1. Product and Company Identification

Bluefield International, Inc.
10900 NW 21st Street
Suite 170
Miami, FL 33172

24 Hour Emergency Response Information
Chemtrec: (800) 901-7247
Int'l: (1-703) 527-3887

Molecular formula: C3 H4 O2
Chemical family: acids, aliphatic, unsaturated
Synonyms: 2-Propenoic acid

2. Hazards Identification

Emergency overview

WARNING:
COMBUSTIBLE LIQUID.
CORROSIVE LIQUID.
CAUSES EYE BURNS.
CAUSES SKIN BURNS.
May cause pulmonary edema.
May cause severe irritation of the respiratory tract.
Use with local exhaust ventilation.
Wear a NIOSH-certified (or equivalent) organic vapour/particulate respirator.
Wear NIOSH-certified chemical goggles.
Wear protective clothing.
Eye wash fountains and safety showers must be easily accessible.
Wear full face shield if splashing hazard exists.
Avoid all sources of ignition: heat, sparks, open flame.

State of matter: liquid
Colour: colourless
Odour: biting, acetous

Potential health effects

Primary routes of exposure:
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.

Acute toxicity:
Of moderate toxicity after short-term inhalation. Of moderate toxicity after single ingestion. Of low toxicity after short-term skin contact.

Irritation / corrosion:
Corrosive! Damages skin and eyes.
Assessment other acute effects:
Causes temporary irritation of the respiratory tract.

Sensitization:
Skin sensitizing effects were not observed in animal studies.

Chronic toxicity:

Carcinogenicity: Results from a number of long-term carcinogenity studies are available. Taking into account all of the information, there is no indication that the substance is carcinogenic. None of the components in this product at concentrations greater than 0.1% are listed by IARC; NTP, OSHA or ACGIH as a carcinogen.

Repeated dose toxicity: After repeated exposure the prominent effect is local irritation.

Reproductive toxicity: The results of animal studies gave no indication of a fertility impairing effect.

Teratogenicity: No indications of a developmental toxic / teratogenic effect were seen in animal studies.

Genotoxicity: In the majority of tests performed (bacteria/microorganisms/cell cultures) a mutagenic effect was not found. A mutagenic effect was also not observed in in-vivo assays.

Medical conditions aggravated by overexposure:
Data available do not indicate that there are medical conditions that are generally recognized as being aggravated by exposure to this substance/product. See MSDS section 11 - Toxicological information.

Signs and symptoms of overexposure:
- skin corrosion
- Risk of pulmonary edema. Symptoms can appear later.

Potential environmental effects

Terrestrial toxicity:
Study scientifically not justified.

### 3. Composition / Information on Ingredients

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Content (W/W)</th>
<th>Chemical name</th>
</tr>
</thead>
<tbody>
<tr>
<td>79-10-7</td>
<td>99.5%</td>
<td>acrylic acid</td>
</tr>
<tr>
<td>150-76-5</td>
<td>&gt;= 180.0 - &lt;= 220.0 PPM</td>
<td>MEHQ</td>
</tr>
</tbody>
</table>

### 4. First-Aid Measures

**General advice:**
Immediately remove contaminated clothing. If danger of loss of consciousness, place patient in recovery position and transport accordingly. Apply artificial respiration if necessary. First aid personnel should pay attention to their own safety.

**If inhaled:**
Keep patient calm, remove to fresh air, seek medical attention.

**If on skin:**
Flush with copious amounts of water for at least 15 minutes. Sterile protective dressing. Immediate medical attention required.
If in eyes:  
Immediately wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an 
eye specialist.

If swallowed:  
Immediately rinse mouth and then drink plenty of water, do not induce vomiting, seek medical attention.

5. Fire-Fighting Measures

Flash point: 48.5 °C  
Autoignition: 438 °C  
Lower explosion limit: 2.0 %(V)  
Upper explosion limit: 8 %(V)  
Flammability: Flammable.  
Self-ignition temperature: Based on its structural properties the product is not classified as self-igniting.

Suitable extinguishing media: carbon dioxide, dry powder, water spray, foam

Hazards during fire-fighting:  

Protective equipment for fire-fighting:  
Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information:  
Remove product from areas of fire, or otherwise cool containers with water in order to avoid pressure build up due to heat. The product or its combustible parts are soluble in water. Contaminated extinguishing water must be disposed of in accordance with official regulations.

In case of a fire in the vicinity a restabilization system should be used if the temperature in the storage container reaches 45°C. Evacuate area of all unnecessary personnel. In case of a fire in the vicinity evacuate all personnel in a greater area if the temperature in the storage container reaches 60°C.

Impact Sensitivity:  
Remarks: Based on the chemical structure there is no shock-sensitivity.

6. Accidental release measures

Personal precautions:  
Breathing protection required. Ensure adequate ventilation. Avoid contact with the skin, eyes and clothing.

Environmental precautions:  
Substance/product is RCRA hazardous due to its properties.

Cleanup:  
Spills should be contained, solidified, and placed in suitable containers for disposal. Dispose of absorbed material in accordance with regulations.

7. Handling and Storage

Handling  
General advice:  
Handle in accordance with good industrial hygiene and safety practice. The substance/product may be handled only by appropriately trained personnel.
Ensure thorough ventilation of stores and work areas. When filling, transferring, or emptying of containers, adequate local exhaust ventilation is necessary. Vent waste air to atmosphere only through suitable separators. Check the condition of seals and connector screw threads.

Protect contents from the effects of light. Protect from direct sunlight. Protect against heat. Do not open warm or swollen product containers. Remove persons to safety and alert fire brigade.

Ensure adequate inhibitor and dissolved oxygen level.

Because of the possible separation from the stabilizer the product should never be partially melted and taken. Ensure that there is no crystallized product in the container before use. Obtain Information from supplier/manufacturer before dissolving totally or partially crystallized product. The ambient temperature of the container may not exceed the stated temperature limit when melting the product or keeping it at moderate temperature.

**Protection against fire and explosion:**
Vapours may form ignitable mixture with air. Avoid all sources of ignition: heat, sparks, open flame. Ground all transfer equipment properly to prevent electrostatic discharge.

**Storage**

**General advice:**
Prior to storage ensure that the transfer equipment used and the intended storage containers do not contain other substances/products. Before transfer to stock the identity of the product must be proved to be without doubt. The entrance to storage rooms is to be granted only to appropriately trained personnel.

The stabilizer is only effective in the presence of oxygen. Maintain contact with atmosphere containing 5 - 21% oxygen. Never use tanks with inert-gas installation for storage.

Risk of polymerization. Protect against heat. Avoid UV-light and other radiation with high energy. Protect against contamination.

All storage containers should at least be equipped with two high temperature alert devices.

Do not store product below the indicated minimum temperature, because crystallization should be absolutely avoided.

**Storage stability:**
Storage temperature: 15 - 25 °C
Storage duration: 12 Months

The stated storage temperature should be noted. Avoid prolonged storage. This product should be processed as soon as possible.

During storage, an unavoidable dimerization takes place, which reaction rate can be reduced by a storage temperature as low as possible. It is recommended to keep a safe distance of +2 degrees above the crystallization range.

The product is stabilized, the shelf life should be noted. Do not store with less than 10 % headspace above liquid. Ensure adequate inhibitor and dissolved oxygen level.

Storage temperature: 45 °C
A restabilization system should be used if the temperature in the storage container reaches the indicated value.

Storage temperature: 60 °C
All personnel in a greater area should be evacuated if the temperature in the storage container reaches the indicated value.

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8. Exposure Controls and Personal Protection

**Components with workplace control parameters**

acrylic acid

<table>
<thead>
<tr>
<th>ACGIH</th>
<th>TWA value 2 ppm</th>
<th>Skin Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The substance can be absorbed through the skin.

**Personal protective equipment**

**Respiratory protection:**
Wear a NIOSH-certified (or equivalent) organic vapour/particulate respirator.
Hand protection:
Chemical resistant protective gloves

Eye protection:
Tightly fitting safety goggles (chemical goggles).

Body protection:
light protective clothing

General safety and hygiene measures:
Avoid contact with skin. Avoid inhalation of vapour. Eye wash fountains and safety showers must be easily accessible. Wash soiled clothing immediately.

9. Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form</td>
<td>liquid</td>
</tr>
<tr>
<td>Odour</td>
<td>biting, acetic</td>
</tr>
<tr>
<td>Colour</td>
<td>colourless</td>
</tr>
<tr>
<td>pH value</td>
<td>2</td>
</tr>
<tr>
<td>Melting point</td>
<td>13 °C</td>
</tr>
<tr>
<td>Boiling point</td>
<td>141 °C</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>2.85 mmHg</td>
</tr>
<tr>
<td></td>
<td>30.00 mmHg</td>
</tr>
<tr>
<td>Density</td>
<td>1.05 g/cm³</td>
</tr>
<tr>
<td></td>
<td>1.0161 g/cm³</td>
</tr>
<tr>
<td>Relative density</td>
<td>1.05</td>
</tr>
<tr>
<td>Vapour density</td>
<td>2.5</td>
</tr>
<tr>
<td>Partitioning coefficient</td>
<td>0.46</td>
</tr>
<tr>
<td>n-octanol/water (log Pow)</td>
<td>(25 °C)</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>1.149 mPa.s</td>
</tr>
<tr>
<td>Solubility in water</td>
<td>(25 °C)</td>
</tr>
<tr>
<td>Solubility (qualitative)</td>
<td>miscible</td>
</tr>
<tr>
<td></td>
<td>solvent(s): organic solvents,</td>
</tr>
<tr>
<td>Molar mass</td>
<td>72.06 g/mol</td>
</tr>
</tbody>
</table>

10. Stability and Reactivity

Conditions to avoid:
Avoid heat. Avoid oxygen content above the product of less than 5 %. Do not blanket with nitrogen. Avoid UV-light and other radiation with high energy. Avoid direct sunlight. Avoid prolonged storage. Avoid inhibitor loss. Avoid excessive temperatures. Avoid temperatures below the crystallization range.

Substances to avoid:
radical formers, free radical initiators, peroxides, mercaptans, nitro-compounds, perborates, azides, ether, ketones, aldehydes, amines, nitrates, nitriles, oxidizing agents, reducing agents, strong bases, alkaline reactive substances, acid anhydrides, acid chlorides, concentrated mineral acids, metal salts

Hazardous reactions:
Explosion and fire hazard exists under confined conditions. Ignitable air mixtures can form when the product is heated above the flash point and/or when sprayed or atomized.
Risk of spontaneous and violent self-polymerization if inhibitor is lost or product is exposed to excessive heat.
Risk of spontaneous polymerization when heated or in the presence of UV radiation. With unstabilised product, spontaneous polymerisation may occur e.g. through ambient heat. Polymerization coupled with heat formation.
Polymerization produces gases which may burst closed or confined containers. Reactions may cause ignition.
Risk of spontaneous polymerization by oxygen depletion of the liquid phase.
Radical formation can cause exothermic polymerization. Reacts with peroxides and other radical components.
Risk of spontaneous polymerization in the presence of starters for radical chain reactions (e.g. peroxides).
Reacts with nitric acid. Polymerizes explosively in contact with strong oxidizing agents.
Hazardous reactions in presence of mentioned substances to avoid.
The product is stabilized against spontaneous polymerization prior to despatch. The product is stable if stored and handled as prescribed/indicated.
Decomposition products:
Hazardous decomposition products: No hazardous decomposition products if stored and handled as prescribed/indicated.

Thermal decomposition:
No decomposition if stored and handled as prescribed/indicated.

Corrosion to metals:
Corrodes metals in the presence of water or moisture.

Oxidizing properties:
Based on its structural properties the product is not classified as oxidizing.

11. Toxicological information

Acute toxicity

Oral:
Type of value: LD50
Species: rat
Value: 1,500 mg/kg (Test)

Inhalation:
Type of value: LC50
Species: rat (male/female)
Value: > 5.1 mg/l (OECD Guideline 403)
Exposure time: 4 h
The vapour was tested.

Dermal:
Type of value: LD50
Species: rabbit (male/female)
Value: > 2,000 mg/kg (OECD Guideline 402)

Irritation / corrosion

Skin:
Species: rabbit
Result: strongly corrosive
Method: OECD Guideline 404

Eye:
Species: rabbit
Result: Risk of serious damage to eyes.
Method: Test

Sensitization:
Freund's complete adjuvant test (FCA)
Species: guinea pig
Result: Non-sensitizing.

12. Ecological Information

Fish

Acute:
EPA 72-1 Flow through.
Salmo gairdneri, syn. O. mykiss/LC50 (96 h): 27 mg/l
The statement of the toxic effect relates to the analytically determined concentration.

Chronic:
Study not necessary due to exposure considerations.

Aquatic invertebrates

Acute:
Daphnia test acute Flow through.
Daphnia magna/EC50 (48 h): 95 mg/l
The statement of the toxic effect relates to the analytically determined concentration.

Chronic:
OPP 72-4 (EPA-Guideline) Flow through. Daphnia magna (NOEC) 21 d 3.8 mg/l
The statement of the toxic effect relates to the analytically determined concentration.

Aquatic plants

Toxicity to aquatic plants:
Guideline 92/69/EEC, C.3 static
green algae/No observed effect concentration (72 h): 0.008 mg/l
The details of the toxic effect relate to the nominal concentration.

Microorganisms

Toxicity to microorganisms:
DIN EN ISO 8192 aquatic
activated sludge, domestic/EC20 (0.5 h): 900 mg/l
Nominal concentration.

Soil living organisms

Toxicity to soil dwelling organisms:
OECD 217 artificial soil
other soil dwelling microorganisms/No observed effect concentration (28 d): 100 ppm
Directive 88/302/EEC, part C, p. 95 artificial soil
Eisenia foetida/LC50 (14 d): > 1,000 mg/kg

Degradability / Persistence

Biological / Abiological Degradation
Test method: OECD 301 A (new version) (aerobic),
Method of analysis: DOC reduction
Degree of elimination: 90 - 100 % (9 d)
Evaluation: Readily biodegradable (according to OECD criteria).

Hydrolysis
Test method: OECD Guideline 111 (abiotic)
ph7
Half-life: > 365 d (25 °C)

Bioaccumulation

calculated
Bioconcentration factor 3.16

Environmental mobility:

Transport between environmental compartments:
OECD Guideline 106 adsorption/water - soil
KOC: approx. 42.8
log KOC: approx. 1.6
volatility/water - air

Other adverse effects:
13. Disposal considerations

Waste disposal of substance:
Incorporate or dispose of in a RCRA-licensed facility. Do not discharge into drains/surface waters/groundwater. Dispose of in accordance with national, state and local regulations.

Container disposal:
Dispose of in a licensed facility. Do not reuse empty containers. Flammable vapors may exist in containers in which residues of this product remain.

RCRA: U008

14. Transport Information

Land transport
USDOT
Hazard class: 8
Packing group: II
ID number: UN 2218
Hazard label: 8, 3, EHSM
Proper shipping name: ACRYLIC ACID, STABILIZED

Sea transport
IMDG
Hazard class: 8
Packing group: II
ID number: UN 2218
Hazard label: 8, 3, EHSM
Marine pollutant: YES
Proper shipping name: ACRYLIC ACID, STABILIZED

Air transport
IATA/ICAO
Hazard class: 8
Packing group: II
ID number: UN 2218
Hazard label: 8, 3
Proper shipping name: ACRYLIC ACID, STABILIZED

15. Regulatory Information

Federal Regulations
Registration status: Chemical TSCA, US released / listed
OSHA hazard category: This material is classified as hazardous under OSHA regulations.; Acute target organ effects reported; Chronic target organ effects reported; Corrosive
Safety Data Sheet

Glacial Acrylic Acid

EPCRA 311/312 (Hazard categories): Acute; Chronic; Fire; Reactivity

EPCRA 313:

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Chemical name</th>
</tr>
</thead>
<tbody>
<tr>
<td>79-10-7</td>
<td>acrylic acid</td>
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</table>

CERCLA RQ

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Chemical name</th>
</tr>
</thead>
<tbody>
<tr>
<td>79-10-7</td>
<td>acrylic acid</td>
</tr>
</tbody>
</table>

Reportable Quantity for release: 5,000 lb

State regulations

<table>
<thead>
<tr>
<th>State RTK</th>
<th>CAS Number</th>
<th>Chemical name</th>
</tr>
</thead>
<tbody>
<tr>
<td>MA, NJ, PA</td>
<td>79-10-7</td>
<td>acrylic acid</td>
</tr>
<tr>
<td>MA, NJ, PA</td>
<td>150-76-5</td>
<td>MEHQ</td>
</tr>
</tbody>
</table>

16. Other Information

Recommended use: for industrial use only
Unsuitable for use: cosmetics; Pharmaceutical

NFPA Hazard codes:
Health: 3 Fire: 2 Reactivity: 2 Special:

HMIS III rating
Health: 3 Flammability: 2 Physical hazard: 2

NFPA and HMIS use a numbering scale ranging from 0 to 4 to indicate the degree of hazard. A value of zero means that the substance possesses essentially no hazard; a rating of four indicates extreme danger. Although similar, the two rating systems are intended for different purposes, and use different criteria. The NFPA system was developed to provide an on-the-spot alert to the hazards of a material, and their severity, to emergency responders. The HMIS system was designed to communicate workplace hazard information to employees who handle hazardous chemicals.

MSDS Prepared by:

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END OF DATA SHEET