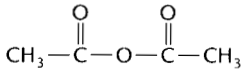
Acetic Anhydride



$(CH_3CO)_2O$ **Formula Wt 102.09** **CAS No. 108-24-7**

GENERAL DESCRIPTION

Typical appearance: liquid with a pungent odor
Analytical use: preparation of anhydrous acetic acid in nonaqueous titrimetry
Change in state (approximate): boiling point, 139 °C
Aqueous solubility: gradually dissolves with formation of acetic acid
Density: 1.08

SPECIFICATIONS

Assay	≥97.0% $(CH_3CO)_2O$
	Maximum Allowable
Residue after evaporation	0.003%
Chloride (Cl)	5 ppm
Phosphate (PO_4)	0.001%
Sulfate (SO_4)	5 ppm
Heavy metals (as Pb)	2 ppm
Iron (Fe)	5 ppm
Substances reducing permanganate	Passes test

TESTS

Assay. Analyze the sample by gas chromatography using the general parameters cited on page 80. The following specific conditions are also required.

Column: Type I, methyl silicone

Measure the area under all peaks and calculate the area percent for acetic anhydride.

Residue after Evaporation. (Page 25). Evaporate 50 g (46 mL) in a tared, preconditioned dish on a hot plate (≈100 °C), and dry the residue at 105 °C for 30 min.

For the Determination of Chloride, Phosphate, Sulfate, Heavy Metals, Iron, and Substances Reducing Permanganate

Sample Solution A. Dilute 40 g (37 mL) of the sample with water to 200 mL (1 mL = 0.2 g).

Chloride. (Page 35). Use 10 mL of sample solution A (2-g sample).

Phosphate. (Page 40, Method 1). Evaporate 10 mL of sample solution A (2-g sample) to dryness on a hot plate (≈100 °C), and dissolve the residue in 25 mL of 0.5 N sulfuric acid.

Sulfate. (Page 41, Method 3). Use 50 mL of sample solution A (10-g sample).

Heavy Metals. (Page 36, Method 1). To 50 mL of sample solution A (10-g sample), add about 1.0 mL of 1% sodium carbonate reagent solution, evaporate to dryness on a hot plate (≈100 °C), dissolve the residue in about 20 mL of water, and dilute with water to 25 mL.

Iron. (Page 38, Method 1). To 10 mL of sample solution A (2-g sample), add 10 mg of sodium carbonate, and evaporate to dryness. Dissolve the residue in 2 mL of hydrochloric acid, dilute with water to 50 mL, and use the solution without further acidification.

Substances Reducing Permanganate. To 10 mL of sample solution A (2-g sample), add 0.4 mL of 0.1 N potassium permanganate, and allow to stand for 5 min. The pink color should not be entirely discharged.