



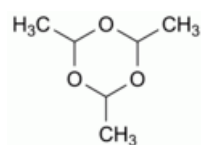
Edition: BP 2025 (Ph. Eur. 11.6 update)

Paraldehyde



[General Notices](#)

(Ph. Eur. monograph 0351)



C₆H₁₂O₃ 132.2 123-63-7

Action and use

Anticonvulsant.

Ph Eur

DEFINITION

2,4,6-Trimethyl-1,3,5-trioxane (cyclic trimer of acetaldehyde).

It may contain a suitable quantity of an antioxidant.

CHARACTERS

Appearance

Colourless or slightly yellow, transparent liquid. It solidifies on cooling to form a crystalline mass.

Solubility

Soluble in water, but less soluble in boiling water, miscible with ethanol (96 per cent) and with essential oils.

IDENTIFICATION

- Solution S (see Tests) is clear ([2.2.1](#)) but becomes turbid on warming.
- To 5 mL add 0.1 mL of [dilute sulfuric acid R](#) and heat. Acetaldehyde, recognisable by its odour, is evolved.
- To 5 mL of solution S in a test-tube add 5 mL of [ammoniacal silver nitrate solution R](#) and heat in a water-bath. Silver is deposited as a mirror on the wall of the tube.

TESTS

Solution S

Dissolve 20.0 mL in [carbon dioxide-free water R](#) and dilute to 200.0 mL with the same solvent.

Acidity

To 50.0 mL of solution S add 0.05 mL of [phenolphthalein solution R](#). Not more than 1.5 mL of [0.1 M sodium hydroxide](#) is required to change the colour of the indicator.

[Refractive index \(2.2.6\)](#)

1.403 to 1.406.

[Relative density \(2.2.5\)](#)

0.991 to 0.996.

[Distillation range \(2.2.11\)](#)

A maximum of 10 per cent distils below 123 °C and a minimum of 95 per cent distils below 126 °C.

[Freezing point \(2.2.18\)](#)

10 °C to 13 °C.

[Acetaldehyde](#)

To 5.0 mL add a mixture of 0.2 mL of [methyl orange solution R](#), 5 mL of [ethanol \(60 per cent V/V\) R](#) and 5 mL of [alcoholic hydroxylamine solution R](#) and shake. Not more than 0.8 mL of [0.5 M sodium hydroxide](#) is required to change the colour of the indicator to pure yellow.

[Peroxides](#)

Place 50.0 mL of solution S in a ground-glass-stoppered flask, add 5 mL of [dilute sulfuric acid R](#) and 10 mL of [potassium iodide solution R](#), close the flask and allow to stand protected from light for 15 min. Titrate with [0.1 M sodium thiosulfate](#) using 1 mL of [starch solution R](#) as indicator. Allow to stand for 5 min and, if necessary complete the titration. Not more than 2.0 mL of [0.1 M sodium thiosulfate](#) is required.

Non-volatile residue

Maximum 0.6 g/L.

Heat 5.0 mL in a tared evaporating dish on a water-bath and dry at 105 °C for 1 h. The residue weighs a maximum of 3 mg.

STORAGE

In a small, well-filled, airtight container, protected from light. If the substance has solidified the whole contents of the container must be liquefied before use.

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