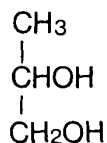


## Propylene Glycol



$\text{C}_3\text{H}_8\text{O}_2$

Mol. Wt. 76.10

1,2-propanediol

[ 57-55-6 ]

**Content** Propylene Glycol contains not less than 98.0% of propylene glycol ( $\text{C}_3\text{H}_8\text{O}_2$ ).

**Description** Propylene Glycol is a colorless, clear, viscous liquid. It is odorless and has a slightly bitter-sweet taste.

**Identification** (1) To 1 ml of Propylene Glycol, add 0.5 g of potassium hydrogen sulfate, and heat. A fruity odor is evolved.

(2) With 2 - 3 drops of Propylene Glycol, mix 0.7 g triphenylchloromethane, add 1 ml of pyridine, heat with a reflux condenser on a water bath for an hour, and cool. Dissolve in 20 ml of acetone while heating, add 0.02 g of active carbon, stir, and filter. Concentrate the filtrate to about 10 ml, and cool. Collect the deposited crystals by filtration and dry for 4 hours in a desiccator. The melting point of the crystals so obtained is 174 - 178 .

**Purity** (1) Specific gravity 1.036 - 1.040.

(2) Distillate Not less than 95% (vol) is distilled at 185 - 189 .

(3) Free acid To 50 ml of water, add 1 ml of phenolphthalein TS, then add sodium hydroxide solution (1 : 2,500) until the pink color of the solution persists for 30 seconds. To the solution, add 10 ml of Propylene Glycol, mix, and add 0.20 ml of 0.1 mol/l sodium hydroxide. A pink color persists for not less than 30 seconds.

(4) Heavy metals Not more than 10  $\mu\text{g/g}$  as Pb (2.0 g, Method 1, Control solution Lead Standard Solution 2.0 ml).

(5) Arsenic Not more than 4.0  $\mu\text{g/g}$  as  $\text{As}_2\text{O}_3$  (0.5 g, Method 1, Apparatus B).

**Water Content** Not more than 0.20% (10 g, Direct titration).

**Residue on Ignition** Not more than 0.05% (10 g).

**Assay** Weigh accurately about 1 g of Propylene Glycol, and add water to make exactly 250 ml. Measure exactly 10 ml of this solution, transfer into a flask with a ground-glass stopper, add 10 ml of sodium metaperiodate solution, accurately measured, add 4 ml of diluted sulfuric acid (1 : 2), shake well, and allow to stand for

40 minutes. Weigh 5 g of potassium iodide to the solution, add, immediately stopper tightly, shake well, allow to stand in a dark place for 5 minutes, and titrate with 0.1 mol/l sodium thiosulfate (indicator: 1 ml of starch TS). Perform a blank test in the same manner and calculate the content by the formula

Content of propylene glycol (C<sub>3</sub>H<sub>8</sub>O<sub>2</sub>)

$$= \frac{(a - b) \times 3.8048 \times 25}{\text{Weight (g) of the sample} \times 1000} \times 100 (\%)$$

where a = volume (ml) of 0.1 mol/l sodium thiosulfate consumed in the blank test.

b = volume (ml) of 0.1 mol/l sodium thiosulfate consumed in the this test.