

# Acrylic Acid Glacial

## Technical Data Sheet

September 2020



<b>Formula</b>	C <sub>3</sub> H <sub>4</sub> O <sub>2</sub>
<b>Molecular Mass</b>	72.1 g/mol
<b>CAS Registry</b>	79-10-7

<u>Product Specifications</u>	<u>Value</u>	<u>Test Method</u>
Assay, wt. %, min.	99.5	GC
Water, wt. %, max.	0.1	ASTM E-203
Color, Pt-Co Units, max.	20	ASTM D-5386
Standard Stabilization	200 +/- 20 ppm MEHQ	ASTM D-3125
Diacrylic acid content on dispatch, max.	2000 ppm	LC

### Other Properties

Appearance	clear, colorless
Physical form	liquid
Odor	pungent
Density at 25 °C	1.046 g/cm <sup>3</sup>
Refractive index n <sub>d</sub> at 20 °C (DIN 53169)	1.418 – 1.422
Boiling point	141 °C
Freezing point	ca. 13 °C
Viscosity at 20 °C	1.3 mPa·s
Specific heat of liquid	2.05 kJ/kg °C
Heat of evaporation and boiling point	634 kJ/kg
Heat of polymerization	1,079 kJ/kg
Heat of combustion at 25 °C	19,085 kJ/kg
Vapor pressure at 20 °C	3.8 mbar
Temperature rating for electrical equipment	T2 (300 – 450 °C)

### Description

Acrylic acid glacial is an unsaturated monocarboxylic acid, for manufacturing polymers and for use as a feedstock for syntheses. It reacts as a vinyl compound and as a carboxylic acid.

### Applications

Copolymers of acrylic acid glacial can be produced with acrylic and methacrylic esters, acrylonitrile, maleic acid esters, vinyl acetate, vinyl chloride, vinylidene chloride, styrene, butadiene and ethylene.

Homopolymers of acrylic acid and copolymers which contain a preponderance of acrylic acid have a glassy consistency and are frequently soluble in water. They can be used in the form of their free acids and ammonium and alkali salts in many different applications, such as thickeners, dispersing agents, flocculants, protective colloids for stabilizing emulsions and polymer dispersions, wetting agents, coatings and textile finishes.

Acrylic acid readily undergoes addition reactions with a wide variety of organic and inorganic compounds. This makes it a very useful feedstock for the production of many low molecular compounds. For instance, acrylic acid can be used to produce derivatives of propionic acid with water, alcohols, amines, halogens and chlorinated hydrocarbons. It can also be used with other substances to produce unsaturated fatty acids, heterocyclic compounds and Diels-Alder addition products.

## **Packaging**

Available in bulk and drums.

## **Processing**

Acrylic acid polymerizes very readily. It is generally stabilized with 200 ppm of hydroquinone monomethyl ether (MEHQ). It is only supplied in its stabilized form, because it can polymerize with explosive violence if it is not stabilized. It is not usually necessary to remove the stabilizer because its action can be compensated for by adding an excess of initiator.

## **Safety**

Always refer to the Safety Data Sheet (SDS) for detailed information on safety.

## **Storage and Handling**

In order to prevent polymerization, acrylic acid glacial must always be stored under air, and never under inert gases. The presence of oxygen is required for the stabilizer to function effectively. Acrylic acid glacial must be stored between 15 and 25°C. Under these conditions, a storage stability of one year can be expected. However, diacrylic acid is formed during storage which cannot be prevented by any chemical additives. Diacrylic acid may affect the performance of acrylic acid in some applications. In order to minimize the likelihood of over storage, the storing procedure should strictly follow the "first-in-first-out" principle. For extended storage periods over four weeks, it is advisable to replenish the dissolved oxygen content.

To prevent freezing, the temperature of acrylic acid should never drop below 15°C. Improper thawing can result in violent polymerization. Do not attempt to thaw frozen or partially frozen acrylic acid unless you have received prior approval from your supplier.

For more detailed information, please consult also the brochure "SAFE HANDLING AND STORAGE OF ACRYLIC ESTERS" of BAMM.

Always refer to the Safety Data Sheet (SDS) for detailed information on handling and disposal.

## **IMPORTANT:**

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