SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product identifier

Chemical Name              Xylenesulfonic acid
Trade name                 NAXCAT® XSA-90
CAS No.                    25321-41-9

Relevant identified uses of the substance or mixture and uses advised against

Identified use(s)        Catalyst
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

OSHA HCS (29 CFR 1910.1200)  Skin Corr. 1C; Eye Dam. 1; Met. Corr. 1

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 ethylbenzene. Studies in animals have shown that repeated exposures may cause cancer. However, given the corrosive / irritating nature of this product and the relatively low concentration of...
ethylbenzene present, this product is not considered to pose a cancer 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>Xylenesulfonic acid</td>
<td>80-85%</td>
<td>25321-41-9</td>
<td>May be corrosive to metals. Causes severe skin burns and eye damage.</td>
</tr>
<tr>
<td>Ethylbenzenesulfonic acid</td>
<td>&lt; 10%</td>
<td>57352-34-8</td>
<td>May be corrosive to metals. Causes severe skin burns and eye damage.</td>
</tr>
<tr>
<td>Sulfuric acid</td>
<td>&lt;4%</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.
- Xylene (CAS No. 1330-20-7) <3%
- Ethylbenzene (CAS No. 100-41-4) < 0.1%
- Dixoxy sulfones (CAS No. 5184-75-8) <5%

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
Fire fighters 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)
Catalyst

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameter

Occupational exposure limits

<table>
<thead>
<tr>
<th>SUBSTANCE</th>
<th>CAS No.</th>
<th>LTEL (8 hr TWA ppm)</th>
<th>STEL (ppm)</th>
<th>Note:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>PEL (OSHA)</td>
<td>TLV (ACGIH)</td>
<td>PEL (OSHA)</td>
</tr>
<tr>
<td>Sulfuric acid</td>
<td>7664-93-9</td>
<td>1 mg/m³</td>
<td>0.2 mg/m³ (1)</td>
<td>---</td>
</tr>
<tr>
<td>Xylene</td>
<td>1330-20-7</td>
<td>100</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>Toluene</td>
<td>108-88-3</td>
<td>200</td>
<td>300 ceiling</td>
<td>20</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>100-41-4</td>
<td>100</td>
<td>20</td>
<td>100</td>
</tr>
</tbody>
</table>

Recommended monitoring method
NIOSH 5043; NIOSH 1501

Exposure controls
Local exhaust required.

Appropriate engineering controls

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>Liquid</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>Not available</td>
</tr>
<tr>
<td>Boiling point / boiling range (°C)</td>
<td>Not available</td>
</tr>
<tr>
<td>Flash Point (°C)</td>
<td>&gt;200 (&gt;392 °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>UEL: 6.6% (xylene) LEL: 1.0% (xylene)</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/100ml)</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

xlyenesulfonic acid (CAS# 25321-41-9) (By analogy with similar materials)

Acute toxicity

Oral: LD50 = 1104 mg/kg-bw
Dermal: LD50 >2 g/kg-bw
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

It is unlikely to present a carcinogenic hazard to man. This is based on information currently available. Residual ethylbenzene in this formulation is not expected to present a cancer risk given the corrosive / irritating nature of this product.

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

Mutagenicity

There is no evidence of mutagenic potential.

Toxicity for reproduction

No effects to the reproductive system.

Ethylbenzenesulfonic acid (CAS No. 57352-34-8)

See Section: xylenesulfonic acid (CAS No. 25321-41-9)

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)

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

xylenesulfonic acid (CAS# 25321-41-9) (By analogy with similar materials)

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 (96 hour): 70 mg/l (Pseudokirchnerella subcapitata)

Long Term
Scientifically unjustified

Persistence and degradability
inherently biodegradable

Bioaccumulative potential
The product is not bioaccumulative

Mobility in soil
Not available.

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

Other adverse effects
None known.

Ethylbenzenesulfonic acid (CAS No. 57352-34-8)

See Section: xylenesulfonic acid (CAS No. 25321-41-9)

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</td>
<td>ARYLSULPHONIC ACIDS, LIQUID</td>
</tr>
<tr>
<td></td>
<td>with not more than 5% free sulfuric acid</td>
<td>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>Hazard label(s)</td>
<td>Corrosive</td>
<td>Corrosive</td>
</tr>
<tr>
<td>Environmental hazards</td>
<td>No</td>
<td>No</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>Xylene</td>
<td>1330-20-7</td>
<td>&lt; 3%</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>100-41-4</td>
<td>Cancer</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>20-25%</td>
</tr>
</tbody>
</table>
SECTION 16: OTHER INFORMATION

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

Date of preparation: June 7, 2014

Additional Information:

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