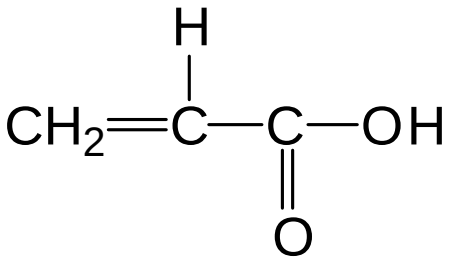
# GAA GLACIAL ACRYLIC ACID

Cas number : 79-10-7 EINECS number : 201-177-9

**CHEMICAL FORMULA**



Molecular weight : 72

**OTHER NAME**

**2-Propenoic acid**

## SPECIFICATIONS (Ref. A001FS001)

| | SPECIFICATION | METHOD |
|---|---|---|
| Appearance (at > 13°C) | Clear liquid | GB/T17529.1-2008 |
| Colour (APHA) | 10 maximum | GB/T17529.1-2008 |
| Purity by gas-phase chromatography | 99.5 % minimum | GB/T17529.1-2008 |
| Water content | 0.1 % maximum | GB/T17529.1-2008 |
| Dimer content (ex works) | 2000 ppm maximum | GB/T17529.1-2008 |
| Inhibitor content (MEHQ) | 180 to 220 ppm | GB/T17529.1-2008 |

## HANDLING AND SAFETY ADVISES

We advise you to read carefully the safety data sheet.

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# Glacial Acrylic Acid

## MAIN PHYSICAL CHARACTERISTICS

| | | |
|---|---|---|
| Molecular weight | | 72 |
| Boiling point, at 1013 mbar | | 141.3°C |
| Freezing point | | 13°C |
| Physical form | at > 13°C | liquid |
| | at < 13°C | solid |
| Specific gravity | at 20°C | 1.049 |
| | at 25°C | 1.043 |
| Refractive index, $n_D$ | at 20°C | 1.422 |
| | at 25°C | 1.418 |
| Viscosity | at 20°C | 1.22 mPa.s |
| | at 25°C | 1.15 mPa.s |
| Solubility | water in AA at 20°C | infinite |
| | AA in water at 20°C | infinite |
| Specific heat in liquid state | | 2.09 kJ/kg°C |
| Latent heat of vaporisation | | 621 kJ/kg |
| Heat of polymerisation | | 1074 kJ/kg |
| Homopolymer glass transition temperature | | 106°C |
| Flash point | in closed cup | 54°C |
| Lower explosion limit in volume | | 2.4 % |
| Vapour pressure | at 20°C | 4 mbar |
| | at 30°C | 8 mbar |
| | at 50°C | 24 mbar |
| Auto-ignition temperature | | 429°C |

## CHEMICAL PROPERTIES

- Properties of the acid function: ability to form salts, anhydrides, acid chlorides, esters, etc.
- Properties of the double bond: addition, cyclization, polymerisation and copolymerisation reactions,
- Some specific values for the copolymerisation reactivity ratios $r_1$, $r_2$ of acrylic acid ($M_1$) with various monomers ($M_2$) have been calculated using the Alfrey & Price formula

| | | |
|---|---|---|
| Styrene | $r_1 = 0.24$ | $r_2 = 0.25$ |
| Methyl methacrylate | $r_1 = 1.17$ | $r_2 = 0.75$ |

## PACKAGING AND STORAGE

Acrylic acid is delivered :
- in stainless steel road tankcars, capacity 25000 to 32000 litres
- in polyethylene drums loaded at 200 Kg.

The standard inhibition is 200 ppm Monomethyl Ether of HydroQuinone (MEHQ).

Acrylic acid should be stored in a place with a temperature range of 18 to 25°C, to prevent any crystallisation (freezing point = 13°C), and to ensure proper distribution of stabiliser.
With this inhibitor, the product should be stored indoors at a temperature of no more than 25°C and away from light.

It must also be stored under air atmosphere, as the presence of oxygen is essential to activate the stabiliser.
**Under these storage conditions, the product is commercially guaranteed for one month after delivery.**

Acrylic acid, being corrosive, must be stored in glass, stainless steel or polyethylene containers.
**If crystallisation occurs, warm the product slowly, while agitating it, and taking care to avoid any localised overheating, not exceeding 25°C. A too high temperature could cause exothermic polymerisation.**

Finally, acrylic acid should not be stored for excessive periods, because of the irreversible formation of dimers (approximately 100 ppm daily at room temperature).

## USES

Acrylic acid polymers and copolymers cover a very wide range of applications, such as :
- hydrosoluble agents for dispersing agents
  thickeners, flocculating and superabsorbent agents
- detergent auxiliaries
- organic synthesis
- copolymer emulsion for paints, varnishes and inks
- dispersions for leather, textiles, non-woven fabrics, glues and adhesives
- cleaning and waxing products
- plastics and synthetic resins
- synthetic rubbers and lattices.

ACRYLICS BU/009871/V4/11-10



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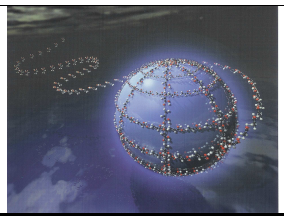

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