

## D. MONOGRAPHS

### Acetone



$\text{C}_3\text{H}_6\text{O}$

Mol. Wt. 58.08

2-propanone

[67-64-1]

**Content** Acetone contains not less than 99.0% of acetone ( $\text{C}_3\text{H}_6\text{O}$ ).

**Description** Acetone is a colorless, clear, and volatile liquid having a characteristic odor.

**Identification** To 1 ml of Acetone solution (1 : 200), add 1 ml of sodium hydroxide solution (1 : 25), warm in hot water, and add 3 drops of iodine TS. A yellow precipitate is immediately formed.

**Purity** (1) Specific gravity 0.790 - 0.795

(2) Boiling point 55.5 - 57.0 (Method 1).

(3) Readily oxidizable substances Measure 30 ml of Acetone, and add 0.10 ml of 0.02 mol/l potassium permanganate. The pink color does not disappear within 15 minutes.

(4) Phenol Measure 3.0 ml of Acetone, transfer into a crucible, evaporate to dryness at about 60 °C, add 3 drops of a solution of sodium nitrite in sulfuric acid (1 : 50), allow to stand for 2 - 3 minutes, and carefully add 3 ml of sodium hydroxide solution (2 : 25). No color develops.

(5) Residue on evaporation Not more than 0.0016% w/v.

Measure 125 ml of Acetone, evaporate carefully, dry at 105 °C for 2 hours, and weigh the residue.

**Assay** Weigh accurately about 1 g of Acetone, transfer into a flask containing 20 ml of water, and add water to make exactly 1,000 ml. Measure exactly 10 ml of this solution, transfer into a flask with a ground-glass stopper, add 25 ml of sodium hydroxide solution (1 : 25), and allow to stand for 5 minutes. Add 25 ml of 0.05 mol/l iodine, exactly measured, stopper, allow to stand in a cold and dark place for 10 minutes, and add 30 ml of diluted sulfuric acid (3 : 100). Titrate with 0.1 mol/l sodium thiosulfate (indicator: starch TS). Perform a blank test in the same manner.

1 ml of 0.05 mol/l iodine = 0.9680 mg of  $\text{C}_3\text{H}_6\text{O}$