

**Product Focus • Customer Commitment
Performance Flexibility**



**The Industry Leader for
the Dependable Quality Difference**

Cost Effective Solutions-When Quality Counts

NEASE Co manufactures a wide range of aromatic sulfonic acids.

Aromatic sulfonic acids are made by sulfonating aromatic compounds with sulfuric acid.

Because we are a batch operation Nease has capabilities to produce smaller quantities of specialty acids than others who utilize continuous reactors. Nease Sulfonic Acids are comparable in strength to mineral acids such as sulfuric acid, but are especially suitable for organic reactions where an inorganic, mineral acid could cause charring, oxidation, or an unwanted chemical reaction.

Naxcat[®] Sulfonic Acids are available in varying concentrations and dilution media. Sulfonic acids are widely used in industrial applications as diverse as esterification, thermoset resins for paints and coatings, and phenolic foam, as well as many others. Ask us about our ability to customize the product to meet your specific needs:

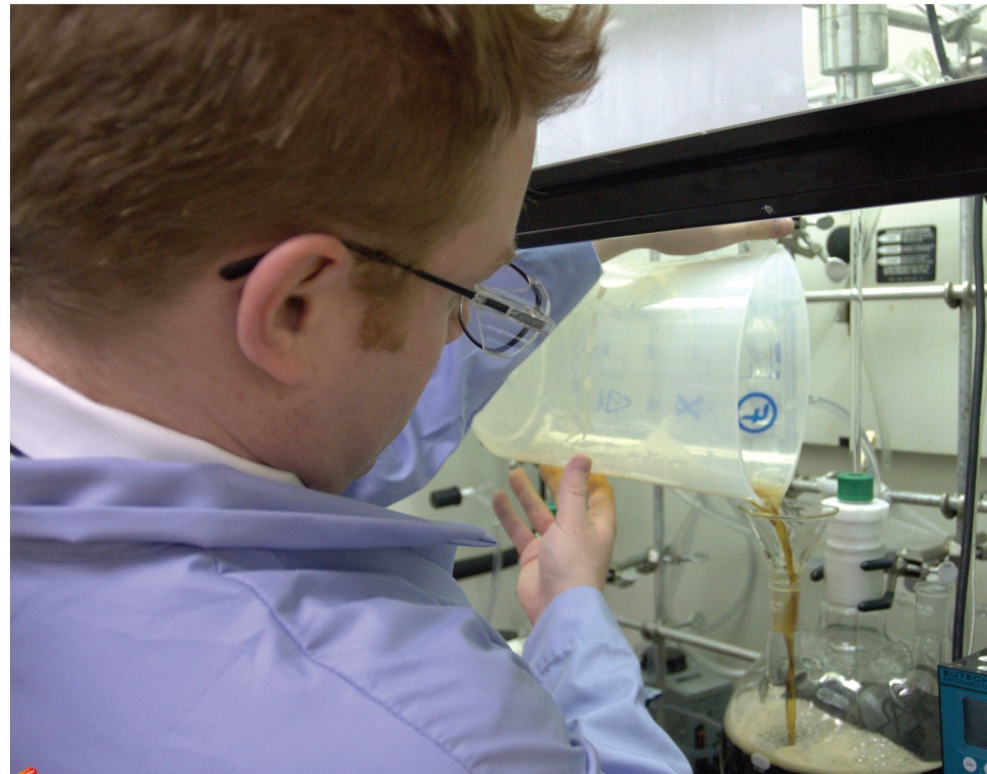
- Custom blends
- Pre-blending with other components
- Modified specifications to fit the need
- High purity versions

Naxcat acids are available in bulk as well as in packaged goods (drums/totes).



The Nease Approach...

- **Niche supplier of sulfonates and related chemicals**
 - ⇒ **Narrow product focus**
 - ⇒ **Product lines are built on technology platforms where Nease's experience and knowledge create value**
- **Offer value by focusing on the individual customer**
 - ⇒ **Concentrate on developing long-term customer relationships**
 - ⇒ **Develop understanding of each customer's unique needs**
 - ⇒ **Offer flexible, responsive and timely value added solutions**

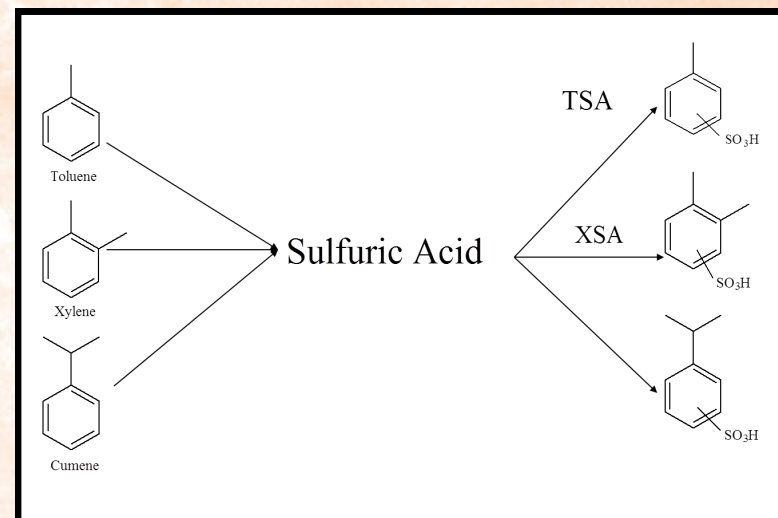


The Nease Difference-Our Process and Products

Chart 1 - Physical Properties

Product	Form	Activity, %	Water,%	Hydro-carbons,%	Sulfonic Acid %
Toluene sulfonic acid					
Naxcat TSA-95	Paste/Solid	95	2.0 max.	1.0 max	1.5 max.
Naxcat TSA-65W	Liquid	32	35.0 max.	0.7 max.	1.5 max.
Naxcat 326L	Liquid	65	35.0 max.	0.1 max.	0.7-1.0 max.
Naxcat 330L	Liquid	65	35.0 max.	0.3 % max.	0.2 max.
Naxcat p-TSA97	Solid	97	2.5 max.	n/a	1.0 max.
Xylene sulfonic acid					
Naxcat XSA-90	Liquid	90	5.0 max.	3.0 max.	4.0 max.
Cumene sulfonic acid					
Naxcat CSA-95	Liquid	94	2.0 max.	2.0 max.	2.0 max.
Phenolsulfonic acid					
Naxcat P65D	Liquid	65	n/a	1.0 max.	2.8 max.
Blended acids					
Naxcat MOD ACID	Liquid	92	2.0 max.	1.5 max.	2.0 max.
Naxcat MOD ACID 35	Liquid	92	1.0 max	1.5 max.	2.0 max.

The Process



Products

Acid Strength Comparison

Strongest



Toluenesulfonic Acid
 Modified Acid (MOD ACID)
 Xylenesulfonic Acid
 Cumenesulfonic Acid
 Phenolsulfonic Acid

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

Nease's Sulfonic Acid Portfolio

Toluenesulfonic acid

Naxcat TSA-95 is the strongest of our organic acids and most suited as a catalyst in various manufacturing processes.

Naxcat TSA-65W is 65% TSA diluted in water, providing lower viscosity than concentrated TSA; designed for fluidity and ease of handling. In many applications it has replaced p-TSA.

Naxcat 326L and 330L are high purity TSA's manufactured using a proprietary technique not practiced elsewhere in the industry. They meet the high standards previously met only by using crystallized p-TSA: low concentrations of iron, sulfuric, sulfones, and hydrocarbons. They combine ease of handling with the relatively low cost of liquid mixed isomers TSA solutions.

Naxcax MOD ACID is a TSA/XSA blend. The blend of the acids promotes low freezing temperatures for ease of handling while maintaining a high degree of acidity. Naxcat MOD ACID 35 is a low moisture version of the blend.



Xylenesulfonic acid

Naxcat XSA-95 is a concentrated organic acid, completely liquid for ease of handling; it will not crystallize at low temperatures, offering acid strength and fluidity.

Cumenesulfonic acid

Naxcat CSA-95 is a concentrated organic acid, with excellent solvency, an advantage when working with organic chemicals in acid systems.

Phenolsulfonic acid

Naxcat P65D, 65% active in water, brings the advantage of being light in color, an advantage in applications where color is critical. It is the mildest of our acid products.

Applications

Hydrotropes

The aryl sulfonic acids will solubilize or increase the solubility of organic compounds in systems that are strongly acidic. Their effectiveness as hydrotropic acids in aqueous and for organic compounds of high molecular weight is of particular importance. Salts of the aryl sulfonic acids are used as hydrotropes in neutral and alkaline solutions.

Catalysts

The sulfonic acids find their greatest utility as catalysts; this application is well documented in general, the aryl sulfonic acids should be tried whenever a strong acid is required. For example:

- ⇒ Crosslinking catalysts for phenolic resin adhesives, melamine-formaldehyde and acrylic polymers. Also, to gain sizeable increases in molecular weights of solid, unsaturated elastomers such as butadiene and styrenebutadiene copolymers.
- ⇒ Esterification catalysts for nearly all organic acids and alcohols including phthalate plasticizers, fatty acids and polyols. Etherification also takes place more readily with toluenesulfonic acid.
- ⇒ Condensation catalysts in the preparation of acetals from anisaldehydes and carboxylic acids, melamine or methacrylic acid – methylmethacrylate polymers.
- ⇒ Curing catalysts in the polymerization of furan, nobake, resin binders used in making foundry molds or cores.
- ⇒ These include furfuryl alcohol-formaldehyde and furfuryl alcohol-phenolic systems.

Similar resins are used in the manufacture of acid and alkali resistant cements.

Oilfied Additives

Sulfonic acids are used frequently as “slugging compounds” or as de-emulsifiers in enhanced oil recovery.

Nease has a broad range of offerings in this area and can provide products that meet the specific requirements of each application.

Oilfied acidifier for “down-hole” purposes.

Markets

Handling Characteristics

Product	Industrial Cleaners	Metal Prep. & Manufacture	Textile Dye & Manufacture	Polymers & Coatings	Oilfied
Toluene sulfonic acid					
Naxcat TSA-95					
Naxcat TSA-65W					
Naxcat 326L					
Naxcat 330L					
Naxcat p-TSA97					
Xylene sulfonic acid					
Naxcat XSA-90					
Cumene sulfonic acid					
Naxcat CSA-95					
Phenolsulfonic acid					
Naxcat P65D					
Blended acids					
Naxcat MOD ACID					

Handling: The sulfonic acids are corrosive chemicals and must be handled with care, particularly when heated. Avoid contact with skin and eyes. If contact is made, flush with large amounts of running water and consult a physician.

Always wear rubber gloves, chemical goggles and acid-resistant clothing. Thoroughly clean contaminated clothing and boots before reuse.

Material Construction:

Mild Steel is corroded by the sulfonic acids and is not recommended for prolonged storage at elevated temperatures since iron and color contamination result. Glass and type 316 stainless steel are suitable for general use. Dilution with water increases the corrosivity of the sulfonic acids; concentrations of 80% and lower are much more corrosive than the concentrated acids.

Nease Performance Chemicals

The Difference When Quality Counts

When you think chemical manufacturing, think Nease. Since 1951, Nease has been the industry leader in high-performance hydrotopes, acid catalysts, and naphthalene sulfonates. We distinguish ourselves with our reliability, consistency and customer focus.

Nease is committed to providing the best service and products in the industry. Let us put our years of experience and expertise to work and help you find the right product for your tough application. Our ability to customize the precise product for your needs is what makes Nease the experts of choice.

The Nease Company's plant, warehouse, research and development and general offices are all centrally located in Greater Cincinnati Ohio, allowing us to quickly meet customer needs in a timely and cost effective manner.



Nease Overview...

- Founded in 1951 as the Pedlow-Nease Company
- Began production in Cincinnati in 1958
- Formerly owned by Ruetgers AG
- Became wholly owned subsidiary of International Chemical Investors (ICI) in 2005.
- ISO 9001: 2000 certified
- Nease Corporation changes name to Nease Co. LLC in 2014



Product focus • Customer commitment • Performance flexibility

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

9774 Windisch Road · West Chester, OH 45069

www.neaseco.com