

# NAXONATE® Hydrotropes



**Product focus.**

**Customer commitment.**

**Performance flexibility.**

# Leading Hydrotrope Production

## For Over 50 Years

Nease has always been a specialist, and a leader, in hydrotrope production. Our innovative expertise generates customized solutions for each customer's unique needs. We either recommend an existing product or develop a new one, depending on the application.

Our NAXONATE® hydrotropes offer:

- Cost-effective performance
- Reformulation for the optimum product
- Answers to solubility problems in a wide variety of commercial applications
- Widespread usage in today's increasingly complex formulas
- Broad formulation, compatibility and effectiveness

NAXONATE® hydrotropes are the most widely used and impact the performance of surfactant systems in a number of ways:

- Solubilize (couple) complex formulas
- Modify cloud point
- Control viscosity
- Minimize cost

# Our broad range of products gives you more formulation flexibility than anyone else in the industry.

## Get Greater Performance

Optimum hydrotrope selection can result in enhanced system performance. NAXONATE® hydrotrope products generate essentially no foam and no wetting action and have minimal influence on surface tension. What they offer is a cost-effective way to solubilize complex formulas, elevate cloud points and control viscosity.

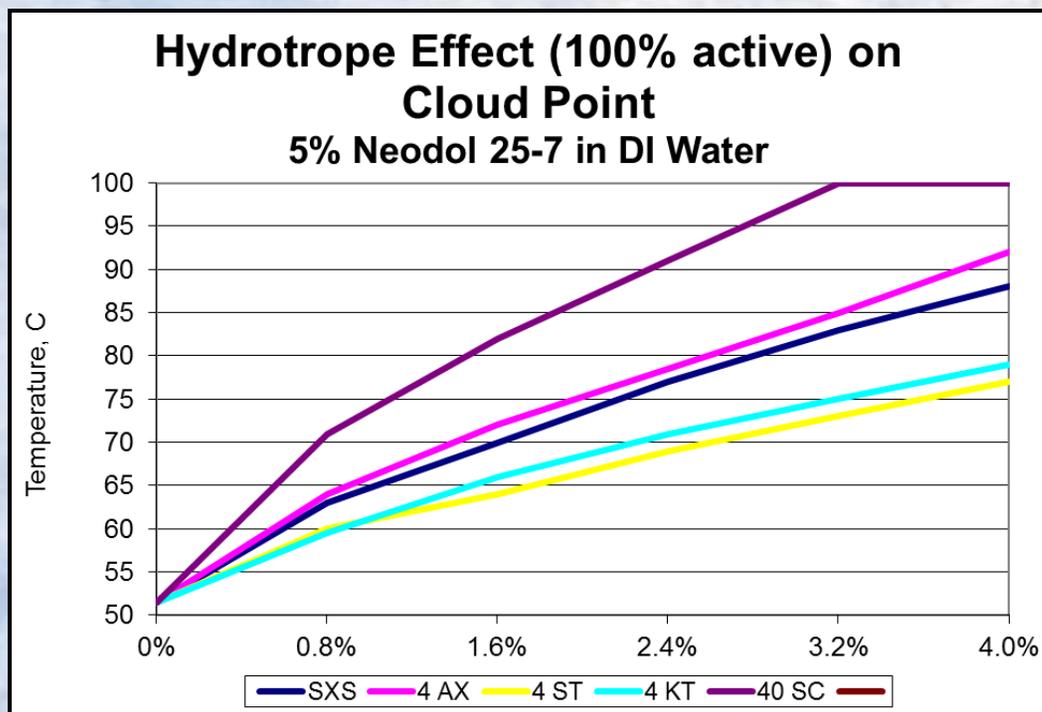
Product Features and Application				PRIMARY APPLICATIONS												
				Heavy-duty Laundry Detergents	Light-duty Liquids	Hand Cleaners	Industrial Cleaners	Metal Cleaners	Metal Working	Transport Cleaners	Personal Care Shampoos	Textile Dye Manufacture	Photographic Chemicals	Water Treatment	Printing Inks	
Naxonate® Hydrotropes	Form	Activity	Product Features													
<b>Sodium Xylene Sulfonate</b>																
Naxonate® 4LS	Liquid	40%	Most widely used hydrotrope. Low sulfone levels.													
Naxonate® 4LOF	Liquid	40%	Highest purity SXS; Low odor. Advantageous in personal care formulations.													
Naxonate® SX	Powder	96%	High activity hydrotrope. Good for high concentration formulations.													
<b>Sodium Cumene Sulfonate</b>																
Naxonate® 40SC	Liquid	40%	Lower activity version of 45SC. Offers better low ambient temperature stability.													
Naxonate® 45SC	Liquid	45%	Generally most effective hydrotrope. Requires higher temperature storage for product stability.													
Naxonate® SC	Powder	96%	Most widely used high activity hydrotrope.													
<b>Toluene Sulfonates</b>																
Naxonate® 4ST	Liquid	40%	Similar coupling performance to SXS in many systems: Lower sulfates and Sulfones than SXS.													
Naxonate® ST	Powder	96%	High activity hydrotrope selected for low sulfate and low sulfone levels.													
Naxonate® 4KT	Liquid	40%	Hydrotrope selected for counter-ion compatibility. Lower sulfate than SXS or STS.													
Naxonate® 4AX	Liquid	40%	Effective in neutral detergents and shampoos. Impacts counter-ion compatibility.													

Liquid hydrotropes are clear, colorless liquids • Low viscosity and easy to handle

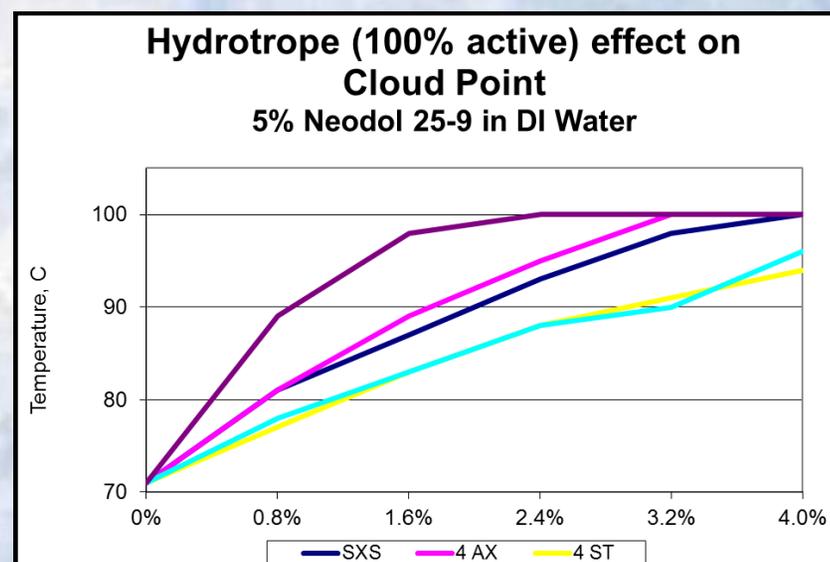
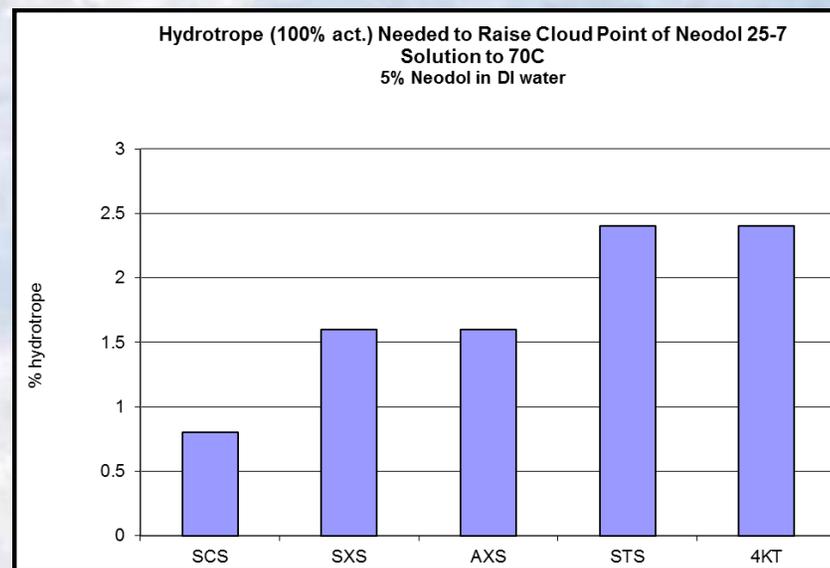
Call Customer service at 888-762-7373 for product specifications and Safety Data Sheets.

# Increase Efficiency

The effectiveness of a hydrotrope is determined by the concentration required to clear or solubilize a formulation at room temperature. The rate of increase of the cloud point is a measure of the efficiency of the hydrotrope.

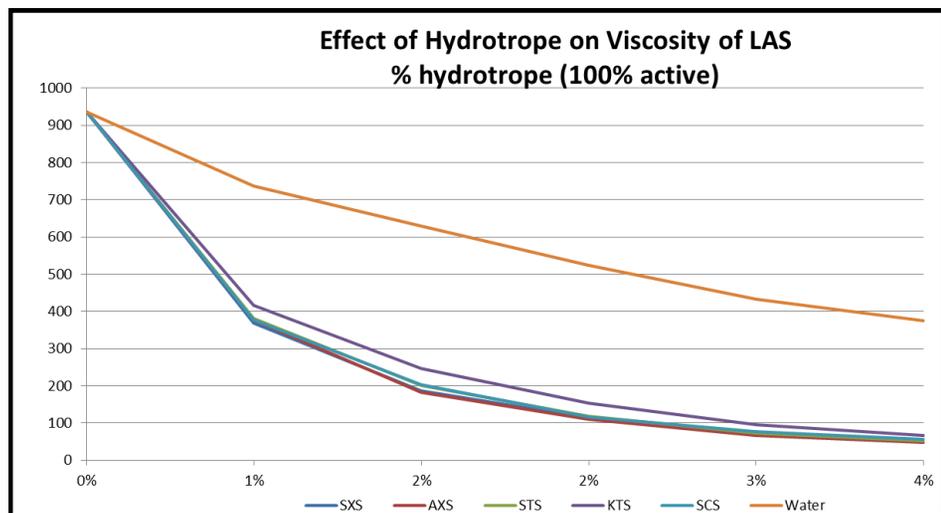
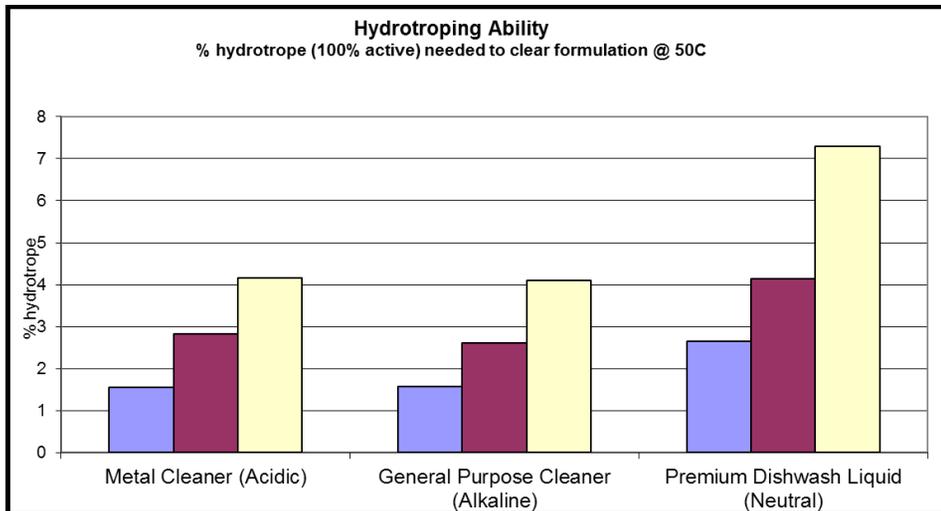


## % Hydrotrope needed to raise Cloud Point of Surfactant Solutions to Target CP



# Viscosity with NAXONATE® hydrotropes is an advantage when formulating products.

Component interactions in more complex formulations affect solubility and viscosity. NAXONATE® hydrotropes effectively modify these properties to provide a commercial product meeting market requirements. In some instances, modifying system viscosity can be a more important function than hydrotrope performance.



## Formulation Freeze/Thaw Stability Enhancement

A dishwash formulation, which is not freeze/thaw stable, is coupled with the hydrotrope at various concentrations and run through freeze/thaw cycles (0° to 50°C). Stability of the formulation after each cycle is observed and recorded.

Premium Dishwash Liquid	
Naxolate® ES-360	8.56
Naxsoft®40S	18.86
Alkanolamide	5.10
Hydrotrope (40%)	4.80
Sodium sulfate	0.64
Sodium Chloride	1.04
Water	to 100

## Pictures of the Dishwash formulation with respective hydrotrope (100% active) added.

These formulations have gone through three freeze/thaw cycles (cycle: 0°C to 50°C). Note that the Sodium Cumene Sulfonate remained stable at 4% addition. Sodium Xylene Sulfonate did not remain stable until 6% hydrotrope was added.



# Handling Characteristics

## Storage Temperatures:

NAXONATE® hydrotropes should be stored at temperatures 10°C greater than their crystallization temperatures.

## Materials of Construction:

Nease recommends using stainless steel or fiberglass reinforced plastic tanks for storing NAXONATE® hydrotrope solutions. Resins such as Bisphenol A/Fumarate and vinyl ester can be used for construction. Stainless steel of welded or flanged construction is suitable for pumps, transfer lines, and other production accessories. Iron tanks or lines may result in corrosion and contamination.

## Safety & Environment:

NAXONATE® solutions and powders have been used safely for many years and are generally regarded as nontoxic, low-hazard and readily biodegradable products.

## Health Hazard

### Acute Toxicity:

Oral LD50	>16,200 mg/kg (SXS), >7,000 mg/kg (SCS)
Dermal LD50	>2,000 mg/kg (SXS and SCS)
Dermal Irritation	Not a skin sensitizer
Eye Irritation	Causes eye irritation

## Environmental Hazard

### Static Acute Toxicity:

Rainbow Trout	96 hour, LC50 > 1,000 mg/L (SXS and SCS)
Daphnia magna	48 hour, EC50 > 40.3 mg/L (SXS), 54 mg/l (SCS)

## Aerobic Biodegradation

Readily Biodegradable

## Nease Overview...

- Founded in 1951 as the Pedlow-Nease Company
- Began hydrotrope production in Cincinnati in 1958
- Formerly owned by Ruetgers AG
- In 2005 Nease Corporation became wholly owned subsidiary of International Chemical Investors (ICI).
- Nease Corporation changes name to Nease Co. LLC in 2014.



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The products sold by Nease Co., LLC ("Seller") shall conform to the Seller's current published specifications. Seller makes no other warranty, express or implied, including warranty of merchantability or fitness for particular use, whether product is used singly or in combination with other substances or in any process. Nothing contained herein should be considered as a recommendation for use of any product or method in violation of any valid patent now effective or which may issue hereafter. Prior testing for fitness for use and compliance with all applicable statutes by the user is a strict condition on the sale of any and all of Seller's products.

**Customer Service: 1-888-762-7373**

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