



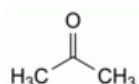
Edition: BP 2025 (Ph. Eur. 11.6 update)

Acetone



[General Notices](#)

(Ph. Eur. monograph 0872)



C₃H₆O 58.08 67-64-1

Ph Eur

DEFINITION

Propanone.

CHARACTERS

Appearance

Volatile, clear, colourless liquid.

Solubility

Miscible with water and with ethanol (96 per cent).

The vapour is flammable.

IDENTIFICATION

- A. Relative density (see Tests).
- B. To 1 mL, add 3 mL of [dilute sodium hydroxide solution R](#) and 0.3 mL of a 25 g/L solution of [sodium nitroprusside R](#). An intense red colour is produced which becomes violet with the addition of 3.5 mL of [acetic acid R](#).
- C. To 10 mL of a 0.1 per cent V/V solution of the substance to be examined in [ethanol \(50 per cent V/V\) R](#), add 1 mL of a 10 g/L solution of [nitrobenzaldehyde R](#) in [ethanol \(50 per cent V/V\) R](#) and 0.5 mL of [strong sodium hydroxide solution R](#). Allow to stand for about 2 min and acidify with [acetic acid R](#). A greenish-blue colour is produced.

TESTS

Appearance of solution

To 10 mL add 10 mL of [water R](#). The solution is clear ([2.2.1](#)) and colourless ([2.2.2, Method II](#)).

Acidity or alkalinity

To 5 mL add 5 mL of [carbon dioxide-free water R](#), 0.15 mL of [phenolphthalein solution R](#) and 0.5 mL of [0.01 M sodium hydroxide](#). The solution is pink. Add 0.7 mL of [0.01 M hydrochloric acid](#) and 0.05 mL of [methyl red solution R](#). The solution is red or orange.

Relative density ([2.2.5](#))

0.790 to 0.793.

Reducing substances

To 30 mL add 0.1 mL of [0.02 M potassium permanganate](#) and allow to stand in the dark for 2 h. The mixture is not completely decolourised.

Related substances

Gas chromatography ([2.2.28](#)).

Test solution The substance to be examined.

Reference solution (a) To 0.5 mL of [methanol R](#) add 0.5 mL of [2-propanol R](#) and dilute to 100.0 mL with the test solution. Dilute 1.0 mL of this solution to 10.0 mL with the test solution.

Reference solution (b) Dilute 100 µL of [benzene R](#) to 100.0 mL with the test solution. Dilute 0.20 mL of this solution to 100.0 mL with the test solution.

Column:

- *material*: fused silica,
- *size*: $l = 50$ m, $\varnothing = 0.3$ mm,
- *stationary phase*: [macrogol 20 000 R](#) (film thickness 1 µm).

Carrier gas [helium for chromatography R](#).

Linear velocity 21 cm/s.

Split ratio 1:50.

Temperature:

	Time (min)	Temperature (°C)
Column	0 - 11	45 → 100
	11 - 20	100
Injection port		150
Detector		250

Detection Flame ionisation.

Injection 1 µL.

Retention time Impurity C = about 7.5 min.

System suitability:

- *resolution*: minimum 5.0 between the peak due to impurity A (2nd peak) and the peak due to impurity B (3rd peak) in the chromatogram obtained with reference solution (a);
- *signal-to-noise ratio*: minimum 5 for the peak due to impurity C in the chromatogram obtained with reference solution (b).

Limits:

- *impurities A, B*: for each impurity, not more than the difference between the areas of the corresponding peaks in the chromatogram obtained with reference solution (a) and the areas of the corresponding peaks in the chromatogram obtained with the test solution (0.05 per cent V/V),
- *impurity C*: not more than the difference between the area of the peak due to impurity C in the chromatogram obtained with reference solution (b) and the area of the corresponding peak in the chromatogram obtained with the test solution (2 ppm V/V),
- *any other impurity*: for each impurity, not more than the difference between the area of the peak due to impurity A in the chromatogram obtained with reference solution (a) and the area of the corresponding peak in the chromatogram obtained with the test solution (0.05 per cent V/V).

Matter insoluble in water

Dilute 1.0 mL to 20 mL with [water R](#). The solution is clear ([2.2.1](#)).

Residue on evaporation

Maximum 50 ppm.

Evaporate 20.0 g to dryness on a water-bath and dry at 100-105 °C. The residue weighs a maximum of 1 mg.

[Water](#) ([2.5.12](#))

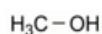
Maximum 3 g/L, determined on 10.0 mL.

STORAGE

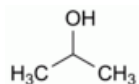
Protected from light.

IMPURITIES

Specified impurities A, B, C.



A. methanol,



B. propan-2-ol (isopropanol),



C. benzene.

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