sealed ampules for maximum stability. This detergent readily oxidizes when exposed to air and UV-light that leads to impurity absorption. Some impurities, especially peroxides can destroy protein activity.1,2 Also, oxidation can cause reduction in solubilization potential.

- The phenyl group in the NP-40 molecule (Figure 1) results in significant absorbance at 280 nm. To determine protein concentrations in solutions containing ≤ 5% NP-40, use BCA™ Protein Assay Kit (Product No. 23227) or Micro BCA™ Protein Assay Kit (Product No. 23235).

- NP-40 has a low critical micelle concentration (CMC) of approximately 0.29 mM and, therefore, is difficult to remove by dialysis. Ionic strength of the solution has minimal effect on the CMC; however, increasing temperatures will significantly increase the CMC. The cloud point is approximately 80°C but can be lowered by high ionic strengths and additives. See Table 1 for additional properties of NP-40.

- Extracti-Gel™ D Detergent Removing Gel (Product No. 20346) has been successfully used to remove Surfact-Amps® NP-40 from protein solutions (proteins must be greater than 10 kDa). One milliliter of gel can remove up to 75 mg of Surfact-Amps® NP-40 in deionized water. Any buffer at pH 3.5-10.0 can be used with this detergent removing gel.

![Figure 1. Chemical structure of Surfact-Amps® NP-40.](image)

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Table 1. Properties of Surfact-Amps® NP-40.

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloud Point</td>
<td>80°C</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>~602</td>
</tr>
<tr>
<td>*CMC</td>
<td>0.29 mM</td>
</tr>
<tr>
<td>Micelle Molecular Weight</td>
<td>90K</td>
</tr>
<tr>
<td>**CMT</td>
<td>&lt; 0°C</td>
</tr>
<tr>
<td>pH of a 1% solution</td>
<td>8.1</td>
</tr>
<tr>
<td>***HLB</td>
<td>13.1</td>
</tr>
</tbody>
</table>

*Critical micelle concentration.
**Critical micelle temperature, which is the lowest temperature that micelles can form – below this temperature a crystalline solution is formed.
***Hydrophilic-lipophilic balance, which is the index of detergent hydrophilicity.

**Additional Information**

Please visit the Pierce web site for additional information relating to this product including the following items:

- Tech Tip: Protein Stability and Storage
- Tech Tip: Detergent Removal from Protein Samples

**Related Pierce Products**

- 20346 Extracti-Gel™ D Detergent Removal Gel, 5 × 1 ml pre-packed columns
- 89849 Protein Desalting Spin Columns, 25 columns
- 89864 2-D Sample Prep for Membrane Proteins, contains sufficient components to prepare and process 25 membrane protein extracts for 2-D gel analysis

**Cited References**


**General References**


The most current versions of all product instructions are available at www.piercenet.com. For a faxed copy, contact customer service (in the USA call 800-874-3723) or your local distributor.