

## PRODUCT IN FOCUS



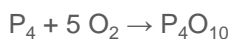
# Phosphorus pentoxide (P<sub>2</sub>O<sub>5</sub>)

### INTRODUCTION

Phosphorus pentoxide is a chemical compound with molecular formula P<sub>4</sub>O<sub>10</sub> (with its common name derived from its empirical formula, P<sub>2</sub>O<sub>5</sub>). It is used in a wide variety of applications as a building block and a reagent in the chemical industry. This white fine powder is the anhydride of phosphoric acid. It is a powerful desiccant and dehydrating agent.

### Manufacture

P<sub>4</sub>O<sub>10</sub> is prepared by burning tetraphosphorus with sufficient supply of oxygen:



### Synonyms

Phosphoric anhydride  
Phosphoric oxide

### CAS no.

1314-56-3

### EINECS no.

215-236-1

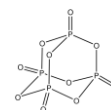
### Molecular formula

P<sub>2</sub>O<sub>5</sub>

### Molecular weight

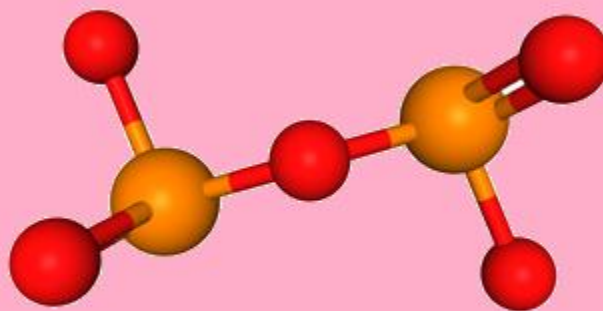
141.94

### Structure



### SPECIFICATIONS

Test	Unit	Specification
Appearance	-	Fine white powder (Hygroscopic)
Odour	-	Odourless
Assay	%	Min 99.50
P <sub>2</sub> O <sub>3</sub> content	%	Max 0.10



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**Applications** - Phosphorus pentoxide is a versatile compound and used in wide range of applications:

<b>Organic synthesis</b>	It can be used as a reagent for condensations in organic synthesis and polymerisation reactions. Typical uses include cyclisation / ring closures in such reactions as acetylation, alkylation, production of amines, acid amides, cyclic ketones, cyclic olefins or oxygen and sulphur heterocyclic compounds.
<b>Catalyst production</b>	It can be used in the manufacture of special phosphoric acid supported catalysts.
<b>Specialty inorganic phosphates</b>	Phosphorus pentoxide can be used in the manufacture of specialty sodium and ammonium phosphates.
<b>Polyphosphoric acids</b>	Various grades of superphosphoric and polyphosphoric acids can be manufactured by blending phosphorus pentoxide with phosphoric acid.
<b>Glass</b>	Beside silicon dioxide and boron trioxide also phosphorus pentoxide is used for glass making.
<b>Phosphate esters</b>	It can be used to produce phosphate esters with a mono/di ester content. The acid is reacted directly with the appropriate alcohol or phenol to produce the acidic phosphate ester.
<b>Drying agent</b>	Because of its strong hygroscopic properties phosphorus pentoxide can be used as a drying agent.
<b>Fertilizers</b>	In production of ammonium polyphosphate.
<b>Surfactants</b>	In manufacture of cetyloleyl ether phosphoric acid, cetylstearyl ether phosphoric acid, nonylphenol ether phosphoric acid.

### STORAGE

Keep container tightly closed in a dry and well-ventilated place. Store in cool place.

### PACKING

200 kg UN approved MS Drum.

### REACH Status

P<sub>2</sub>O<sub>5</sub> offered by ExSyn is registered under EU REACH regulations.

ExSyn offers P<sub>2</sub>O<sub>5</sub> on commercial scales and welcomes enquiries. No matter the quantity you need, our exceptional quality and service will make ExSyn your supplier of choice! If you need any additional information or SDS, please get in touch with us.