

**The Cost-Effective Solution  
for Tough Applications**



**Customized Performance • Innovative Expertise**

# Leading Hydrotrope Production

## For Over 40 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<sup>®</sup> 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<sup>®</sup> 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.

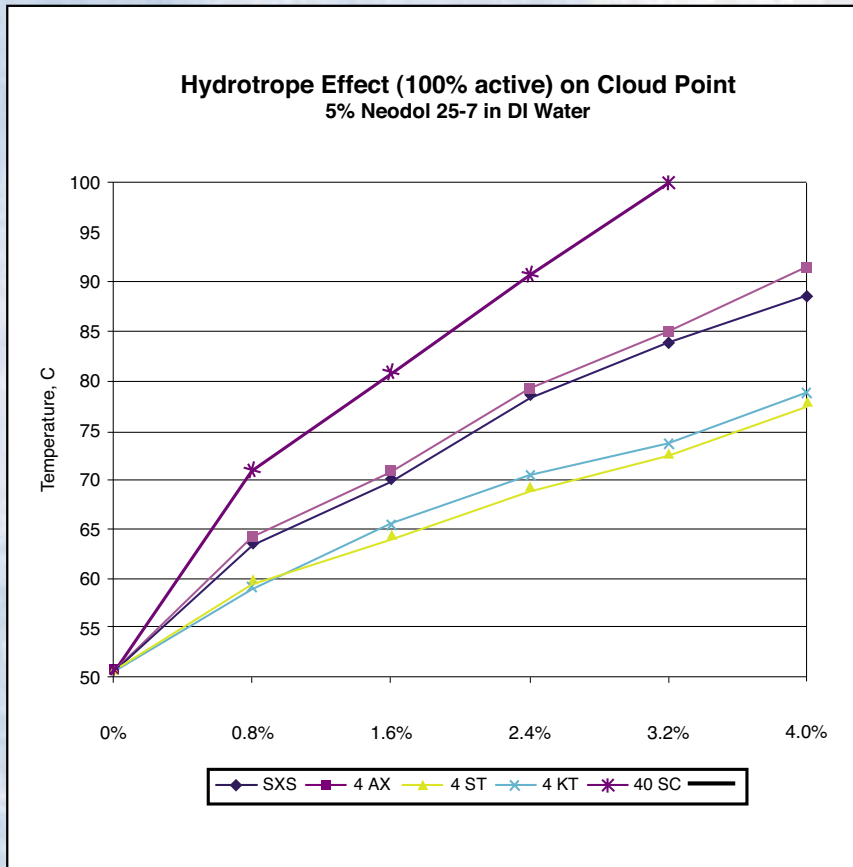
Product Features and Application				PRIMARY APPLICATIONS													
				Heavy-duty Laundry Detergents	Light-duty Liquids	Hand Cleaners	Industrial Cleaners	Metal Cleaners	Metal Working	Transport Cleaners	Personal Care-Shampoos	Textile Dye Manufacture	Photographic Chemicals	Water Treatment	Printing Inks		
	Form	Activity	Product Features														
<b>NAXONATE® HYDROTROPES</b>																	
Sodium Xylene Sulfonate																	
<b>NAXONATE® 4L</b>	Liquid	40%	Most widely used hydrotrope Broad formulation compatiability and effectiveness														
<b>NAXONATE® 4LS</b>	Liquid	40%	Higher purity version of 4L Reduced sulfone levels														
<b>NAXONATE® 35L</b>	Liquid	35%	More dilute version of 4L Soluble at lower ambient temperatures														
<b>NAXONATE® 4LOF</b>	Liquid	40%	Highest purity SXS; minimum odor Advantageous in personal care formulations														
<b>NAXONATE® SX</b>	Powder	96%	High activity hydrotrope Good for high concentration formulations														
Sodium Cumene Sulfonate																	
<b>NAXONATE® 40SC</b>	Liquid	40%	Lower activity version of 45SC Offers better low ambient temperature stability														
<b>NAXONATE® 45SC</b>	Liquid	45%	Generally most effective hydrotrope. Requires higher temperature storage for product stability														
<b>NAXONATE® SC</b>	Powder	96%	Most widely used high activity hydrotrope														
Toluene Sulfonates																	
<b>NAXONATE® 4ST</b>	Liquid	40%	Similar coupling performance to SXS in many systems: Lower sulfates and sulfones than SXS.														
<b>NAXONATE® ST</b>	Powder	96%	High activity hydrotrope selected for low sulfate and low sulfone levels														
<b>NAXONATE® 4KT</b>	Liquid	40%	Hydrotrope selected for counter-ion compatibility. Lower sulfate than SXS or STS.														
<b>NAXONATE® 4AX</b>	Liquid	40%	Effective in neutral detergents and shampoos. Impacts counter-ion compatability.														

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

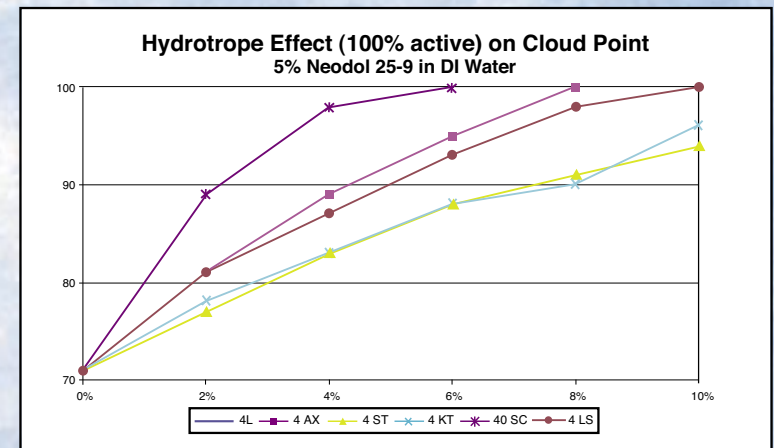
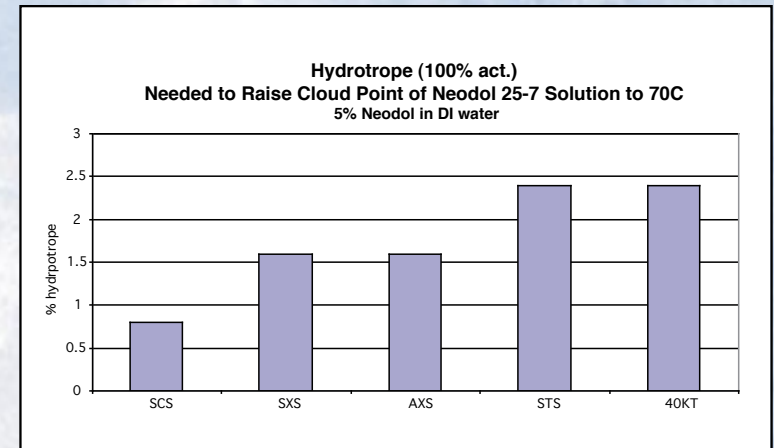
**Call Customer service at 888-762-7373 for product specifications and MSDS.**

# 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.

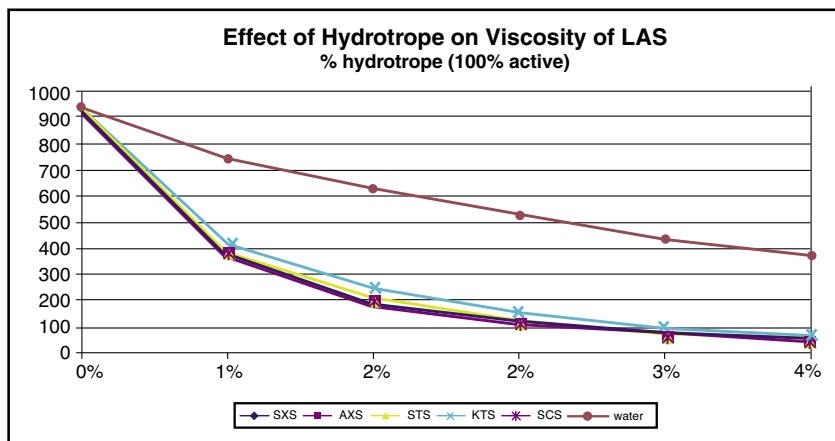
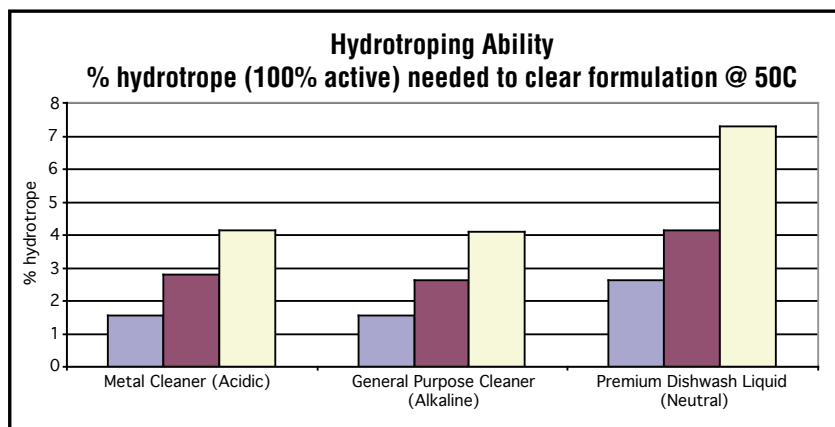


**% Hydrotrope needed to raise Cloud Point of Surfactant Solution to Target CP**



# 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
Chemid ODA-100	5.10
Hydrotrope (40%)	xxx
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<sup>®</sup> 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<sup>®</sup> 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<sup>®</sup> 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	>3,300 mg/kg
Dermal LD50	>2,000 mg/kg
Dermal Irritation	Non-irritating to mildly irritating
Eye Irritation	Mildly irritating

### Environmental Hazard

#### Static Acute Toxicity:

Fathead minnow	96 hour, LC50 > 1,000 mg/L
Daphnia magna	48 hour, EC50 > 1,000 mg/L

#### Aerobic Biodegradation

Classified as "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).



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Customer Service: 1-888-762-7373

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