Alcohol (Alcoholum)

Description. A clear, colourless, and mobile liquid; odour, characteristic.

Miscibility. Miscible with water, ether R, and glycerol R.

Category. Solvent; antiseptic.

Storage. Alcohol should be kept in a well-closed container, and stored whenever possible at a temperature between 8 and 15 °C.

Labelling. The designation on the container should state the content of Alcohol in % *v/v*.

Additional information. Different concentrations of Alcohol are prepared from alcohol 96% *v/v* and water at about 20 °C.

Note: Contraction of volume and rise in temperature occur when mixing Alcohol with water.

Alcohol		Approximate relative density	Volume of Alcohol (mL) 96% *v/v* to be diluted to 1000 mL with water
% *v/v*	g/l	d_{20}^{20}	
90	701.4	0.8304	934
80	625.3	0.8610	831
70	561.8	0.8872	727
60	488.0	0.9109	623
50	404.6	0.9320	519
45	341.3	0.9412	468
25	209.0	0.9699	259
20	163.8	0.9754	207

Requirements

Alcohol is a mixture of ethanol and water. It contains not less than **98.0% *v/v*** and not more than the equivalent of **102.0% *v/v*** of the declared content of ethanol (C_2H_6O).

Identity tests

A. To 0.25 mL in a small beaker add 1 mL of potassium permanganate (10 g/l) TS and 0.5 mL of sulfuric acid (0.5 mol/l) VS; cover the beaker immediately with a filter-paper moistened with a recently prepared solution of 0.1 g of sodium nitroprusside R and 0.5 g of piperazine hydrate R in 5 mL of water; a dark blue colour is produced on the filter-paper, which fades after a few minutes.

B. To a few drops add 1 mL of sulfuric acid (~1760 g/l) TS and a few drops of potassium dichromate (100 g/l) TS; a green colour is developed and an odour of acetaldehyde is perceptible.

Relative density. According to the labelled concentration, relate to the value stated under "Additional information".

Non-volatile residue. Place 100 mL in a porcelain dish and heat on a water-bath until volatilized, dry the residue at 105 °C for 1 hour, and weigh; not more than 5 mg.

Water-insoluble substances. Dilute a volume of Alcohol with an equal volume of water; the mixture is clear and, after cooling to 10 °C, remains clear for 30 minutes.

Acidity. Add 20 mL of carbon-dioxide-free water R and 3 drops of phenolphthalein/ethanol TS to 20 mL of Alcohol; the colour remains unchanged. Titrate with carbonate-free sodium hydroxide (0.02 mol/l) VS; not more than 0.5 mL is required to obtain the midpoint of the indicator (pink).

Aldehydes and other foreign organic substances. Thoroughly clean a glass-stoppered cylinder with hydrochloric acid (~250 g/l) TS, rinse with water and the Alcohol to be examined. Place 20 mL of Alcohol in the cylinder. Cool the contents to about 15 °C and, by means of a carefully cleaned pipette and noting the time, add 0.1 mL of potassium permanganate (0.02 mol/l) VS. Mix at once by inverting the stoppered cylinder, and allow to stand at 15 °C for exactly 5 minutes; the pink colour does not entirely disappear.

Fusel oil and allied impurities. Carefully protected from dust, allow 25 mL to evaporate spontaneously from a porcelain dish until it is barely moist; no foreign odour is perceptible. Add a few drops of sulfuric acid (~1760 g/l) TS; the colour does not change to brown or red.

Methanol. To 1 drop add 1 drop of water, 1 drop of phosphoric acid (~105 g/l) TS, and 2 drops of potassium permanganate (25 g/l) TS, mix, and allow to stand for 1 minute. Add, drop by drop, sodium metabisulfite (50 g/l) TS until the permanganate colour is

discharged. If a brown colour remains, add 1 drop of phosphoric acid (~105 g/l) TS. To the colourless solution, add 5 mL of freshly prepared disodium chromotropate TS, and heat on a water-bath at 60 °C for 10 minutes; the colour does not change to violet.

Benzene. Record an absorption spectrum of the Alcohol in a 1-cm layer against water between 220 nm and 350 nm. The absorbance at about 220 nm is not more than 0.30, at about 230 nm not more than 0.18, at about 240 nm not more than 0.08, and between 270 and 350 nm not more than 0.02. A curve drawn through these points is smooth.