SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product identifier
Chemical Name: Toluenesulfonic acid
Trade name: Naxcat® TSA 95
CAS No.: 88-20-0 and 104-15-4

Relevant identified uses of the substance or mixture and uses advised against
Identified use(s): Catalyst in the manufacture of phthalates and other plasticizers.
Uses advised against: None

Details of the supplier of the safety data sheet
Company Identification: Nease Co. LLC
10740 Paddys Run Road
Harrison, OH 45030
Telephone: (513) 738-1255
Telephone (Product Information): (888) 762-7373
Fax: (513) 587-2828
E-Mail (competent person): techservice@neaseco.com

Emergency telephone number
Emergency Phone No.: (513) 738-1255
CHEMTREC 24 hr. (800) 424-9300

SECTION 2: HAZARDS IDENTIFICATION

Classification of the substance or mixture

Label elements
Hazard Symbol

Signal word(s)
DANGER

Hazard statement(s)
Causes severe skin burns and eye damage.
May be corrosive to metals.

Precautionary statement(s)
Do not breathe dust/fume/gas/mist/vapours/spray.
Wear protective gloves/protective clothing/eye protection/face protection.
IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. If irritation (redness, rash, blistering) develops, get medical attention.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.

Other hazards
Not classified as PBT or vPvB.

Additional Information
Contains residual toluene. Studies in animals have shown that repeated exposures produce adverse reproductive effects. However, given the
corrosive / irritating nature of this product and the relatively low concentration of toluene present, this product is not considered to pose a reproductive risk to humans.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Hazardous ingredient(s)</th>
<th>%W/W</th>
<th>CAS No.</th>
<th>Hazard statement(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>o,p - Toluenesulfonic acid</td>
<td>&gt;95%</td>
<td>88-20-0</td>
<td>May be corrosive to metals. Causes severe skin burns and eye damage.</td>
</tr>
<tr>
<td>Sulfuric acid</td>
<td>&lt;2%</td>
<td>7664-93-9</td>
<td>Causes severe skin burns and eye damage.</td>
</tr>
<tr>
<td>Water</td>
<td>&lt;2%</td>
<td>7732-18-5</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>

Additional Information - Substances in the product which may present a health or environmental hazard, or which have been assigned occupational exposure limits, are detailed below.
- Toluene (CAS No. 108-88-3) <1%

SECTION 4: FIRST AID MEASURES

Description of first aid measures

Inhalation
Remove to fresh air and keep at rest in a position comfortable for breathing. If breathing is laboured, administer oxygen. If symptoms occur obtain medical attention.

Skin Contact
Wash affected skin with plenty of water. Remove contaminated clothing immediately. If irritation (redness, rash, blistering) develops, get medical attention.

Eye Contact
Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention.

Ingestion
If ingested, rinse mouth. Do not induce vomiting. Seek medical treatment.

Most important symptoms and effects, both acute and delayed
None

Indication of any immediate medical attention and special treatment needed
None

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing media
-Suitable Extinguishing Media
Extinguish with waterspray, dry chemical, sand or carbon dioxide.

-Unsuitable Extinguishing Media
None anticipated.

Special hazards arising from the substance or mixture
None anticipated.

Advice for fire-fighters
Firefighters should wear complete protective clothing including self-contained breathing apparatus.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures
Put on protective equipment before entering danger area.

Environmental precautions
Do not allow to enter drains, sewers or watercourses.
Methods and material for containment and cleaning up

Contain spillages with sand, earth or any suitable adsorbent material. Transfer to a container for disposal or recovery. Wash the spillage area with water. If possible prevent water running into sewers.

Reference to other sections

None

Additional Information

None

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling

Do not get in eyes, on skin, or on clothing.

Conditions for safe storage, including any incompatibilities

- Storage Temperature
  Store at room temperature.

- Incompatible materials
  Attacks many materials and clothing. Keep away from oxidising agents. Keep container tightly closed and dry.

Specific end use(s)

Hand Cleaners, Industrial Cleaners, Metal Prep and Working, Textile Dye Manufacturing, Polymers and Coatings.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Occupational exposure limits

<table>
<thead>
<tr>
<th>SUBSTANCE</th>
<th>CAS No.</th>
<th>LTEL (8 hr TWA ppm)</th>
<th>STEL (ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>[PEL (OSHA)]</td>
<td>[TLV (ACGIH)]</td>
</tr>
<tr>
<td>Sulfuric acid</td>
<td>7664-93-9</td>
<td>1 mg/m³</td>
<td>0.2 mg/m³ (T)</td>
</tr>
<tr>
<td>Toluene</td>
<td>108-88-3</td>
<td>200</td>
<td>20</td>
</tr>
</tbody>
</table>

Note:

PEL (OSHA) TLV (ACGIH) (T)Thoracic fraction

Recommended monitoring method

NIOSH 5043; NIOSH 7903

Exposure controls

Appropriate engineering controls

Local exhaust required.

Personal protection equipment

Eye/face protection

The following to be used as necessary: Goggles giving complete protection to eyes. Full face shield.

Skin protection (Hand protection/ Other)

The following to be used as necessary: Gloves (Neoprene or Natural rubber). Chemical protection suit. Wear safety or chemical resistant shoes or boots. Check with protective equipment manufacturer's data.

Respiratory protection

No personal respiratory protective equipment normally required.

Thermal hazards

Use gloves with insulation for thermal protection, when needed.

Environmental Exposure Controls

Do not allow to enter drains, sewers or watercourses.
SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Semi-Solid</td>
</tr>
<tr>
<td>Colour</td>
<td>Amber / Brown</td>
</tr>
<tr>
<td>Odour</td>
<td>Slight hydrocarbons Odour</td>
</tr>
<tr>
<td>Odour Threshold (ppm)</td>
<td>Not available</td>
</tr>
<tr>
<td>pH (Value)</td>
<td>&lt;1</td>
</tr>
<tr>
<td>Melting Point (°C) / Freezing Point (°C)</td>
<td>106-107</td>
</tr>
<tr>
<td>Boiling point/boiling range (°C):</td>
<td>140°C @ 20 mmHg</td>
</tr>
<tr>
<td>Flash Point (°C)</td>
<td>&gt;184 (&gt;363 °F) [Open cup]</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>&lt;1 (butyl acetate =1)</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not available</td>
</tr>
<tr>
<td>Explosive limit ranges</td>
<td>Not available</td>
</tr>
<tr>
<td>Vapour Pressure (Pascal)</td>
<td>Low</td>
</tr>
<tr>
<td>Vapour Density (Air=1)</td>
<td>&gt;1</td>
</tr>
<tr>
<td>Density (g/ml)</td>
<td>≈1.3</td>
</tr>
<tr>
<td>Solubility (Water)</td>
<td>Soluble, -67g/100 ml</td>
</tr>
<tr>
<td>Solubility (Other)</td>
<td>Not available</td>
</tr>
<tr>
<td>Partition Coefficient (n-Octanol/water)</td>
<td>Not available</td>
</tr>
<tr>
<td>Auto Ignition Temperature (°C)</td>
<td>Not available</td>
</tr>
<tr>
<td>Decomposition Temperature (°C)</td>
<td>Not available</td>
</tr>
<tr>
<td>Kinematic Viscosity (cSt) @ 40°C</td>
<td>Not available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not explosive</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>Not oxidising</td>
</tr>
<tr>
<td>Other information</td>
<td>Not available</td>
</tr>
</tbody>
</table>

SECTION 10: STABILITY AND REACTIVITY

Reactivity Stable under normal conditions.
Chemical stability Stable.
Possibility of hazardous reactions None anticipated.
Conditions to avoid Incompatible materials.
Incompatible materials Reacts with strong alkalis. Avoid contact with bleach or other hypochlorites. Generates heat of solution when dissolved in water and alcohols. May cause exothermic polymerisation of furan resin.

Hazardous Decomposition Product(s) Carbon monoxide, Carbon dioxide, Sulphur oxides, Acrid smoke

SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes: Inhalation, Skin Contact, Eye Contact

Substances in preparations / mixtures

Toluene-4-sulfonic acid (CAS No. 104-15-4)

Acute toxicity (By analogy with similar materials) Oral: LD50 > 1104 mg/kg-bw (rat) Dermal: LD50 >2 g/kg-bw (rabbit) Inhalation: LC50 > 100 mg= saturated (Vapor), 8 hour (rat)

Irritation/Corrosivity Corrosive (Skin and Eyes)
Sensitization It is not a skin sensitizer.
Repeated dose toxicity) NOAEL: > 500 mg/kg bw/day (28 days/week, oral, rat)
Carcinogenicity NOAEL (rat): ≥ 240 mg/kg (Fischer 344)

<table>
<thead>
<tr>
<th>NTP</th>
<th>IARC</th>
<th>ACGIH</th>
<th>OSHA</th>
<th>NIOSH</th>
</tr>
</thead>
</table>

Revision: 21 May 2014
**Mutagenicity**
There is no evidence of mutagenic potential.

**Toxicity for reproduction**
No effects to the reproductive system. Residual toluene in this formulation is not expected to present a reproductive risk given the corrosive / irritating nature of this product.

### Sulfuric acid (CAS No. 7664-93-9)

**Acute toxicity**
Oral: LD50 = 2140 mg/kg-bw (rat)
Dermal: No data
Inhalation: LC50 = 0.37-0.42 mg/l (rat)

**Irritation/Corrosivity**
Corrosive (Skin and Eyes)

**Sensitization**
Skin sensitisation has been reported in humans.

**Repeated dose toxicity**
No data.

**Carcinogenicity**
NOAEL (rat): ≥ 240 mg/kg (Fischer 344)

<table>
<thead>
<tr>
<th>NTP</th>
<th>IARC</th>
<th>ACGIH</th>
<th>OSHA</th>
<th>NIOSH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Listed</td>
<td>Group 1</td>
<td>Group 2A</td>
<td>No.</td>
<td>No.</td>
</tr>
</tbody>
</table>

**Mutagenicity**

There is no evidence of mutagenic potential.

**Toxicity for reproduction**

NOAEL: 20 mg/m³ (rabbit) (New Zealand White)
NOEL: 20 mg/m³ (rabbit) (New Zealand White)

### SECTION 12: ECOLOGICAL INFORMATION

**Toluene-4-sulfonic acid (CAS No. 104-15-4)**

**Short term**
LC50 (96 hour): >500 mg/L (Leuciscus idus melanotus)
EC50 (48 hour): >103 mg/l (Daphnia magna, mobility) - (By analogy with similar materials)
EC50 (72 hour): 70 mg/l (Pseudokirchnerella subcapitata) - (By analogy with similar materials)

**Long Term**
Scientifically unjustified

**Persistence and degradability**
Readily biodegradable.

**Bioaccumulative potential**
The product has low potential for bioaccumulation.

**Mobility in soil**
The substance has high mobility in soil.

**Results of PBT and vPvB assessment**
Not classified as PBT or vPvB.

**Sulfuric acid (CAS No. 7664-93-9)**

**Short term**
LC50 (96 hour): 42.0 mg/l (96 hour) (Gambusia affinis)
EC50 (24 hour): 29.0 mg/l (Daphnia magna)
EC50 (48 hour): 29 mg/l (Pandalus montagui)

**Long Term**
Scientifically unjustified

**Persistence and degradability**
Not readily biodegradable.

**Bioaccumulative potential**
The substance has no potential for bioaccumulation.

**Mobility in soil**
The substance has high mobility in soil.

**Results of PBT and vPvB assessment**
Not classified as PBT or vPvB.

**Other adverse effects**
None known.

### SECTION 13: DISPOSAL CONSIDERATIONS

**Waste treatment methods**
Disposal should be in accordance with local, state or national legislation.
Consult an accredited waste disposal contractor or the local authority for advice.

**Additional Information**
None known.
SECTION 14: TRANSPORT INFORMATION

<table>
<thead>
<tr>
<th>Land transport (U.S. DOT)</th>
<th>Sea transport (IMDG)</th>
<th>Air transport (ICAO/IATA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN number</td>
<td>2586</td>
<td>2586</td>
</tr>
<tr>
<td>Proper Shipping Name</td>
<td>ARYLSULFONIC ACIDS, LIQUID with not more than 5% free sulfuric acid</td>
<td>ARYLSULPHONIC ACIDS, LIQUID with not more than 5% free sulphuric acid</td>
</tr>
<tr>
<td>Transport hazard class(es)</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Packing group</td>
<td>III</td>
<td>III</td>
</tr>
<tr>
<td>Environmental hazards</td>
<td>Corrosive</td>
<td>Corrosive</td>
</tr>
<tr>
<td>Special precautions for user</td>
<td>None known.</td>
<td>None known.</td>
</tr>
</tbody>
</table>

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: Not established.

SECTION 15: REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture:

TSCA (Toxic Substance Control Act) - Inventory Status: All components listed or polymer exempt.
Canada Domestic Substance List (DSL) - Listed

Designated Hazardous Substances and Reportable Quantities (40 CFR 302.4):

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No.</th>
<th>Typical %wt.</th>
<th>RQ (Pounds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>----</td>
<td>----</td>
<td>----</td>
</tr>
</tbody>
</table>

SARA 311/312 - Hazard Categories:
- [ ] Fire
- [ ] Sudden Release
- [ ] Reactivity
- [x] Immediate (acute)
- [ ] Chronic (delayed)

SARA 313 - Toxic Chemicals (40 CFR 372):

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No.</th>
<th>Typical %wt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toluene</td>
<td>108-88-3</td>
<td>&lt; 1%</td>
</tr>
</tbody>
</table>

SARA 302 - Extremely Hazardous Substances (40 CFR 355):

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No.</th>
<th>Typical %wt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfuric acid</td>
<td>7664-93-9</td>
<td>&lt; 2%</td>
</tr>
</tbody>
</table>

SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: 1-16.

Date of preparation: May 21, 2014

Additional Information:

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