



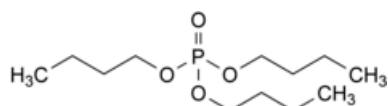
Edition: BP 2025 (Ph. Eur. 11.6 update)

## Tributyl Phosphate



### [General Notices](#)

(*Tri-n-butyl Phosphate*, Ph. Eur. monograph 1682)



$C_{12}H_{27}O_4P$  266.3 126-73-8

### Action and use

Excipient.

Ph Eur

## CHARACTERS

### Appearance

Clear, colourless or pale yellow liquid.

### Solubility

Slightly soluble in water, miscible with ethanol (96 per cent).

### bp

About 289 °C, with decomposition.

## IDENTIFICATION

Infrared absorption spectrophotometry ([2.2.24](#)).

Comparison [tri-n-butyl phosphate CRS](#).

## TESTS

### Appearance

The substance to be examined is clear ([2.2.1](#)) and not more intensely coloured than reference solution Y<sub>6</sub> ([2.2.2](#), [Method II](#)).

### Acidity

Dissolve 50 mL in 50 mL of [ethanol \(96 per cent\) R](#) previously adjusted with [0.02 M potassium hydroxide](#) or [0.02 M hydrochloric acid](#) to a bluish-green colour, using 0.5 mL of [bromothymol blue solution R1](#) as indicator. Titrate with [0.02 M potassium hydroxide](#) to the initial bluish-green coloration. Not more than 0.8 mL of [0.02 M potassium hydroxide](#) is required.

### Related substances

Gas chromatography ([2.2.28](#)): use the normalisation procedure.

*Test solution* The substance to be examined.

*Reference solution* Dissolve 10 mg of the substance to be examined and 10 mg of [methyl myristate R](#) in [methylene chloride R](#) and dilute to 10 mL with the same solvent.

*Column:*

- *material:* fused silica;
- *size:*  $l = 30$  m,  $\varnothing = 0.32$  mm;
- *stationary phase:* [methylpolysiloxane R](#) (5  $\mu$ m).

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

*Linear velocity* 32 cm/s.

*Split ratio* 65:1.

*Temperature:*

- *column:* 250 °C;
- *injection port and detector:* 250 °C.

*Detection* Flame ionisation.

*Injection* 1  $\mu$ L.

*Run time* Twice the retention time of tri-*n*-butyl phosphate.

*System suitability* Reference solution:

- *resolution:* minimum 10 between the peaks due to tri-*n*-butyl phosphate and methyl myristate.

*Limits:*

- *any impurity:* for each impurity, maximum 0.3 per cent;
- *total:* maximum 0.5 per cent;
- *disregard limit:* 0.01 per cent.

### Chlorides ([2.4.4](#))

Maximum 200 ppm.

Dissolve 0.25 g in 15 mL of [ethanol \(70 per cent V/V\) R](#). The solution complies with the test. Prepare the reference solution using 10 mL of [chloride standard solution \(5 ppm Cl\) R](#) and 5 mL of [anhydrous ethanol R](#).

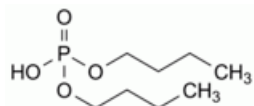
### Water ([2.5.32](#))

Maximum 0.1 per cent, determined on 1.0 g.

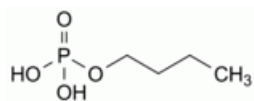
## STORAGE

Protected from light.

## IMPURITIES

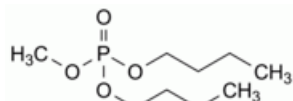


A. dibutyl hydrogen phosphate,

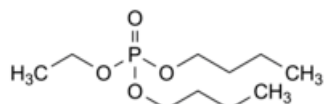


B. butyl dihydrogen phosphate,

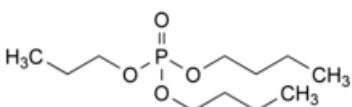
C. H<sub>3</sub>C-[CH<sub>2</sub>]<sub>3</sub>-OH: butan-1-ol,



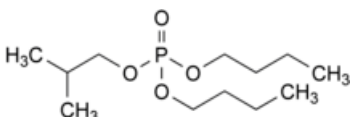
D. dibutyl methyl phosphate,



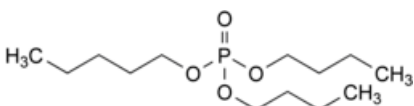
E. dibutyl ethyl phosphate,



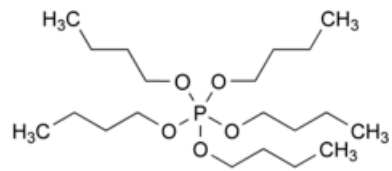
F. dibutyl propyl phosphate,



G. dibutyl 2-methylpropyl phosphate,



H. dibutyl pentyl phosphate,



I. pentabutyl phosphate.

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