

## SAFETY DATA SHEET

### ACRYLIC ACID BULK

#### 1. IDENTIFICATION

##### A. Product name

- ACRYLIC ACID BULK [AAB]

##### B. Recommended use and restriction on use

- General use : Acrylic Esters, SAP(Super Absorbent Polymer), Cross-linking Agent, Chemical Intermediate  
- Restriction on use : Not available

#### A. GHS Classification

- Flammable liquids : Category3
- Acute toxicity (oral) : Category3
- Acute toxicity (dermal) : Category3
- Acute toxicity (inhalation: vapor) : Category3
- Skin corrosion/irritation : Category1B
- Serious eye damage/irritation : Category1
- Specific target organ toxicity(Single exposure) : Category3(Respiratory tract irritation)
- Acute aquatic toxicity : Category1

#### B. GHS label elements

##### o Hazard symbols



##### o Signal words

- Danger

##### o Hazard statements

- H226 Flammable liquid and vapour
- H301 Toxic if swallowed

- H311 Toxic in contact with skin
- H314 Causes severe skin burns and eye damage
- H318 Causes serious eye damage
- H331 Toxic if inhaled
- H335 May cause respiratory irritation.
- H400 Very toxic to aquatic life

○ **Precautionary statements**

**1) Prevention**

- P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
- P233 Keep container tightly closed.
- P240 Ground/bond container and receiving equipment.
- P241 Use explosion-proof electrical/ventilating/lighting/equipment.
- P242 Use only non-sparking tools. Flammable liquids (chapter 2.6) 1, 2, 3
- P243 Take precautionary measures against static discharge.
- P260 Do not breathe gas/mist/vapours/spray.
- P261 Avoid breathing gas/mist/vapours/spray.
- P264 Wash hands thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P271 Use only outdoors or in a well-ventilated area.
- P273 Avoid release to the environment.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.

**2) Response**

- P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
- P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
- P302+P352 IF ON SKIN: Wash with plenty of soap and water.
- P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P310 Immediately call a POISON CENTER or doctor/physician.
- P311 Call a POISON CENTER or doctor/physician.
- P312 Call a POISON CENTER or doctor/physician if you feel unwell.
- P321 Specific treatment
- P330 Rinse mouth.
- P361 Remove/Take off immediately all contaminated clothing.
- P363 Wash contaminated clothing before reuse.
- P370+P378 In case of fire: Use Suitable extinguishing media for extinction(Refer Section MSDS 5).
- P391 Collect spillage.

**3) Storage**

- P403+P233 Store in a well-ventilated place. Keep container tightly closed.
- P403+P235 Store in a well-ventilated place. Keep cool.
- P405 Store locked up.

**4) Disposal**

- P501 Dispose of contents/container in accordance with local/regional/national/international regulation

**C. Other hazards which do not result in classification : (NFPA Classification)**

○ **NFPA grade (0 ~ 4 level)**

- Health : 3 , Flammability : 2, Reactivity : 2

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Chemical Name	Trade names and Synonyms	CAS No.	Content(%)
Acrylic acid	Ethene carboxylic acid	79-10-7	99.5

**4. FIRST AID MEASURES**

**A. Eye contact**

- Do not rub your eyes.
- Immediately flush eyes with plenty of water for at least 15 minutes and call a doctor/physician.
- Get medical attention immediately.
- Remove contact lenses if worn.

#### **B. Skin contact**

- Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Laundering enough contaminated clothing before reuse.
- Get medical attention immediately.
- Prevent the spread of the skin.
- Take the doctor's examination.
- Wash thoroughly after handling.

#### **C. Inhalation contact**

- When exposed to large amounts of steam and mist, move to fresh air.
- Take specific treatment if needed.
- Get medical attention immediately.
- If breathing is stopped or irregular, give artificial respiration and supply oxygen.
- Take the doctor's examination.

#### **D. Ingestion contact**

- Please be advised by doctor whether induction of vomit is demanded or not.
- Rinse your mouth with water immediately.
- Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Get medical attention immediately.

#### **E. Delayed and immediate effects and also chronic effects from short and long term exposure**

- Not available

#### **F. Notes to physician**

- Notify medical personnel of contaminated situations and have them take appropriate protective measures.

### **5. FIREFIGHTING MEASURES**

#### **A. Suitable (Unsuitable) extinguishing media**

- Dry chemical, carbon dioxide, regular foam extinguishing agent, spray
- Avoid use of water jet for extinguishing

#### **B. Specific hazards arising from the chemical**

- Not available

#### **C. Special protective actions for firefighters**

- Move containers from fire area, if you can do without the risk.
- Avoid inhalation of materials or combustion by-products.
- Do not access if the tank on fire.
- Use appropriate extinguishing measure suitable for surrounding fire.
- Wear appropriate protective equipment.
- Keep containers cool with water spray.
- Vapor or gas is burned at distant ignition sources can be spread quickly.
- Due to the extremely low flash point, irrigating fire extinguishing may be less effective when put out a fire.

### **6. ACCIDENTAL RELEASE MEASURES**

#### **A. Personal precautions, protective equipment and emergency procedures**

- Ventilate closed spaces before entering.
- Must work against the wind, let the upwind people to evacuate.
- Move container to safe area from the leak area.

- Handling the damaged containers or spilled material after wearing protective equipment.
- Do not direct water at spill or source of leak.
- Avoid skin contact and inhalation.
- Cleanup and disposal under expert supervision is advised.

#### **B. Environmental precautions**

- Prevent runoff and contact with waterways, drains or sewers.
- If large amounts have been spilled, inform the relevant authorities.

#### **C. Methods and materials for containment and cleaning up**

- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notification to central government, local government. When emissions at least of the standard amount
- Dispose of waste in accordance with local regulation.
- Appropriate container for disposal of spilled material collected.
- Small leak: sand or other non-combustible material, please let use absorption.
- Wipe off the solvent.
- Dike for later disposal.
- Avoid entering to sewers or water system.
- Do not use plastic containers.
- Prevent the influx to waterways, sewers, basements or confined spaces.

### **7. HANDLING AND STORAGE**

#### **A. Precautions for safe handling**

- Since emptied containers retain product residue(vapor, liquid, solid) follow all MSDS and label warnings even after container is emptied.
- Get the manual before use.
- Dealing only with a well-ventilated place.
- Do not handle until all safety precautions have been read and understood.
- Do not inhale the steam prolonged or repeated.
- Avoid contact with heat, sparks, flame or other ignition sources.

#### **B. Conditions for safe storage, including any incompatibilities**

- Save in cool, dry and well ventilated place.
- Do not apply any physical shock to container.
- Avoid direct sunlight.
- Keep sealed when not in use.
- No open fire.
- Collected them in sealed containers.
- Do not eat, drink or smoke when using this product.
- Store away from water and sewer.

### **8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

#### **A. Exposure limits**

- o **ACGIH TLV**
  - [Acrylic acid] : TWA, 2 ppm(5.9 mg/m3)
- o **OSHA PEL**
  - Not available

#### **B. Engineering controls**

- A system of local and/or general exhaust is recommended to keep employee exposures above the Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. The use of local exhaust ventilation is recommended to control emissions near the source.

#### **C. Individual protection measures, such as personal protective equipment**

- o **Respiratory protection**
  - Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.
  - Respiratory protection is ranked in order from minimum to maximum.

- Consider warning properties before use.
- Any chemical cartridge respirator with organic vapor cartridge(s).
- Any chemical cartridge respirator with a full facepiece and organic vapor cartridge(s).
- Any air-purifying respirator with a full facepiece and an organic vapor canister.
- For Unknown Concentration or Immediately Dangerous to Life or Health : Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full facepiece.
- **Eye protection**
  - Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.
  - Provide an emergency eye wash station and quick drench shower in the immediate work area.
- **Hand protection**
  - Wear appropriate chemical resistant glove.
- **Skin protection**
  - Wear appropriate chemical resistant protective clothing.
- **Others**
  - Not available

## 9. PHYSICAL AND CHEMICAL PROPERTIES

A. Appearance	
- Appearance	Liquid
- Color	Colorless
B. Odor	Irritating Odor
C. Odor threshold	1.04 ppm
D. pH	2.5 (10% Solution)
E. Melting point/Freezing point	14 °C
F. Initial Boiling Point/Boiling Ranges	141 °C
G. Flash point	48 °C ~ 55 °C
H. Evaporation rate	Not available
I. Flammability(solid, gas)	Flammable Liquid
J. Upper/Lower Flammability or explosive limits	8.0% / 2.0%
K. Vapour pressure	3.8 hPa (at 20 °C)
L. Solubility	1000 g/L (25 °C)
M. Vapour density	2.5
N. Specific gravity(Relative density)	1.0621 g/cm <sup>3</sup> at 20 °C
O. Partition coefficient of n-octanol/water	0.35
P. Autoignition temperature	395 °C
Q. Decomposition temperature	Not available
R. Viscosity	Not available
S. Molecular weight	72.064 g/mol

## 10. STABILITY AND REACTIVITY

### A. Chemical Stability

- This material is stable under recommended storage and handling conditions.

### B. Possibility of hazardous reactions

- Cylinders exposed to fire may vent and release flammable gas.

### C. Conditions to avoid

- Avoid contact with incompatible materials and condition.
- Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surfaces
- Avoid contact with heat, sparks, flame or other ignition sources.

### D. Incompatible materials

- Not available

## E. Hazardous decomposition products

- May emit flammable vapour if involved in fire.

## 11. TOXICOLOGICAL INFORMATION

### A. Information on the likely routes of exposure

- **(Respiratory tracts)**
  - May cause respiratory irritation.
- **(Oral)**
  - Toxic if swallowed
- **(Eye-Skin)**
  - Causes serious eye damage
  - Causes severe skin burns and eye damage

### B. Delayed and immediate effects and also chronic effects from short and long term exposure

- **Acute toxicity**
  - \* **Oral**
    - [Acrylic acid] : LD50 = 193 mg/kg Rat (EHC 191; NITE)
  - \* **Dermal**
    - [Acrylic acid] : LD50 = 295 mg/kg rabbit (EHC 191; NITE)
  - \* **Inhalation**
    - [Acrylic acid] : LC50 >5.1 mg/ℓ 4 hr Rat (GLP, ECHA) LC50 3.6 mg/L/4hr (NITE)
- **Skin corrosion/irritation**
  - Causes severe skin burns and eye damage
- **Serious eye damage/irritation**
  - Causes serious eye damage
- **Respiratory sensitization**
  - Not available
- **Skin sensitization**
  - Not available
- **Carcinogenicity**
  - \* **IARC**
    - [Acrylic acid] : Group 3
  - \* **OSHA**
    - Not available
  - \* **ACGIH**
    - [Acrylic acid] : A4
  - \* **NTP**
    - Not available
  - \* **EU CLP**
    - Not available
- **Germ cell mutagenicity**
  - Not available
- **Reproductive toxicity**
  - Not available
- **STOT-single exposure**
  - May cause respiratory irritation.
- **STOT-repeated exposure**
  - Not available
- **Aspiration hazard**
  - Not available

## 12. ECOLOGICAL INFORMATION

### A. Ecotoxicity

- **Fish**
  - [Acrylic acid] : LC50 = 27 mg/ℓ 96 hr
- **Crustaceans**
  - [Acrylic acid] : EC50 = 54 mg/ℓ 24 hr

- **Algae**
- [Acrylic acid] : EC50 = 0.13 mg/ℓ 72 hr (EHC (1997))

## B. Persistence and degradability

- **Persistence**
- [Acrylic acid] : log Kow 0.35 (NITE)
- **Degradability**
- Not available

## C. Bioaccumulative potential

- **Bioaccumulative potential**
- Not available
- **Biodegradation**
- [Acrylic acid] : Biodegradability = BOD 67.8 (%) (existing chemical safety inspections data)

## D. Mobility in soil

- [Acrylic acid] : log Kow = 0.35 (10)

## E. Other adverse effects

- Not available

## 13. DISPOSAL CONSIDERATIONS

### A. Disposal methods

- Since more than two kinds of designaed waste is mixed, it is difficult to treat seperatly, then can be reduction or stabilization by incineration or similar process.
- If water separation is possible, pre-process with Water separation process.
- Dispose by incineration.
- Do disposal as the method of agglomeration, precipitation, filtration and dehydration after disposal using the reaction of neutralization and oxidation-reduction.
- Do disposal as the method of evaporation and concentration.
- Purified by means of Separation•distillation•extractio•filtration

### B. Special precautions for disposal

- The user of this product must disposal by oneself or entrust to waste disposer or person who other's waste recycle and dispose, person who establish and operate waste disposal facilities.
- Dispose of waste in accordance with all applicable laws and regulations.

## 14. TRANSPORT INFORMATION

### A. UN No. (IMDG)

- 2218

### B. Proper shipping name

- Acrylic acid, stabilized

### C. Hazard Class

- 8

### D. IMDG Packing group

- II

### E. Marine pollutant

- Applicable
- Applicable

### F. Special precautions for user related to transport or transportation measures

- Local transport follows in accordance with Dangerous goods Safety Management Law.
- Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency requirements.

- Air transport(IATA): Not subject to LATA regulations.
- EmS FIRE SCHEDULE : F-E (Non-water-reactive flammable liquids)
- EmS SPILLAGE SCHEDULE : S-C (Flammable corrosive liquids)
- Self Accelerating Polymerization Temperature (SAPT) : More than 50 °C

## 15. REGULATORY INFORMATION

### A. National and/or international regulatory information

- **POPs Management Law**
  - Not applicable
- **Information of EU Classification**
  - \* **Classification**
    - [Acrylic acid] : R10 Xn; R20/21/22 C; R35 N; R50
  - \* **Risk Phrases**
    - [Acrylic acid] : R10, R20/21/22, R35, R50
  - \* **Safety Phrase**
    - [Acrylic acid] : S1/2, S26, S36/37/39, S45, S61
- **U.S. Federal regulations**
  - \* **OSHA PROCESS SAFETY (29CFR1910.119)**
    - Not applicable
  - \* **CERCLA Section 103 (40CFR302.4)**
    - [Acrylic acid] : 2267.995 kg 5000 lb
  - \* **EPCRA Section 302 (40CFR355.30)**
    - Not applicable
  - \* **EPCRA Section 304 (40CFR355.40)**
    - Not applicable
  - \* **EPCRA Section 313 (40CFR372.65)**
    - [Acrylic acid] : Applicable
- **Rotterdam Convention listed ingredients**
  - Not applicable
- **Stockholm Convention listed ingredients**
  - Not applicable
- **Montreal Protocol listed ingredients**
  - Not applicable

## 16. OTHER INFORMATION

### A. Reference

- The information contained herein is believed to be accurate. It is provided independently of any sale of the product for purpose of hazard communication. It is not intended to constitute performance information concerning the product. No express warranty, or implied warranty of merchantability or fitness for a particular purpose is made with respect to the product or the information contained herein.
- This Safety Data Sheet was compiled with data and information from the following sources: KOSHA, NITE, ESIS, NLM, SIDS, IPCS

### B. Issue date

- 2016-01-21

### C. Revision number and Last date revised

- 2 times, 2017-11-22

### D. Other

- This SDS is prepared according to the Globally Harmonized System (GHS).