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ProductInformation

ACETIC ACID, GLACIAL
Product Code 24,285-3
Exact replacement for Product Code A0808

CAS NUMBER: 64-19-7
SYNONYMS: acetic acid, methanecarboxylic acid, ethanoic acid, vinegar acid, ethylic acid[1]

PHYSICAL DESCRIPTION:[1,2]

Appearance: Clear colorless liquid
Molecular formula: CH_3COOH
Molecular weight: 60.05
Density: 1.049 g/mL
Melting point: 16.7°C
Boiling point: 118°C
pK_a = 4.75 at 25°C[3]; K_a has a maximum value of 1.754 x 10^{-5} at 25°C, but decreases in value at temperatures above and below than 25°C. (1.700 x 10^{-5} at 5°C; 1.703 x 10^{-5} at 40°C[3])

Glacial acetic acid has a very pungent odor, and is a corrosive liquid. It is also flammable, with a flash point of 40°C.[1]

STORAGE / STABILITY AS SUPPLIED:

Acetic acid is extremely stable stored at room temperature. It should be stored tightly sealed to prevent vapors form escaping.

SOLUBILITY / STABILITY OF SOLUTIONS:

Acetic acid is infinitely miscible in water, also miscible with alcohol, glycerol, ether, carbon tetrachloride. It is practically insoluble in carbon disulfide.

Aqueous solutions are stable at room temperature, if well sealed.

GENERAL REMARKS:

By specification A0808 ("ACS Reagent") is ≥99.7%. In addition, A0808 is subjected to additional testing as required by the American Chemical Society.[4]

The name "glacial" is often used to emphasize the use of 100% acetic acid; frozen acetic acid looks like water ice.

GENERAL REMARKS: (continued)

Acetic acid is widely used in manufacturing either as starting material or solvent; in the food industry, dilute solutions are used for preparation and preservation. Because acetic acid is a "weak acid", it is effective as buffer at pH 4.75 ± 1. This buffer can be prepared by titrating acetic acid with hydroxide or by mixing equal volumes of equimolar acetic acid and sodium acetate solutions (standard mixing tables have been published).[5,6]

METHODS OF PREPARATION:

Although acetic acid has historically been produced form bacterial oxidation of ethanol, on the industrial scale, it is usually obtained by destructive distillation of wood or oxidation of acetaldehyde.[1]

REFERENCES:

1. Sigma Material Safety Data Sheet.
2. *Merck Index*, 12th ed., #52 (1996).
3. *Handbook of Chemistry and Physics,* 74th ed., D.R. Lide, ed. (CRC Press, 1993), p. 8-45 and 8-47.
4. *Reagent Chemicals*, 8th ed. (American Chemical society, 1993), pp. 98-101.
5. *Methods in Enzymology*, 182, 32 (1990).
6. *Data for Biochemical Research*, 3rd ed., Dawson et al., ed. (Oxford Press, 1987), p. 429.