



Acrylonitrile

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Catalog Nr. Q039

Definition Acrylonitrile is the chemical compound with the formula CH_2CHCN . This pungent-smelling colorless liquid often appears yellow due to impurities. It is an important monomer for the manufacture of useful plastics. In terms of its molecular structure, it consists of a vinyl group linked to a nitrile.

CAS Number 107-13-1

Application Acrylic Resin Polymerization.
Acrylonitrile is used principally as a monomer in the manufacture of synthetic polymers, especially polyacrylonitrile which comprises acrylic fibers. Acrylic fibers are, among other uses, precursor for well-known carbon-fiber. It is also a component of synthetic rubber. Dimerization of acrylonitrile affords adiponitrile, used in the synthesis of certain Nylons. Small amounts are also used as a fumigant. Acrylonitrile and derivatives such as 2-chloro-acrylonitrile are dienophiles in Diels-Alder reactions. Acrylonitrile is also a precursor in the industrial manufacture of acrylamide and acrylic acid.

Technical Data

Systematic name	2-propenenitrile
Other names	cyanoethene, vinylcyanide
Molecular formula	$\text{C}_3\text{H}_3\text{N}$
Molar mass	53.06 g mol ⁻¹
Appearance	Colourless liquid
Density	0.81 g/cm ³
Melting point	-84 °C (189 K)
Boiling point	77 °C (350 K)
Solubility in water	7 g/100 mL at 20 °C
Main hazards	flammable, reactive, toxic
Related compounds	acrylic acid, acrolein

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Remarks