

ACRYLIC ACID

(Stabilized with hydroquinone monomethyl ether (MeHQ) - for synthesis)

Section-1 - IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY / UNDERTAKING	
Product Name (Commercial Name)	: Acrylic Acid (Ester Grade Acrylic Acid) (Stabilized with Hydroquinone Monomethyl ether)
Uses	: Chemical for Synthesis
Synonyms	: 2-Propenoic acid, Acroleic Acid
Manufacturer's Name & Address	: Bharat Petroleum Corporation Limited 4&6, Currimbhoy Road, Ballard Estate Mumbai- 400 001, INDIA
Telephone No.	: 091-22-24176354
Fax No.	: 091-22-24166512/24182511
Emergency Coordination Centre Contact	: BPCL Kochi Refinery, Ambalamugal, Kochi, Kerala
EMERGENCY CONTACT DETAILS	: BPCL – KOCHI REFINERY, Ambalamugal Dist. Ernakulam, Kerala, India 091-484-2722061
24*7 Emergency contact No	: +91 9495001031

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Section 2 – HAZARD IDENTIFICATION

Classification of substance /mixture: Hazard Class and Category code.

GHS Label :				
	GHS02 FLAME	GHS07 EXCLAMATION MARK	GHS05 CORROSION	GHS09 ENVIRONMENT

HAZARD STATEMENTS	<p>H226: Flammable liquid and vapor</p> <p>H302 + H312 + H332: Harmful if swallowed, in contact with skin or if inhaled.</p> <p>H314: Causes severe skin burns and eye damage.</p> <p>H335: May cause respiratory irritation.</p> <p>H400: Very toxic to aquatic life.</p>
PRECAUTIONARY STATEMENTS	<p>P210: Keep away from heat.</p> <p>P273: Avoid release to the environment.</p> <p>P280: Wear protective gloves/ protective clothing/ eye protection/ face protection.</p> <p>P301 + P330 + P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.</p> <p>P302 + P352: IF ON SKIN: Wash with plenty of soap and water.</p> <p>P304 + P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.</p> <p>P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p> <p>P308 + P310: IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.</p>
SIGNAL WORD	Danger
HAZARD CLASS	3, FLAMMABLE LIQUIDS

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Flammable. Harmful by inhalation, in contact with skin and if swallowed. Causes severe burns. Very toxic to aquatic organisms. May violently polymerize.

NFPA HAZARD CODES

NFPA 704

Diamond	Hazard	Value	Description
	Health	3	Can cause serious or permanent injury.
	Flammability	2	Must be moderately heated or exposed to relatively high ambient temperatures before ignition can occur.
	Instability	2	Readily undergoes violent chemical changes at elevated temperatures and pressures.
	Special		

(NFPA, 2010)

RATINGS SYSTEM

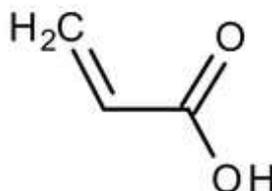
0 = No Hazard 1 = Slight Hazard 2 = Moderate Hazard

3 = Serious Hazard 4 = Severe Hazard

Section 3 – COMPOSITION & INFORMATION ON INGREDIENTS

Ingredients /Hazardous	CAS No.	EC No.	Percentage
Acrylic acid/ Yes	79-10-7	201-177-9	99.00 % (wt.) min.
MEHQ	150-76-5		180- 220 ppm (wt.)

Chemical Formula : CH₂=CHCOOH (C₃H₄O₂)



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Section 4 – FIRST AID MEASURES

EYES: First check the victim for contact lenses and remove if present. Flush victim's eyes with water or normal saline solution for 20 to 30 minutes while simultaneously calling a hospital or poison control center. Do not put any ointments, oils, or medication in the victim's eyes without specific instructions from a physician.

IMMEDIATELY transport the victim after flushing eyes to a hospital even if no symptoms (such as redness or irritation) develop.

SKIN: IMMEDIATELY flood affected skin with water while removing and isolating all contaminated clothing. Gently wash all affected skin areas thoroughly with soap and water. IMMEDIATELY call a hospital or poison control center even if no symptoms (such as redness or irritation) develop. IMMEDIATELY transport the victim to a hospital for treatment after washing the affected areas.

INHALATION: IMMEDIATELY leave the contaminated area; take deep breaths of fresh air. IMMEDIATELY call a physician and be prepared to transport the victim to a hospital even if no symptoms (such as wheezing, coughing, shortness of breath, or burning in the mouth, throat, or chest) develop. Provide proper respiratory protection to rescuers entering an unknown atmosphere. Whenever possible, Self-Contained Breathing Apparatus (SCBA) should be used; if not available, use a level of protection greater than or equal to that advised under Protective Clothing.

INGESTION: DO NOT INDUCE VOMITING. Corrosive chemicals will destroy the membranes of the mouth, throat, and esophagus and, in addition, have a high risk of being aspirated into the victim's lungs during vomiting which increases the medical problems. If the victim is conscious and not convulsing, give 1 or 2 glasses of water to dilute the chemical and IMMEDIATELY call a hospital or poison control center.

IMMEDIATELY transport the victim to a hospital. If the victim is convulsing or unconscious, do not give

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anything by mouth, ensure that the victim's airway is open and lay the victim on his/her side with the head lower than the body. DO NOT INDUCE VOMITING. Transport the victim IMMEDIATELY to a hospital.

Section 5 – FIRE FIGHTING MEASURES

Flash Ignition Temperature	: 46°C
Auto Ignition Temperature	: 390°C
Flammable Limits	: 3.9-19.8 vol %
Suitable Extinguishing Media	: Water, CO ₂ , foam, powder.
Unusual or Explosive Hazards	: Forms explosive mixtures with air at elevated temperatures. Development of hazardous combustion gases or vapors possible in the event of fire.
Special Fire Fighting Procedures	: Do not stay in dangerous zone without self-contained breathing apparatus. In order to avoid contact with skin, keep a safety distance and wear suitable protective clothing.

As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions.

SPILL: Increase, in the downwind direction, as necessary, the isolation distance shown above.

FIRE: If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions. (ERG, 2016)

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Firefighting

SMALL FIRE: Dry chemical, CO₂, water spray or alcohol-resistant foam.

LARGE FIRE: Water spray, fog or alcohol-resistant foam. Move containers from fire area if you can do it without risk. Dike fire-control water for later disposal; do not scatter the material. Do not get water inside containers.

FIRE INVOLVING TANKS OR CAR/TRAILER LOADS: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks engulfed in fire. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

Section 6 –ACCIDENTAL RELEASE MEASURES

Procedures in case of breakage or leakage : Do not inhale vapors /aerosols. Avoid substance contact .Ensure supply of fresh air in enclosed rooms. Do not allow to enter sewerage system; risk of explosion .Take up with liquid-absorbent material. Forward for disposal. Clean up affected area.

Fully encapsulating, vapor-protective clothing should be worn for spills and leaks with no fire.

ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). All equipment used when handling the product must be grounded. Do not touch or walk through spilled material. Stop leak if you can do it without risk. Prevent entry into waterways, sewers, basements or confined areas. A vapor-suppressing foam may be used to reduce vapors. Absorb

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with earth, sand or other non-combustible material and transfer to containers (except for Hydrazine). Use clean, non-sparking tools to collect absorbed material.

LARGE SPILL: Dike far ahead of liquid spill for later disposal. Water spray may reduce vapor, but may not prevent ignition in closed spaces.

Section 7 –HANDLING AND STORAGE

Handling	: Keep away from source of ignition. Take measure to prevent electrostatic charging.
Storage	: At +15°C to +25°C. Tightly closed in a well-ventilated place, away from source of ignition and heat.

Do NOT use localized heat sources such as band heaters to heat/ melt product.

Do NOT use steam

Do NOT overheat - this may compromise product quality and /or result in an uncontrolled hazardous polymerization.

DO NOT allow clothing wet with material to stay in contact with skin

DO NOT enter confined spaces until atmosphere has been checked.

DO NOT use plastic buckets

Store in original containers in approved flammable liquid storage area.

Store away from incompatible materials in a cool, dry, well-ventilated area.

DO NOT store in pits, depressions, basements or areas where vapours may be trapped.

No smoking, naked lights, heat or ignition sources.

Storage areas should be clearly identified, well illuminated, clear of obstruction and accessible only to trained and authorized personnel - adequate security must be provided so that unauthorized personnel do not have access.

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Store according to applicable regulations for flammable materials for storage tanks, containers, piping, buildings, rooms, cabinets, allowable quantities and minimum storage distances.
Use non-sparking ventilation systems, approved explosion proof equipment and intrinsically safe electrical systems.
Have appropriate extinguishing capability in storage area (e.g. portable fire extinguishers - dry chemical, foam or carbon dioxide) and flammable gas detectors.
Keep adsorbents for leaks and spills readily available.
Protect containers against physical damage and check regularly for leaks.
Polymerization may occur slowly at room temperature.

Section 8 –EXPOSURE CONTROL & PERSONAL PROTECTION

Long Term exposure Limits	: 19.8 vol %
Short Term Exposure Limits	: 3.9 vol %
TWA (ACGIH-2012)	: 2 PPM
IDLH	: N.D (Not Determined)
Personal Protective Equipment	: Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be ascertained with the respective supplier.
Respiratory Protection	: Required, when vapor aerosols are generated. Filter A (acc. to DIN 3181) for vapors of organic compounds.
Eye Protection	: Required
Skin Protection	: Apply skin protective barrier cream.
	Hand protection:
	In full contact:

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Glove material : butyl rubber

Layer thickness : 0.7 mm

Breakthrough time : > 480 Min.

Splash contact:

Glove material : nitrile rubber

Layer thickness : 0.40 mm

Breakthrough time : > 120 Min

Eyewash fountains should be provided in areas where there is any possibility that workers could be exposed to the substance; this is irrespective of the recommendation involving the wearing of eye protection. Facilities for quickly drenching the body should be provided within the immediate work area for emergency use where there is a possibility of exposure. [Note: It is intended that these facilities provide a sufficient quantity or flow of water to quickly remove the substance from anybody areas likely to be exposed]

Section 9 –PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: Liquid
Odor	: Pungent
Melting Point	: 13°C
Boiling Point	: 141°C
Flash Point	: 46°C
Auto Ignition Temperature	: 390 °C
Explosion Limits : LEL	: 3.9 Vol %
UEL	: 19.8 Vol %

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Vapour Pressure (20 °C)	: 3.8 hPa
Molecular Weight (ACGIH-2012)	: 72.06 g / Mol
.Relative Vapor Density (air)	: 2.45
Density (20 °C)	: 1.05 g/ cm ³
Specific Gravity	: 1.05
Solubility in Water (25 °C)	: 1000 g/l
pH value	: 2.1 (72.06 g/l, H ₂ O, 20 °C)

Section 10 –CHEMICAL STABILITY AND REACTIVITY INFORMATION

Hazardous Polymerization	: Heat-sensitive, explosible with air in a vaporous/gaseous state when heated (Polymerization).
Stability	: Stabilizer- (MeHQ) Hydroquinone Mon methyl ether
Incompatibilities	: Unsuitable working materials include steel, copper, zinc, nickel. Risk of explosion with: oxidizing agent. Polymerization initiators, peroxides, oxygen.
Hazardous Combustion and Decomposition	
Products	: No information available
Corrosivity	: No information available

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Section 11 –TOXICOLOGICAL INFORMATION

EYE IRRITATION	: Burns.-Risk of blindness
SKIN IRRITATION	: Burns- Danger of skin absorption
RESPIRATORY/ INHALATION	: Burns of mucous membranes, coughing, dyspnoea, and absorption.
INGESTION	: Burns in mouth, throat, oesophagus and gastrointestinal tract. Risk of perforation in the oesophagus and stomach absorption.
LD 50 oral	: LD50 Rat > 192 mg/kg
LD 50 dermal	: LD50 Rabbit > 290 mg/kg

Section 12 –ECOLOGICAL INFORMATION

Easily eliminable. No bioaccumulation is to be expected, highly toxic for aquatic organisms.

Neutralize prior to passing in to drainage system.

Acrylic acid is unlikely to persist in environment since it biodegrades rapidly in sewage treatment plants and soil. It is not expected to bind significantly to soil or sediment. Also bioaccumulation potential is low.

Section 13– DISPOSAL CONSIDERATION

Local Legislation: Disposal should be in accordance with applicable regional, national, and local laws and regulations. This product should not be dumped, spilled, rinsed or washed into sewers or public waterways.

Recommended disposal methods for the substance / preparation

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Product reuse or disposal in accordance with valid waste legislative regulations.

Recommended disposal methods for contaminated packaging

Product is transported in tank-vehicles.

Waste management measures that control exposure of humans and environment

Proceed in accordance with valid health, air and water legislative regulations.

Waste regulation: Follow local regulation.

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. *Handle uncleaned containers like the product itself.*

Section 14– TRANSPORT INFORMATION

International Transport Regulation: ADR/RID (Road/Rail), IMDG (Sea).

Declaration (railroad and road) ADR, RID: UN 2218 , 8 (3), II

Declaration (transport by air) IATA-DGR: UN 2218 , 8 (3), II

Declaration (transport by sea) IMDG-Code: UN 2218 , 8 (3), II, Marine Pollutant: P, Segregation Group: 1 (Acids)

Proper Shipping Name: “ACRYLIC ACID, STABILIZED”

Hazard Class: 3, Flammable Liquid

UN Number: 2218

Special transport precautionary measures

Subsidiary risk 3 (flammable); observation states “May polymerize violently, which may cause fire and explosion unless properly stabilized.”

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Transport is not permitted in unstablized state. Stabilization is normally done by hydroquinone monomethyl ether.

Section 15– REGULATORY INFORMATION

MSDS format on a 16 Section based on guidance provided in:

Indian Regulation:

Manufacture, Storage and Import of Hazardous Chemicals Rule, 1989.

The Factories Act 1948

International Regulations:

European SDS Directive

Labelling according to EC directives

*R phrases: R 10-20/21/22-35-50: Flammable. Harmful by inhalation, in contact with skin and if swallowed. Causes severe burns. Very toxic to aquatic organisms.

*S phrases: S 26-36/37/39-45-61

These standard risk and safety phrases for use when interpreting Material Safety data Sheets are derived from the European Union Regulation, CHIP Regulations -Chemicals (Hazard Information and Packaging for Supply). They are required to be used in Materials Safety Data Sheets to identify potential hazards and offer safe handling advice.

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Section 16 – OTHER INFORMATION

No specific notes on this product

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End of MSDS