

Technical Information

Testomat 2000[®] Phosphate

When is it necessary to measure phosphate levels?

The measurement of the phosphate content in the wastewater of industrial processes becomes more and more important, because the phosphate values must be lower than the legally permitted values if the wastewater is discharged into the sewer system.

In accordance with § 11 of the German drinking water ordinance of 2001, the limits are 2,2 mg / l phosphorus (6.75 mg / l PO₄) for phosphates added to the drinking water.

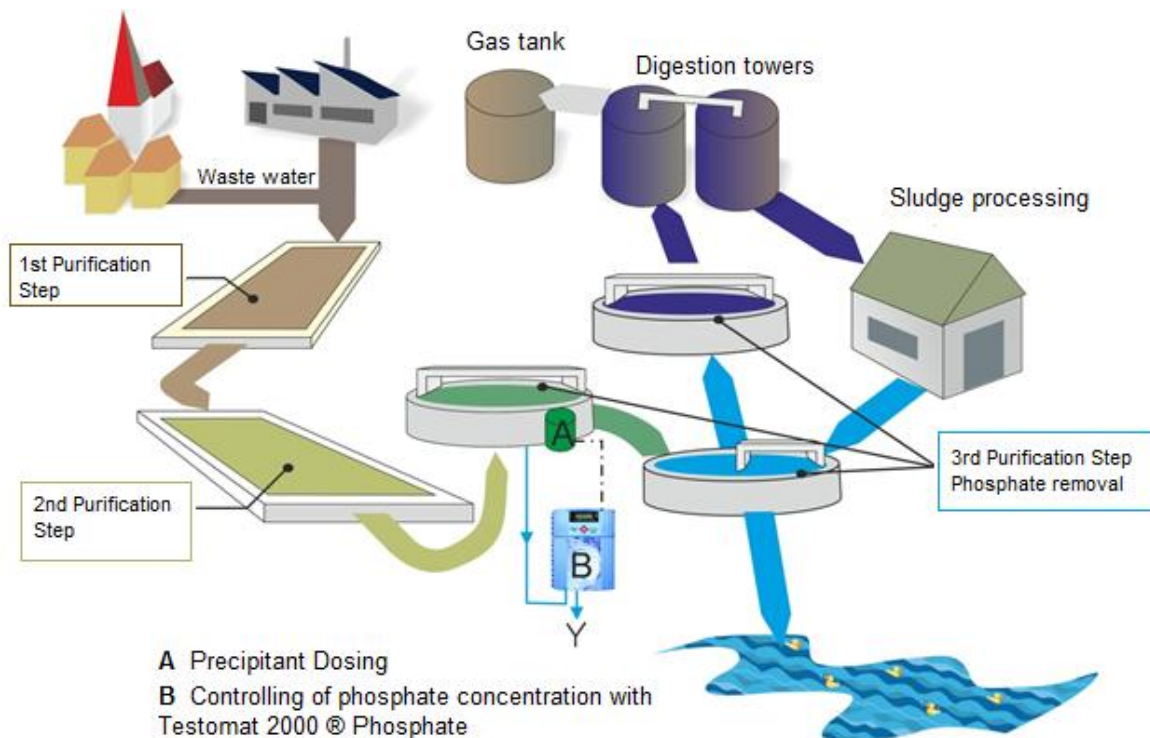
Where do phosphates come from?

Phosphates are mainly found in fertilizers and detergents. They are released into the groundwater by agricultural fertilizers in the soil or by domestic wastewater with phosphate detergents. In industrial plants, orthophosphates (PO₄) are directly fed into the processing water to prevent corrosion in their piping systems.

A high concentration of phosphates and nitrates in the groundwater results in an excessive quantity of nutrients in rivers and lakes. This is the main reason for increased algae growth, resulting in a decrease of oxygen concentration in the water and a sustained disturbance of the ecological balance. In order to prevent this environmental hazard, policies for the concentration of phosphates and nitrates in water have been established.

Phosphates in Sewage Treatment Plants

In waste water treatment plants, phosphate concentration must be measured in order to ensure effective wastewater treatment. Phosphates are removed either by chemical precipitation or biological elimination from wastewater.



By feeding in dissolved iron salts (ferrous chloride), most of the phosphorus from wastewater is precipitated and deposited along with the contaminants from the primary settlement tank to the bottom of the basin.

Increasingly important in wastewater treatment plants is the phosphate recovery from wastewater and sludge, since phosphorus is an important and finite raw material.

The Right Tool for Measuring Phosphate Concentration

In all industrial processes, the measurement and controlling of the phosphate concentration is essential and must be carried out either manually or automatically.

To facilitate this need, we have developed our online measuring instrument, the **TESTOMAT 2000[®] PO₄**, which continuously measures the amount of orthophosphate in aqueous solutions.

The areas of applications include:

- Process water monitoring
- Production water purification
- Wastewater treatment (wastewater treatment plants, biogas plants)
- Online environmental analyses



Your advantages through online monitoring of a cooling circuit in an industrial process



- Decreased need to add fresh water
- Lower wastewater costs
- Longer use of process water which reduces the environmental impact
- Following the stricter environmental regulations in the US

Your advantages through online monitoring of phosphate elimination in a waste water treatment plant



- Continuous controlling of critical concentration of phosphate and other parameters resulting in the exact adjustment of the use of precipitants
- Lower operating costs through decreased use of precipitants
- Less sludge
- Reduced impact on the environment

Technical Data Overview

Method	Process Photometer
Measuring range	0 – 10 mg/l PO ₄ (choice between mg/l or ppm)
Power supply	230 VAC, 115 VAC or 24 VAC ± 10% 50 – 60 Hz
Power consumption	Max. 30 VA, without exterior load
Protection category	I
Protection	IP 65
Ambient temperature	10 to 30 °C (50 to 86 °F)
Interface	0/4 - 20 mA, max. load 500 Ohm
Dimensions width x depth x height	380 x 480 x 280 mm (15 x 19 x 11 inch)
Weight	Approx. 21 lbs.
Other	The device is zero-voltage-safe.
Operating pressure	1 to 8 bar / 1x10 ⁵ up to 8x10 ⁵ Pa or 0,3* to 1 bar / 0,3x10 ⁵ up to 1x10 ⁵ Pa (After removal of the valve body)
Water inlet	Ø 6/4 x 1 mm
Water drainage	Ø 12 mm
Water temperature	5 to 30 °C (41 to 86 °F)
pH value of sample:	between pH 4 – 8 The feed water must be clear, colourless and free of undissolved particles.

* At low phosphate contents (less than 0.5 mg / l) high concentrations of SI, FE, CR, MN and CU ions (> 5 mg / l) in the water interfere with the measurement result. Measurement deviations greater than 10% are to be expected.

Generally the measurement deviation of the device is in the range < 2%.



HEYL BROTHERS
North America L.P.

Water is our Element

Contact

Heyl Brothers North America L.P.
321 North Clark Street, Suite 1425
Chicago, IL 60654
USA
Phone: +1 (312) 377-6123
E-mail: usa@heyl.de
Website : www.heyl.de/en