ACRYLIC ACID, GLACIAL

Product ID: NCO 526281

Common Chemical Name:
Acrylic Acid

Synonyms:
2-Propenoic Acid; Vinyl Formic Acid

Molecular Formula:
C₃H₄O₂

Chemical Family: Unsaturated aliphatic acid

Molecular Wt.: 72.0

SECTION 2 - INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acrylic Acid, Glacial</td>
<td>79-10-7</td>
<td>99.5 %</td>
</tr>
<tr>
<td>Hydroquinone Monomethyl Ether (Inhibitor)</td>
<td>150-76-5</td>
<td>180.0 - 200.0 PPM</td>
</tr>
</tbody>
</table>

SECTION 3 - PHYSICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Colorless</td>
</tr>
<tr>
<td>Form/Appearance</td>
<td>Liquid</td>
</tr>
<tr>
<td>Odor</td>
<td>Acrid</td>
</tr>
<tr>
<td>Odor Intensity</td>
<td>Strong</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.05</td>
</tr>
<tr>
<td>pH</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Boiling Pt.</td>
<td>141 C</td>
</tr>
<tr>
<td>Freezing Pt.</td>
<td>13 C</td>
</tr>
<tr>
<td>Decomp. Tmp.</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Solubility in Water Description</td>
<td>Complete</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>4 MM HG</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>20 DEG. C</td>
</tr>
</tbody>
</table>
SECTION 3 - PHYSICAL PROPERTIES (cont)

<table>
<thead>
<tr>
<th>Typical</th>
<th>Low/High</th>
<th>U.O.M.</th>
<th>@ Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vapor Density (Air = 1):</td>
<td>2.5</td>
<td>AIR</td>
<td></td>
</tr>
<tr>
<td>Evaporation Rate Std.:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SECTION 4 - FIRE AND EXPLOSION DATA

<table>
<thead>
<tr>
<th>Typical</th>
<th>Low/High</th>
<th>Deg.</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flash Point:</td>
<td>54</td>
<td>C</td>
<td>TAG CLOSED CUP</td>
</tr>
<tr>
<td>Autoignition:</td>
<td>390</td>
<td>C</td>
<td>NONE SPECIFIED</td>
</tr>
<tr>
<td>Flam. Limits:</td>
<td>2 - 8</td>
<td>%</td>
<td></td>
</tr>
</tbody>
</table>

Extinguishing Media:
Use water fog, foam, dry chemical, halon or CO2 as extinguishing media.

Fire Fighting Procedures:
Firefighters should be equipped with self-contained breathing apparatus and turn out gear. Water may be ineffective but should be used to keep exposed containers cool.

Unusual Hazards:
Due to the polymerization potential when exposed to heat, sealed containers may rupture explosively. In advanced or massive fires, fight fire from a distance or from protected area.

SECTION 5 - HEALTH EFFECTS

Routes of entry for solids and liquids include eye and skin contact, ingestion and inhalation. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquified gases.

Toxicology Test Data:
- Rat, 12 Month Drinking Water Study - 2000 - 5000 PPM
  Reduced body weight, food & water intake
- Rat, Lifetime Drinking Water Study - NOAEL: 1200 PPM
  No Compound Related Oncogenic Effects
- Rat, 90 Day Oral Gavage Study - 150 & 300 MG/KG/DAY
  Severe clinical & pathological effects
- Rat, 90 Day Drinking Water Study - .083,.25,.75 MG/KG/DAY
  Alterations in fluid balance parameters
- Rat, Inhalation Developmental Toxicity - @ 40,120,360 PPM
  Neither embryotoxic nor teratogenic
- Rat, 2 week (9 dose) inhalation study - NOEL = 75 PPM
  Range finding prior to 90 day study
- Rat, 13 week inhalation study - NOEL = 25 PPM
  Respiratory tract irritant
- Mouse, 13 week inhalation study -
  Respiratory tract irritant
- Mouse, 2 week (9 dose) inhalation study -
  Range finding prior to 90 day study
- Histopathology Review -
  Statistical, not biological significance
- Rat, Inhalation Hazard Test, 1 hour -
  No Effects
Mouse, Oral Dominant Lethal Assay - Negative in the dominant lethal assay
CHO Chromosomal Aberration Study - POSITIVE Clastogenic
CHO Sister Chromatid Exchange (with S-9) - POSITIVE Clastogenic
Rat Chromosome Aberration: Bone Marrow - NEGATIVE Not Clastogenic
Mouse Lymphoma Forward Mutation Assay - POSITIVE Positive response without activation
Mouse Lymphoma Assay (with S-9) - POSITIVE Positive response with activation
Ames Salmonella Assay (Direct Plate) - NEGATIVE No increase in mutation frequency
In vitro percutaneous absorption, mouse - Mouse skin permeability 3 times > human
In vitro percutaneous absorption, human - Human skin permeability 3 times < mouse
Unscheduled DNA synthesis - NEGATIVE Negative
CHO/HGPRT Forward Mutation Assay - NEGATIVE Negative
CHO/HGPRT Forward Mutation (with S-9) - NEGATIVE Negative
Rat Chromosome Aberration: Bone Marrow - NEGATIVE Negative
CHO Chromosomal Aberration Study - POSITIVE Positive response without activation
CHO Chromosomal Aberration (with S-9) - POSITIVE Positive response with activation
Drosophila Sex Linked Recessive Lethal - NEGATIVE Not mutagenic
Bioavailability study, rat & mouse - IV, ORAL, DE >75% absorbed dose excreted as CO2/24 hr
Rat, 2-generation drinking water study - 500, 2500, 5 PPM No effect on reproduction
Rabbit developmental toxicity/inhalation - @ 25, 75, 22 PPM No developmental or teratogenic effects
Mouse, dermal oncogenicity study - 1%; 25, 100 UL No skin tumors; females: lymphosarcoma
Histopathology Review - LYMPHOSARCOM Equivocal due to abnormally low control
Rat, Oral LD50 - 1500 MG/KG Moderately Toxic
Rabbit, Dermal LD50 - 640 MG/KG Moderately Toxic
Rat, 4 hr Inhalation LC50 - > 5.1 MG/L Moderately Toxic
Rabbit, Primary Skin Irritation - Corrosive
Rabbit, Mucous Membrane Irritation Study - Corrosive
Rat Inhalation Risk Test; Sat. Vapor/20C -
No deaths @ 30min, Leathal @ extended exp

Acute Overexposure Effects:
Acrylic acid is corrosive to all tissues. Eye contact can cause severe burns and loss of vision. A 1% aqueous solution of acrylic acid can cause significant irritation and eye damage. Contact with the skin can cause severe burns which may be delayed. Acrylic acid is a corrosive liquid which can cause burns and permanent eye damage; inhalation of acrylic acid resulted in nasal lesions in both rats and mice. Pure acrylic acid does not appear to cause skin sensitization.

Chronic Overexposure Effects:
Acrylic acid was not carcinogenic when administered to rats via drinking water (78 mg/kg/day) over a lifetime. In addition, lifetime inhalation exposures (5-135 ppm) of rats to methyl acrylate, ethyl acrylate and butyl acrylate did not cause carcinogenic effects; although nasal lesions were noted at the higher concentrations (just as with acrylic acid). In 1998, the International Agency for Research on Cancer (IARC) determined that acrylic acid was not classifiable as to its carcinogenicity to humans (Group 3).

First Aid Procedures - Skin:
Wash affected areas with soap and water. Remove and launder contaminated clothing before reuse. Get immediate medical attention.

First Aid Procedures - Eyes:
Immediately rinse eyes with running water for 15 minutes. Get immediate medical attention.

First Aid Procedures - Ingestion:
If swallowed, dilute with water. DO NOT INDUCE VOMITING. Never give fluids or induce vomiting if the victim is unconscious or having convulsions. Get immediate medical attention.

First Aid Procedures - Inhalation:
Move to fresh air. Aid in breathing, if necessary, and get immediate medical attention.

First Aid Procedures - Notes to Physicians:
None known.

First Aid Procedures - Aggravated Medical Conditions:
No data is available which addresses medical conditions that are generally recognized as being aggravated by exposure to this product. Please refer to the effects of overexposure section for effects (if any) observed in animals.

First Aid Procedures - Special Precautions:
None

Stability Data:
Stable

Incompatibility:
Strong oxidizers, alkalies, aldehydes, ethers and amines.

Conditions/Hazards to Avoid:
Avoid heat, ignition sources, light, freezing temperatures, inhibitor loss and initiators.
Do not store in excess of 6 months with less than 10 % headspace
above liquid.

Hazardous Decomposition/Polymerization:
- Hazardous decomposition products: CO and CO2.

Corrosive Properties:
- Not corrosive to metal.

Oxidizer Properties:
- Not an oxidizer

SECTION 7 - PERSONAL PROTECTION

Clothing:
- Gloves, coveralls, apron, boots as necessary to minimize contact.

Eyes:
- Chemical goggles; also wear a face shield if splashing hazard exists.

Respiration:
- If vapors or mists are generated, wear a NIOSH/MSHA approved organic vapor/mist respirator. Use an air-supplied or self-contained breathing apparatus in emergency or non-routine, high exposure situations.

Ventilation:
- Use local exhaust to control to recommended P.E.L.

Explosion Proofing:
- None required.

Other Personal Protection Data:
- Eyewash fountains and safety showers must be easily accessible.

SECTION 8 - SPILL-LEAK/ENVIRONMENTAL

General:
- Spills should be contained, solidified and placed in suitable containers for disposal in a RCRA licensed facility. This material is RCRA hazardous due to its properties.

Waste Disposal:
- Incinerate at a RCRA licensed facility. Do not discharge into waterways or sewer systems without proper authority.

Container Disposal:
- Empty containers with less than 1 inch of residue may be landfilled at a licensed facility. Recommend crushing or other means to prevent unauthorized reuse. Other containers must be disposed of in a RCRA licensed facility.

Environmental Toxicity Test Data:
- Rainbow Trout, Flow-through 96 hr LC50 - 27 MG/L
- Slightly Toxic
- Trout, 96 Hr No Effect Concentration - 6.3 MG/L
- TEST RATING NOT FOUND
- OECD, Closed Bottle Test (301 D) - 81 PERCENT
- Readily Biodegradable
- Elimination (OECD Test 302 B) - > 70 PERCENT
- Easy to eliminate
- Rainbow Trout, static 96 hr LC50 - 27 MG/L
- Slightly Toxic
- Daphnia magna, 48 hr static EC50 - 95 MG/L
- Slightly Toxic
Acute Algal Toxicity, 72 hr. EC/LC50 - 0.04 MG/L
Highly Toxic
Bacterial Toxicity, LC50 (16 hr) - 41 MG/L
TEST RATING NOT FOUND
Daphnia magna, 21 day EC50 - > 8.1 MG/L
Moderately Toxic
Inhibition of Activated Sludge - 900 MG/L
TEST RATING NOT FOUND

General:
Avoid excessive heat, direct sunlight, inhibitor loss, and contaminants. Maintain contact with atmosphere of 5-21% oxygen. Do not use inert atmosphere as blanket. Store at temperatures of 15-25 C. Avoid overheating or freezing. Never use steam or electrical heating to thaw frozen acrylic acid or its containers. If frozen, use warm water (45 C max) or heated room (between 20-33 C) to thaw material. Keep acid free of contamination and moisture. Under these conditions, a storage stability of 1 year is expected.

TSCA Inventory Status
Listed on Inventory: YES
SARA - 313 Listed Chemicals:
  CAS: 79-10-7  AMOUNT: 99.5 %
  NAME: Acrylic Acid, Glacial

RCRA Haz. Waste No.: U008
CERCLA: YES Reportable Qty.: (If YES)
  XXXXXXX XXXXXXXXXXXXXXX 5000 LB

State Regulatory Information: (By Component) NJ/PA/MA RTK
  CAS: 79-10-7  YES
  NAME: Acrylic Acid, Glacial
  CAS: 150-76-5  NO
  NAME: Hydroquinone Monomethyl Ether (Inhibitor)

Hazard Ratings:

<table>
<thead>
<tr>
<th>Health</th>
<th>Fire</th>
<th>Reactivity</th>
<th>Special</th>
</tr>
</thead>
<tbody>
<tr>
<td>HMIS</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>NFFA</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

This product is hazardous or contains components which are hazardous according to the OSHA Hazard Communication Standard.
MASSACHUSETTS RIGHT-TO-KNOW LISTED: - YES
PENNSYLVANIA RIGHT-TO-KNOW LISTED: - YES
HAZARD CODE: ENVIRONMENTAL HAZARD
DOT Primary Hazard Class:  
SEE BELOW

DOT Secondary Hazard Class:  
SEE BELOW

DOT Label Required:  
SEE BELOW

DOT Placard Required:  
SEE BELOW

DOT Poison Constituent:  
SEE BELOW

BASF Commodity Codes:      NA    NA   UN/NA Code:        E/R Guide:

Bill of Lading Description:  
ACRYLIC ACID, INHIBITED, 8, (3), UN2218, PGII

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