Glycerin

Glycerol

グリセリン

$C_3H_8O_3$: 92.09

Glycerin contains not less than 84% and not more than 87% of $C_3H_8O_3$ (by specific gravity).

Description Glycerin is a clear, colorless, viscous liquid. It is odorless and has a sweet taste.

It is miscible with water and with ethanol (95).

It is very slightly soluble in diethyl ether.

It is hygroscopic.

Identification Heat 2 to 3 drops of Glycerin with 0.5 g of potassium hydrogen sulfate: an odor of acrolein is perceptible.

Refractive index α_D^{20}: 1.449 - 1.454

Specific gravity d_{20}^{20}: 1.221 - 1.230

Purity **(1)** Color—Place 50 mL of Glycerin in a Nessler tube, and observe downward: the solution has no more color than the following control solution. Control solution: Place 0.40 mL of Ferric Chloride Colorimetric Stock Solution in a Nessler tube, and add water to make 50 mL.

(2) Acidity or alkalinity—To 2 mL of Glycerin add 8 mL of water and mix: the solution is neutral.

(3) Chloride—Take 10.0 g of Glycerin, and perform the test: Prepare the control solution with 0.30 mL of 0.01 mol/L hydrochloric acid VS (not more than 0.001%).

(4) Sulfate—Take 10.0 g of Glycerin, and perform the test. Prepare the control solution with 0.40 mL of 0.005 mol/L sulfuric acid VS (not more than 0.002%).

(5) Ammonium—To 5 mL of Glycerin add 5 mL of a solution of sodium hydroxide (1 in 10), and boil: the gas evolved does not change moistened red litmus paper to blue.

(6) Heavy metals—Proceed with 5.0 g of Glycerin according to Method 1, and perform the test: Prepare the control solution with 2.5 mL of Standard Lead Solution (not more than 5 ppm).

(7) Calcium—To 5 mL of the solution obtained in (2) add 3 drops of ammonium oxalate TS: the solution remains unchanged.

(8) Arsenic—Prepare the test solution with 1.0 g of Glycerin according to Method 1, and perform the test using Apparatus B (not more than 2 ppm).

(9) Acrolein, glucose, and other reducing substances—To 1.0 g of Glycerin add 1 mL of ammonia TS, mix, and warm in a water bath at 60°C for 5 minutes: no yellow color is produced. Take the solution out of the water bath, add 3 drops of silver nitrate TS immediately, and allow to stand in a dark place for 5 minutes: the color of the solution does not change, and no turbidity is produced.

(10) Fatty acids and esters—Mix 50 g of Glycerin with 50 mL of freshly boiled and cooled water, add exactly 10 mL of 0.1 mol/L sodium hydroxide VS, boil the mixture for 15 minutes, cool, and titrate the excess sodium hydroxide with 0.1 mol/L hydrochloric acid VS: 0.1 mol/L sodium hydroxide VS consumed is not more than 3.0 mL (indicator: 3 drops of phenolphthalein TS). Perform a blank determination.

(11) Readily carbonizable substances—To 5 mL of Glycerin add carefully 5 mL of sulfuric acid for readily carbonizable substances, mix gently at a temperature between 18°C and 20°C, and allow to stand for 1 hour between 15°C and 25°C: the solution has not more color than Matching Fluid H.

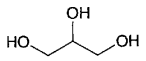
Residue on ignition Weigh accurately about 10 g of Glycerin in a tared crucible, heat to boiling, and fire to burn immediately. After cooling, moisten the residue with 1 to 2 drops of sulfuric acid, and ignite cautiously to constant mass: the mass of the residue is not more than 0.01%.

Containers and storage Containers—Tight containers.

Concentrated Glycerin

Concentrated Glycerol

濃グリセリン



$C_3H_8O_3$: 92.09
Propane-1,2,3-triol [*56-81-5*]

Concentrated Glycerin contains not less than 98.0% of glycerin ($C_3H_8O_3$) (by specific gravity).

Description Concentrated Glycerin is a clear, colorless and viscous liquid. It is odorless, and has a sweet taste.

It is miscible with water and with ethanol (95).

It is very slightly soluble in diethyl ether.

It is hygroscopic.

Identification Heat 2 to 3 drops of Concentrated Glycerin with 0.5 g of potassium hydrogen sulfate: the odor of acrolein is perceptible.

Refractive index n_D^{20}: Not less than 1.470.

Specific gravity d_{20}^{20}: Not less than 1.258.

Purity **(1)** Color—Place 50 mL of Concentrated Glycerin in a Nessler tube, and observe downward: the solution has no more color than the following control solution.

Control solution: Pipet 0.40 mL of Ferric Chloride Colorimetric Stock Solution into a Nessler tube, and add water to make 50 mL.

(2) Acidity or alkalinity—To 2 mL of Concentrated Glycerin add 8 mL of water and mix: the solution is neutral.

(3) Chloride—Take 10.0 g of Concentrated Glycerin, and perform the test. Prepare the control solution with 0.30 mL of 0.01 mol/L hydrochloric acid VS (not more than 0.001%).

(4) Sulfate—Take 10.0 g of Concentrated Glycerin, and perform the test. Prepare the control solution with 0.40 mL of 0.005 mol/L sulfuric acid VS (not more than 0.002%).

(5) Ammonium—To 5 mL of Concentrated Glycerin add 5 mL of a solution of sodium hydroxide (1 in 10), and boil: the gas evolved does not change moistened red litmus