

ALFAAL04280

Acrylic acid

SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

产品说明: 丙烯酸, 大约, 200ppm的4-甲氧基苯酚作稳定剂
Product Description: Acrylic acid

Cat No. : L04280
Synonyms Acrylic acid, inhibited; 2-Propenoic acid; Acroleic acid
CAS No 79-10-7
Molecular Formula C3 H4 O2

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Recommended Use Laboratory chemicals.
Uses advised against No Information available

SECTION 2. HAZARD IDENTIFICATION

Physical State
Liquid

Appearance
Colorless

Odor
Stench

Emergency Overview

Highly flammable liquid and vapor. Harmful if swallowed. Harmful in contact with skin. Causes severe skin burns and eye damage.
Harmful if inhaled. May cause respiratory irritation. Very toxic to aquatic life. Hygroscopic. Stench.

Classification of the substance or mixture

| | |
|--|--------------|
| Flammable liquids. | Category 3 |
| Acute Oral Toxicity | Category 4 |
| Acute Dermal Toxicity | Category 4 |
| Acute Inhalation Toxicity - Vapors | Category 4 |
| Skin Corrosion/Irritation | Category 1 A |
| Serious Eye Damage/Eye Irritation | Category 1 |
| Specific target organ toxicity - (single exposure) | Category 3 |
| Acute aquatic toxicity | Category 1 |

Label Elements

**Signal Word****Danger****Hazard Statements**

H226 - Flammable liquid and vapor
 H314 - Causes severe skin burns and eye damage
 H335 - May cause respiratory irritation
 H400 - Very toxic to aquatic life
 H302 + H312 + H332 - Harmful if swallowed, in contact with skin or if inhaled

Precautionary Statements**Prevention**

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
 P240 - Ground and bond container and receiving equipment
 P241 - Use explosion-proof electrical/ ventilating/ lighting equipment
 P242 - Use non-sparking tools
 P243 - Take action to prevent static discharges
 P264 - Wash face, hands and any exposed skin thoroughly after handling
 P270 - Do not eat, drink or smoke when using this product
 P271 - Use only outdoors or in a well-ventilated area
 P280 - Wear protective gloves/protective clothing/eye protection/face protection

Response

P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower
 P304 + P340 - IF INHALED: Remove person to fresh air and keep 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
 P330 - Rinse mouth
 P331 - Do NOT induce vomiting
 P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish
 P362 + P364 - Take off contaminated clothing and wash it before reuse

Storage

P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

Disposal

P501 - Dispose of contents/ container to an approved waste disposal plant

Physical and Chemical Hazards

Highly flammable. Vapors may cause flash fire or explosion. Hygroscopic.

Health Hazards

Harmful if swallowed. Harmful in contact with skin. Corrosive. Causes skin and eye burns. Harmful if inhaled. May cause respiratory irritation.

Environmental hazards

Very toxic to aquatic life. . Will likely be mobile in the environment due to its water solubility. The product is water soluble, and may spread in water systems.

Other Hazards

Stench. Toxic to terrestrial vertebrates. This product does not contain any known or suspected endocrine disruptors.

| |
|--|
| SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS |
|--|

| Component | CAS No | Weight % |
|-----------------|----------|-------------|
| Acrylic acid | 79-10-7 | >95 |
| 4-Methoxyphenol | 150-76-5 | 0.018-0.022 |

SECTION 4. FIRST AID MEASURES**Eye Contact**

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

Skin Contact

Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Immediate medical attention is required.

Inhalation

Remove to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.

Ingestion

Do NOT induce vomiting. Call a physician or poison control center immediately.

Most important symptoms and effects

Difficulty in breathing. Causes burns by all exposure routes. . Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

Self-Protection of the First Aider

Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

Notes to Physician

Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES**Suitable Extinguishing Media**

Carbon dioxide (CO₂). Dry chemical. Water mist may be used to cool closed containers. Chemical foam. Water mist may be used to cool closed containers.

Extinguishing media which must not be used for safety reasons

No information available.

Specific Hazards Arising from the Chemical

Flammable. Corrosive material. Risk of ignition. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated. Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition. Vapors may form explosive mixtures with air. Do not allow run-off from fire-fighting to enter drains or water courses.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6. ACCIDENTAL RELEASE MEASURES**Personal Precautions**

Wear self-contained breathing apparatus and protective suit. Evacuate personnel to safe areas. Remove all sources of ignition. Do not get in eyes, on skin, or on clothing. Take precautionary measures against static discharges.

Environmental Precautions

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Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained. See Section 12 for additional Ecological Information. Avoid release to the environment. Collect spillage.

Methods for Containment and Clean Up

Wear self-contained breathing apparatus and protective suit. Remove all sources of ignition. Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Use spark-proof tools and explosion-proof equipment.

Refer to protective measures listed in Sections 8 and 13.

SECTION 7. HANDLING AND STORAGE**Handling**

Use only under a chemical fume hood. Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance. Use spark-proof tools and explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharges. Use only non-sparking tools.

Storage

Keep at temperatures between 15 °C and 25 °C. Keep away from heat, sparks and flame. Store indoors. May form explosive peroxides. Regularly check inhibitor levels to maintain peroxide levels below 1%. Keep container tightly closed in a dry and well-ventilated place.

Specific Use(s)

Use in laboratories

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Control Parameters**

| Component | China | Taiwan | Thailand | Hong Kong |
|-----------------|----------------------------------|--|------------|-----------|
| Acrylic acid | TWA: 6 mg/m ³ Skin | TWA: 10 ppm TWA: 30 mg/m ³ | TWA: 2 ppm | - |
| 4-Methoxyphenol | - | TWA: 5 mg/m ³ | - | - |

| Component | ACGIH TLV | OSHA PEL | NIOSH | The United Kingdom | European Union |
|-----------------|--------------------------|--|--|--|--|
| Acrylic acid | TWA: 2 ppm Skin | (Vacated) TWA: 10 ppm (Vacated) TWA: 30 mg/m ³ Skin | TWA: 2 ppm TWA: 6 mg/m ³ | STEL: 20 ppm 15 min STEL: 59 mg/m ³ 15 min TWA: 10 ppm 8 hr TWA: 29 mg/m ³ 8 hr | TWA: 29 mg/m ³ (8h) TWA: 10 ppm (8h) STEL: 59 mg/m ³ (15min) STEL: 20 ppm (15min) |
| 4-Methoxyphenol | TWA: 5 mg/m ³ | (Vacated) TWA: 5 mg/m ³ | TWA: 5 mg/m ³ | - | - |

Legend

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH: NIOSH - National Institute for Occupational Safety and Health

Monitoring methods

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents. MDHS70 General methods for sampling airborne gases and vapours MDHS 88 Volatile organic compounds in air. Laboratory method using diffusive samplers, solvent desorption and gas chromatography MDHS 96 Volatile organic compounds in air - Laboratory method using pumped solid sorbent tubes, solvent desorption and gas chromatography

Exposure Controls**Engineering Measures**

Use only under a chemical fume hood. Use explosion-proof electrical/ventilating/lighting equipment. Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas. Wherever

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possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source.

Personal protective equipment

Eye Protection Wear safety glasses with side shields (or goggles) Goggles (European standard - EN 166)

Hand Protection Protective gloves

| Glove material | Breakthrough time | Glove thickness | EU standard | Glove comments |
|----------------|-----------------------------------|-----------------|-------------|-----------------------|
| Nitrile rubber | See manufacturers recommendations | - | EN 374 | (minimum requirement) |
| Neoprene | | | | |
| Natural rubber | | | | |
| PVC | | | | |

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure

Respiratory Protection When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

Large scale/emergency use Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced
Recommended Filter type: Organic gases and vapours filter Type A Brown conforming to EN14387

Small scale/Laboratory use Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Recommended half mask:- Valve filtering: EN405; or; Half mask: EN140; plus filter, EN 141
When RPE is used a face piece Fit Test should be conducted

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

Environmental exposure controls Prevent product from entering drains. Do not allow material to contaminate ground water system. Local authorities should be advised if significant spillages cannot be contained.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

| | | |
|---------------------------------|---------------------|--|
| Appearance | Colorless | |
| Physical State | Liquid | |
| Odor | Stench | |
| Odor Threshold | No data available | |
| pH | 1.0-2 | |
| Melting Point/Range | 13 °C / 55.4 °F | |
| Softening Point | No data available | |
| Boiling Point/Range | 139 °C / 282.2 °F | @ 760 mmHg |
| Flash Point | 48 °C / 118.4 °F | Method - No information available |
| Evaporation Rate | No data available | |
| Flammability (solid,gas) | Not applicable | Liquid |
| Explosion Limits | Lower 2 Vol% | |

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| Vapor Pressure | Upper 15.9 Vol% @ 3.8 mbar °C 20 | |
| Vapor Density | 2.48 (Air = 1.0) | (Air = 1.0) |
| Specific Gravity / Density | 1.050 | |
| Bulk Density | Not applicable | Liquid |
| Water Solubility | Miscible | |
| Solubility in other solvents | No information available | |
| Partition Coefficient (n-octanol/water) | | |
| Component | log Pow | |
| Acrylic acid | 0.46 | |
| 4-Methoxyphenol | 1.3 | |
| Autoignition Temperature | 374 °C / 705.2 °F | |
| Decomposition Temperature | No data available | |
| Viscosity | 1.3 mPa s at 20 °C | |
| Explosive Properties | | explosive air/vapour mixtures possible |
| Oxidizing Properties | No information available | |
| Molecular Formula | C3 H4 O2 | |
| Molecular Weight | 72.06 | |

SECTION 10. STABILITY AND REACTIVITY

| | |
|---|--|
| Stability | Hazardous polymerization may occur. May form explosive peroxides on prolonged storage. Hygroscopic. |
| Hazardous Reactions | No information available. |
| Hazardous Polymerization | Hazardous polymerization may occur upon depletion of inhibitor. |
| Conditions to Avoid | Excess heat. Keep away from open flames, hot surfaces and sources of ignition. Exposure to light. Exposure to moist air or water. Incompatible products. |
| Materials to avoid | Strong oxidizing agents. Strong bases. oxygen. Peroxides. Halogens. Aldehydes. Amines. Acid anhydrides. |
| Hazardous Decomposition Products | Carbon monoxide (CO). Carbon dioxide (CO ₂). |

SECTION 11. TOXICOLOGICAL INFORMATION

Product Information Harmful by inhalation, in contact with skin and if swallowed

(a) acute toxicity;

| Component | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|-----------------|----------------------|------------------------------|--------------------|
| Acrylic acid | 468-1500 mg/kg (Rat) | >2000 mg/kg (Rabbit) | >5.1 mg/L/4h (Rat) |
| 4-Methoxyphenol | 1600 mg/kg (Rat) | LD50 > 2000 mg/kg (Rabbit) | |

(b) skin corrosion/irritation; Category 1 A

(c) serious eye damage/irritation; Category 1

(d) respiratory or skin sensitization;

Respiratory
Skin

Based on available data, the classification criteria are not met
Based on available data, the classification criteria are not met

(e) germ cell mutagenicity; Based on available data, the classification criteria are not met

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| | |
|--|---|
| (f) carcinogenicity; | Based on available data, the classification criteria are not met There are no known carcinogenic chemicals in this product |
| (g) reproductive toxicity; Reproductive Effects | Based on available data, the classification criteria are not met Experiments have shown reproductive toxicity effects on laboratory animals. |
| (h) STOT-single exposure; Results / Target organs | Category 3 Respiratory system |
| (i) STOT-repeated exposure; Target Organs | Based on available data, the classification criteria are not met None known. |
| (j) aspiration hazard; | Based on available data, the classification criteria are not met |
| Other Adverse Effects | See actual entry in RTECS for complete information |
| Symptoms / effects, both acute and delayed | Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation |

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity effects The product contains following substances which are hazardous for the environment. Very toxic to aquatic organisms.

| Component | Freshwater Fish | Water Flea | Freshwater Algae | Microtox |
|-----------------|--|--------------------------------------|--|--|
| Acrylic acid | LC50: = 222 mg/L, 96h semi-static (Brachydanio rerio) | EC50: = 95 mg/L, 48h (Daphnia magna) | EC50: = 0.17 mg/L, 96h (Pseudokirchneriella subcapitata) EC50: = 0.04 mg/L, 72h (Desmodesmus subspicatus) | |
| 4-Methoxyphenol | LC50: = 28.5 mg/L, 96h flow-through (Oncorhynchus mykiss) LC50: = 84.3 mg/L, 96h flow-through (Pimephales promelas) | | | EC50 = 3.66 mg/L 5 min EC50 = 4.30 mg/L 15 min EC50 = 4.61 mg/L 30 min |

Persistence and Degradability
Persistence Readily biodegradable
Degradation in sewage treatment plant Miscible with water, Persistence is unlikely, based on information available.
 Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

Bioaccumulative Potential Bioaccumulation is unlikely

| Component | log Pow | Bioconcentration factor (BCF) |
|-----------------|---------|-------------------------------|
| Acrylic acid | 0.46 | No data available |
| 4-Methoxyphenol | 1.3 | No data available |

Mobility in soil The product is water soluble, and may spread in water systems Will likely be mobile in the

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environment due to its water solubility Highly mobile in soils

Endocrine Disruptor Information This product does not contain any known or suspected endocrine disruptors
Persistent Organic Pollutant This product does not contain any known or suspected substance
Ozone Depletion Potential This product does not contain any known or suspected substance

SECTION 13. DISPOSAL CONSIDERATIONS

Waste from Residues/Unused Products Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

Contaminated Packaging Dispose of this container to hazardous or special waste collection point. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep product and empty container away from heat and sources of ignition.

Other Information Do not flush to sewer. Waste codes should be assigned by the user based on the application for which the product was used. Can be landfilled or incinerated, when in compliance with local regulations. Do not empty into drains. Large amounts will affect pH and harm aquatic organisms. Do not let this chemical enter the environment.

SECTION 14. TRANSPORT INFORMATION**Road and Rail Transport**

UN-No UN2218
Proper Shipping Name ACRYLIC ACID, STABILIZED
Hazard Class 8
Subsidiary Hazard Class 3
Packing Group II

IMDG/IMO

UN-No UN2218
Proper Shipping Name ACRYLIC ACID, STABILIZED
Hazard Class 8
Subsidiary Hazard Class 3
Packing Group II

IATA

UN-No UN2218
Proper Shipping Name ACRYLIC ACID, STABILIZED
Hazard Class 8
Subsidiary Hazard Class 3
Packing Group II

Special Precautions for User Storage conditions in Section 7 should also be met during transportation Inhibitors have been added to stabilize this product Inhibitor levels should be maintained Hazardous polymerization may occur upon depletion of inhibitor

SECTION 15. REGULATORY INFORMATION**International Inventories**

X = listed, China (IECSC), Europe (EINECS/ELINCS/NLP), U.S.A. (TSCA), Canada (DSL/NDSL), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), Korea (KECL).

| Component | The Inventory of | List of dangerous | TCSI | IECSC | EINECS | TSCA | DSL | PICCS | ENCS | ISHL | AICS | KECL |
|-----------|------------------|-------------------|------|-------|--------|------|-----|-------|------|------|------|------|
|-----------|------------------|-------------------|------|-------|--------|------|-----|-------|------|------|------|------|

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| | Hazardous Chemicals (2015 Edition) | goods GB 12268 - 2012 | | | | | | | | | | |
|-----------------|------------------------------------|-----------------------|---|---|-----------|---|---|---|---|---|---|----------|
| Acrylic acid | X | X | X | X | 201-177-9 | X | X | X | X | X | X | KE-29442 |
| 4-Methoxyphenol | - | - | X | X | 205-769-8 | X | X | X | X | X | X | KE-23353 |

National Regulations

SECTION 16. OTHER INFORMATION

Prepared By Health, Safety and Environmental Department
Creation Date 26-Sep-2009
Revision Date 17-May-2024
Revision Summary New emergency telephone response service provider.

Training Advice
 Chemical incident response training.

Legend

CAS - Chemical Abstracts Service

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

IECSC - Chinese Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

WEL - Workplace Exposure Limit

ACGIH - American Conference of Governmental Industrial Hygienists

DNEL - Derived No Effect Level

RPE - Respiratory Protective Equipment

LC50 - Lethal Concentration 50%

NOEC - No Observed Effect Concentration

PBT - Persistent, Bioaccumulative, Toxic

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

ENCS - Japanese Existing and New Chemical Substances

AICS - Australian Inventory of Chemical Substances

NZIoC - New Zealand Inventory of Chemicals

TWA - Time Weighted Average

IARC - International Agency for Research on Cancer

PNEC - Predicted No Effect Concentration

LD50 - Lethal Dose 50%

EC50 - Effective Concentration 50%

POW - Partition coefficient Octanol:Water

vPvB - very Persistent, very Bioaccumulative

ICAO/IATA - International Civil Aviation Organization/International Air Transport Association

ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road

OECD - Organisation for Economic Co-operation and Development

BCF - Bioconcentration factor

IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code

MARPOL - International Convention for the Prevention of Pollution from Ships

ATE - Acute Toxicity Estimate

VOC - (Volatile Organic Compound)

Key literature references and sources for data

<https://echa.europa.eu/information-on-chemicals>

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

SAFETY DATA SHEET
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End of Safety Data Sheet