

# ACID/ALKALI SOLUBILITY

## FOR HI&I CLEANING

### ACID SOLUBILITY:

Certain industrial cleaning operations require surfactants that exhibit solubility in highly acidic systems. Acid cleaners are used to remove mineral deposits, such as rust and lime, from acid-resistant surfaces. In dairy and food processing, acid cleaners remove milkstone, beerstone, and hard water scale from stainless steel. Acid cleaners are also employed to neutralize any remaining alkali residue from previous alkaline cleaning operations. This sales tool highlights Stepan surfactants that exhibit solubility in 37% hydrochloric acid at 1% active surfactant level.

### TYPICAL APPLICATIONS:

- ◆ Bathroom Cleaners
- ◆ Rust Removers
- ◆ Professional-Strength Toilet Cleaners
- ◆ Dairy Cleaners
- ◆ Food Processing Cleaners
- ◆ Soap Scum Removers

## ACID SOLUBLE

### 37% CONCENTRATION HYDROCHLORIC ACID (HCl)

<b>ACCOSOFT® 365</b>	Tallow Polyethoxy Ammonium Methyl Sulfate	<b>BIO-SOFT® N91-8</b>	Linear Alcohol (C9-11) Ethoxylate, POE-6
<b>AMMONYX® CDO SPECIAL</b>	Cocamidopropylamine Oxide	<b>BIO-SOFT® TA-2</b>	Tallow Amine Ethoxylate, POE-2
<b>AMMONYX® CETAC-30</b>	Centrimonium Chloride	<b>CEDEPHOS FA-600</b>	Alkyl Ether Phosphate
<b>AMMONYX® DO</b>	Decylamine Oxide	<b>MAKON® 8</b>	Nonyl Phenol Ethoxylate, POE-8
<b>AMMONYX® LMDO</b>	Lauryl/Myristyl Amidopropylamine Oxide	<b>MAKON® 10</b>	Nonyl Phenol Ethoxylate, POE-10
<b>AMMONYX® LO</b>	Lauramine Oxide	<b>MAKON® 12</b>	Nonyl Phenol Ethoxylate, POE-12
<b>AMMONYX® LO SPECIAL</b>	Lauramine Oxide	<b>MAKON® DA-4</b>	Decyl Alcohol Ethoxylate, POE-4
<b>AMPHOSOL® CA</b>	Cocamidopropyl Betaine	<b>MAKON® DA-6</b>	Decyl Alcohol Ethoxylate, POE-6
<b>BIO-SOFT® EC-600</b>	Lauryl Alcohol (C12) Ethoxylate, POE-7	<b>MAKON® DA-9</b>	Decyl Alcohol Ethoxylate, POE-9
<b>BIO-SOFT® EC-639</b>	Lauryl Alcohol (C12) Ethoxylate, POE-8	<b>MAKON® NF-12</b>	Lauryl Alcohol Alkoxyate
<b>BIO-SOFT® EC-690</b>	Lauryl Alcohol (C12) Ethoxylate, POE-7	<b>MAKON® NF-61L</b>	Polyalkylene Glycol
<b>BIO-SOFT® GSB-9</b>	Nonionic Blend	<b>MAKON® OP-9</b>	Octyl Phenol Ethoxylate, POE-9
<b>BIO-SOFT® N1-5</b>	Linear Alcohol (C11) Ethoxylate, POE-5	<b>MAKON® TD-12</b>	Tridecyl Alcohol Ethoxylate, POE-12
<b>BIO-SOFT® N1-7</b>	Linear Alcohol (C11) Ethoxylate, POE-7	<b>MAKON® TD-18</b>	Tridecyl Alcohol Ethoxylate, POE-18
<b>BIO-SOFT® N1-9</b>	Linear Alcohol (C11) Ethoxylate, POE-9	<b>MERPOL® HCS</b>	Alcohol Ethoxylate
<b>BIO-SOFT® N23-6.5</b>	Linear Alcohol (C12-13) Ethoxylate, POE-6.5	<b>NINOL® 1301</b>	PEG-6 Cocamide
<b>BIO-SOFT® N25-7</b>	Linear Alcohol (C12-15) Ethoxylate, POE-7	<b>NINOL® C-5</b>	PEG-6 Cocamide
<b>BIO-SOFT® N25-9</b>	Linear Alcohol (C12-15) Ethoxylate, POE-9	<b>STEPFAC 8170</b>	Nonylphenol POE-10 Phosphate Ester
<b>BIO-SOFT® N91-6</b>	Linear Alcohol (C9-11) Ethoxylate, POE-6	<b>STEPOSOL® DG</b>	Cationic/Nonionic Blend

### NOTES:

- ◆ Please note that products were only tested based upon solubilization of HCl. Stability testing was not conducted.
- ◆ For surfactants with <37% acid solubility, refer to the **Stepan Product Selector Guide for HI&I Cleaning** at [www.stepan.com](http://www.stepan.com).
- ◆ All products are stocked at our Joliet, IL packaged warehouse with the exception of ACCOSOFT® 365, BIO-SOFT® EC-600, MAKON® DA-4, MAKON® DA-6, MAKON® DA-9, MAKON® NF-61L, MAKON® TD-12, and MAKON® TD-18.

# ACID/ALKALI SOLUBILITY

## FOR HI&I CLEANING

### ALKALI SOLUBILITY:

Certain industrial cleaning operations require surfactants that exhibit solubility in highly alkaline systems. Alkaline cleaners are used for their ability to degrease and remove tough soils. Products with greater caustic solubility are also suitable in formulations that contain a high level of electrolyte (salt solution). This sales tool highlights Stepan surfactants that exhibit solubility in 10-30% sodium hydroxide at 1% active surfactant level.

### TYPICAL APPLICATIONS:

- ◆ Oven Cleaners
- ◆ Floor Strippers
- ◆ “Touchless” Car Wash Detergents
- ◆ Heavy Duty Degreasers
- ◆ Rust Removers
- ◆ Automatic Dishwash Detergents

## ALKALI SOLUBLE

### 20-30% CONCENTRATION SODIUM HYDROXIDE (NaOH)

<b>AMMONYX® CETAC-30</b>	Centrimonium Chloride	<b>AMPHOSOL® CS-50</b>	Cocamidopropyl Hydroxysultaine
<b>AMMONYX® DO</b>	Decylamine Oxide	<b>CEDEPHOS FA-600</b>	Alkyl Ether Phosphate
<b>AMPHOSOL® 2CSF</b>	Disodium Cocoamphodipropionate	<b>STEPANATE® SXS</b>	Sodium Xylene Sulfonate
<b>AMPHOSOL® 810-B</b>	Capryl/Capramidopropyl Betaine		

### 10-20% CONCENTRATION SODIUM HYDROXIDE (NaOH)

<b>ACCOSOFT® 365</b>	Tallow Polyethoxy Ammonium Methyl Sulfate	<b>BIO-SOFT® N91-8</b>	Linear Alcohol (C9-11) Ethoxylate, POE-6
<b>AMMONYX® CDO SPECIAL</b>	Cocamidopropylamine Oxide	<b>MAKON® 10</b>	Nonyl Phenol Ethoxylate, POE-10
<b>AMMONYX® LMDO</b>	Lauryl/Myristyl Amidopropylamine Oxide	<b>MAKON® 12</b>	Nonyl Phenol Ethoxylate, POE-12
<b>AMMONYX® LO</b>	Lauramine Oxide	<b>MAKON® DA-6</b>	Decyl Alcohol Ethoxylate, POE-6
<b>AMMONYX® LO SPECIAL</b>	Lauramine Oxide	<b>MAKON® DA-9</b>	Decyl Alcohol Ethoxylate, POE-9
<b>AMMONYX® MCO</b>	Myristyl/Cetyl Amine Oxide	<b>MAKON® OP-9</b>	Octyl Phenol Ethoxylate, POE-9
<b>AMMONYX® MO</b>	Myristamine Oxide	<b>MAKON® TD-18</b>	Tridecyl Alcohol Ethoxylate, POE-18
<b>AMPHOSOL® CA</b>	Cocamidopropyl Betaine	<b>NINOL® C-5</b>	PEG-6 Cocamide
<b>AMPHOSOL® CG</b>	Cocamidopropyl Betaine	<b>POLYSTEP® B-29</b>	Sodium Octyl Sulfate
<b>AMPHOSOL® HCG-K</b>	Cocamidopropyl Betaine	<b>POLYSTEP® OPA</b>	Potassium Oleate Sulfonate
<b>BIO-SOFT® EC-600</b>	Lauryl Alcohol (C12) Ethoxylate, POE-7	<b>STEPANATE® SCS</b>	Sodium Cumene Sulfonate
<b>BIO-SOFT® N1-7</b>	Linear Alcohol (C11) Ethoxylate, POE-7	<b>STEPANATE® SCS-40</b>	Sodium Cumene Sulfonate
<b>BIO-SOFT® N1-9</b>	Linear Alcohol (C11) Ethoxylate, POE-9	<b>STEPANATE® STS-40</b>	Sodium Toluene Sulfonate
<b>BIO-SOFT® N23-6.5</b>	Linear Alcohol (C12-13) Ethoxylate, POE-6.5	<b>STEPFAC 8170</b>	Nonylphenol POE-10 Phosphate Ester
<b>BIO-SOFT® N25-7</b>	Linear Alcohol (C12-15) Ethoxylate, POE-7	<b>STEPOSOL® DG</b>	Cationic/Nonionic Blend
<b>BIO-SOFT® N91-6</b>	Linear Alcohol (C9-11) Ethoxylate, POE-6		

### NOTES:

- ◆ Please note that products were only tested based upon solubilization of NaOH. Stability testing was not conducted.
- ◆ For surfactants with <10% alkali solubility, refer to the **Stepan Product Selector Guide for HI&I Cleaning** at [www.stepan.com](http://www.stepan.com).
- ◆ All products are stocked at our Joliet, IL packaged warehouse with the exception of ACCOSOFT® 365, AMPHOSOL® 810-B, AMPHOSOL® HCG-K, BIO-SOFT® EC-600, MAKON® DA-6, MAKON® DA-9, MAKON® TD-18, POLYSTEP® OPA, and STEPANATE® STS-40.

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