

***acetic acid***



*the essential choice*



***acetyls***

# acetic acid

## PRODUCT SPECIFICATION

PRODUCT CODE: 11001,11005,11098,11155

PROPERTY	VALUE
Appearance	Clear, free from matter in suspension
Colour	5 Hazen units max.
Acetic acid content	99.85% mass min.
Crystallising point	16.35°C min.
Density at 20°C	1.048-1.051 kg/litre
Non-volatile matter	0.003% mass max.
Chlorides (as Cl)	1 ppm max.
Sulphates (as SO <sub>4</sub> )	1 ppm max.
Iron (as Fe)	0.5 ppm max.
Heavy metals (as Pb)	0.5 ppm max.
Water	0.15% mass max.
Aldehydes (as acetaldehyde)	0.005% mass max.
Formic acid	0.05% mass max.
Permanganate time	2 hours min.
Distillation range at 1013 mbar	Range 1°C to include 117.8°C

*Details of test methods used for each specification are available on request.*

(revision number 4.0)

(reviewed Dec 2000)

## PHYSICAL PROPERTIES

The data in this section refers to the pure acid. Values for the commercial product may deviate slightly from these figures.

Molecular mass	60.053
Density at 20°C	1.049 kg/litre
Melting point	16.66°C
Latent heat of fusion at melting point	195.5 kJ/kg°C
Boiling point at 1013 mbar	117.9°C
Latent heat of vaporisation at boiling point	394.5 kJ/kg
Critical temperature	591.95 K
Critical pressure	5.786 MPa
Coefficient of expansion at 20°C	1.04 × 10 <sup>-3</sup> per °C
Mean from 0-100°C	1.12 × 10 <sup>-3</sup> per °C
Specific heat capacity at 19.4°C (liquid, constant pressure)	2.043 J/g /K
Normal entropy S° ( liq, 25°C)	159.8 Jmol/K
S° ( s, 25°C )	282.5 Jmol/K
Vapour pressure at 20°C	15.7 mbar
Heat of formation (vapour)	432.25 kJ/mole
Flash point (closed cup)	43°C
Autoignition temperature	463°C
Flammable limits in air	
lower	4.0% volume
upper	16.00% volume
Heat of combustion	-786.6 KJ/mol
Dielectric constant (liquid) at 20°C	6.170
Refractive index n <sub>D</sub> <sup>20</sup>	1.3719
Surface tension at 20°C	27.6 mN/m
Viscosity at 20°C	11.83 mPa.s
Dissociation constant at 25°C	4.78 pKa



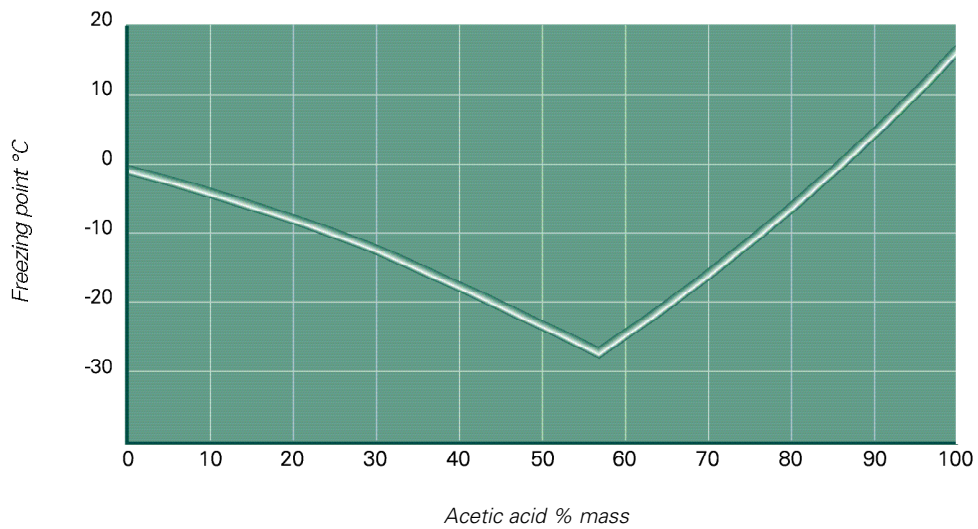
Acetic acid chemically pure as supplied meets the requirements of British Standard (BS 576: 1988), British Pharmacopoeia (BP), European Pharmacopoeia (Pharm-Eur), German Pharmacopoeia (DAB), United States Pharmacopoeia (USP), Japanese Pharmacopoeia (JP), EEC Food Grade (E260), ASTM (D3620) and the US Food Chemical Codex.

Acetic acid 80% is prepared from acetic acid chemically pure by the addition of demineralised water. It complies with the same standards as for chemically pure apart from assay which has the limits 79.5-80.5% mass. Its low freezing point (-7°C) facilitates handling in cold weather.

The Chemical Abstracts Service (CAS) number for acetic acid is 64-19-7.

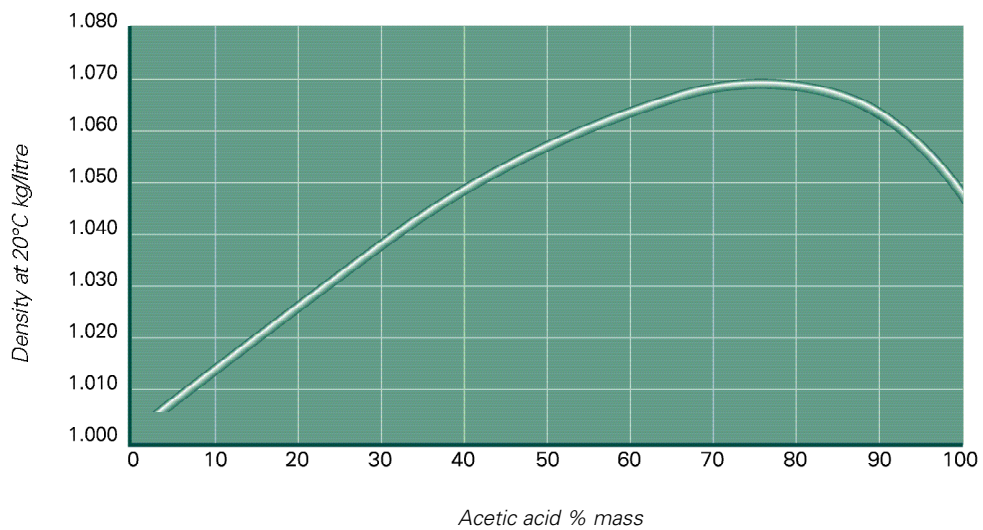
Graph 1

**Freezing point of acetic acid/water mixtures**



Graph 2

**Density of acetic acid/water mixtures at 20°C**



## STORAGE

Chemically pure and 80% acetic acid can be stored in containers of stainless steel, high density polyethylene or glass. Aluminium is only suitable for storage of chemically pure acetic acid. The corrosive action of acetic acid on metals is greatly increased by the presence of water. Detailed information on storage of product is given in the BP technical booklet 'Bulk Storage of Acetic Acid'.

## HEALTH, SAFETY AND ENVIRONMENTAL DATA

A material safety data sheet (MSDS) has been issued describing the health, safety and environmental effects of acetic acid together with advice on handling precautions and emergency procedures. This Technical Datasheet should always be used in conjunction with the current MSDS which is available from the European Customer Service Centre.

## FOR FURTHER INFORMATION PLEASE CONTACT

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