

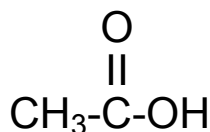
PRODUCT DESCRIPTION

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Acetic Acid, Glacial

**(Ethanoic Acid,
Methanecarboxylic Acid)**

MW = 60.05



Acetic Acid, Chemical Abstracts Registry
Number 64-19-7
Wiswesser Line Formula Chemical
Notation QV1

Acetic Acid is a clear, colorless liquid with an acrid taste and vinegar-like odor. It is miscible in all proportions with water, ethyl alcohol and ether, but is insoluble in carbon disulfide.

Celanese Chemicals Acetic Acid meets the specifications of the U.S.P. (XVII) and the Federal Specifications O-C-275 & O-A-76C. It is one of the most important large-volume, synthetic organic acids.

The major use for Acetic Acid is as a raw material for vinyl acetate, either by reaction with ethylene and oxygen or with acetylene. Vinyl acetate is in turn the raw material for polyvinyl acetate, an important resin used in paints, adhesives, plastics and textile finishes.

Another important use for Acetic Acid is as a raw material for acetic anhydride. This chemical is principally used as an intermediate for cellulose acetate fibers and plastics.

A third significant use for Acetic Acid is as a solvent in the production of terephthalic acid from paraxylene. Terephthalic acid is one of the major raw materials for polyester fiber and film.

Large quantities of Acetic Acid are used to manufacture esters such as ethyl and butyl acetate. These solvents find general application in the lacquer, plasticizer and pharmaceutical fields.

Chloroacetic acid is manufactured from Acetic Acid and Chlorine. The primary end use of chloroacetic acid is sodium carboxymethylcellulose (CMC). Chloroacetic

acid is the starting point for the production of a series of herbicides, prime examples of which are 2,4-dichlorophenoxyacetic acid and the iso-propyl ester of 2,4,5-trichlorophenoxyacetic acid.

Textile finishing operations require considerable quantities of Acetic Acid. Acetic acid is also used in the production of sorbic acid, various dyestuffs and pigments.

The pharmaceutical industry consumes Acetic Acid in the manufacture of vitamins, antibiotics, hormones, and other products. Other products made from Acetic Acid are salts of Acetic Acid and various rubber and photographic chemicals.

Acetic Acid is a versatile chemical. The following reactions are typical.

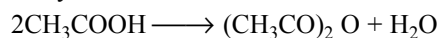
PRODUCT DESCRIPTION

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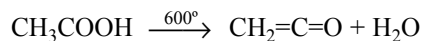
Acetic Acid, Glacial

Chemical Reactions

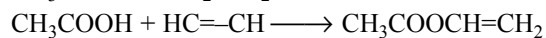
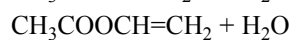
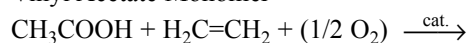
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1. Anhydride Formation



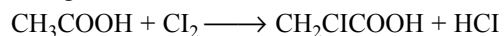
2. Ketene Formation



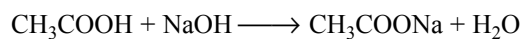
3. Vinyl Acetate Monomer



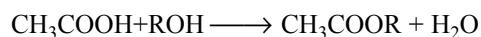
4. Halogenation



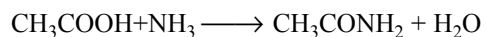
5. Salt Formation



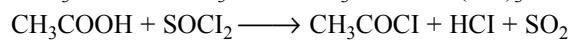
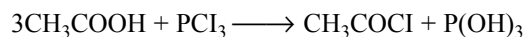
6. Ester Formation



7. Amide Formation



8. Acid Chloride Formation



PRODUCT DESCRIPTION

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Acetic Acid, Glacial

Physical Properties

Autoignition Temperature, °C	465
Boiling Point at 760 mm Hg, °C	118.1
Boiling Point at 760 mm Hg, °F	244.6
Coefficient of Thermal Expansion per °C at 20°C	1.0225 x 10 ⁻³
Critical Pressure, atmospheres	57.2
Critical Temperature, °C	321.6
Electrical Conductivity at 25°C, mhos/cm	1.12 x 10 ⁻⁸
Evaporation Rate (BuAc =1)	1.0
Flammable Limits (lower limit, vol %)	5.3
(upper limit, vol %)	16.6
Flash Point, Tag Open Cup, °F	112
Tag Closed Cup, °F	109
Heat of Combustion, kcal/mole	-209.4
Heat of Formation, kcal/mole (vapor, 25°C)	-104.7
Heat of Fusion, cal/gm at melting point	44.7
Heat of Solution, kcal/mole at 18°C	+0.375

Heat of Vaporization, cal/gm (at normal boiling point)	92.8
Ionization Constant, 25°C	1.753 x 10 ⁻⁵
Molecular Weight	60.05
Refractive Index, n _D ²⁰	1.3718
Solubility at 20°C, wt %, in water	Complete
water in	Complete
Solubility in alcohol, benzene, ether or water	Complete
Solubility in carbon disulfide	Insoluble
Specific Gravity, 20/20°C	1.051
Specific Heat of Liquid, cal/gm/°C at 0°C	0.468
Surface Tension in Air at 20°C, dynes/cm	27.6
Physical Properties	
Vapor Density (air = 1)	2.1
Vapor Pressure, 20°C, mm Hg	11.4
Viscosity at 20°C, centipoise	1.22
Weight, pounds per gallon at 20°C	8.75

This information is based on our present state of knowledge and is intended to provide general notes on our products and their uses. It should therefore not be construed as guaranteeing specific properties of the products described or their suitability for a particular application. Any existing industrial property rights must be observed. The quality of our products is guaranteed under our General Conditions of Sale.

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