



Sample Preparation

On-Line Sample Preparation – Continuous · Reliable · Low Maintenance

Sample preparation is usually necessary for the reliable operation of on-line analyzers in municipal and industrial wastewater treatment facilities. Preparing the sample prevents solids and bacteria from contaminating the analysis system and its components. The sample preparation system and the analysis system must be matched to each other so that accurate and continuous measuring operation can be guaranteed together with low maintenance requirements.

In combination with a suitable sample preparation system, WTW analysis systems provide greater operating reliability and availability.

WTW Sample Preparation Systems

- Biological Treatment

For the most frequent application of on-line analyzers, their use in the biological treatment of wastewater treatment plants, WTW has developed the **PurCon**[®] sample preparation system. In contrast to preparation techniques based on the sedimentation principle, this low-maintenance system provides a constant flow of permeate.

- Final Effluent

For monitoring final effluent, WTW TresCon[®] Analyzers require **no sample preparation**. The TresCon[®]'s AutoClean[®] feature allows the treated sample to be measured directly.

The new P 700 IQ orthophosphate analyzer requires a special sample preparation, which is only offered for this analyzer. For further information see page 67.

Biological Treatment

PurCon®

- Continuous sample preparation
- Solid-free and bacteria-free permeate
- BubbleClean®, self-cleaning feature – Low Maintenance



PurCon® – the perfect sample preparation

PurCon® is a continuously operating sample preparation system which has been specially designed for use in wastewater treatment facilities. In contrast to conventional preparation systems, e.g. by sedimentation, the PurCon® unit provides a continuous flow of solid-free and bacteria-free permeate; BubbleClean® feature results in low maintenance requirements.

This sample preparation system is suitable for a wide range of applications in the wastewater treatment plants; even for applications in the biological treatment with difficult-to-sediment sludge components.

The PurCon® sample preparation system is the ideal complement to the TresCon® analysis system as up to three on-line analysis modules can be supplied with permeate simultaneously.

In typical applications in municipal wastewater treatment plants, e.g. in the biological tank (3–6 g/l sludge), 6 months maintenance-free operation is possible.

System description

The PurCon® sample preparation system consists of a sample preparation unit and a control unit with peristaltic pump for permeate delivery. The unit is fully mounted and is built into a V4A stainless steel housing with a door in the front panel.

To supply the raw water to the PurCon® system a submersible pump is required; its type and size depend upon the local conditions. Sample discharge is pressureless (outlet diameter > 1.97 in./50 mm).

Technical Data PurCon®		
Permeate	Feed to Analyzer	Continuous
	Yield	3.6 l/h max., adjustable in four increments
	Quality	Free of solid matter and bacteria
Sample Delivery	Minimum ... maximum	400 ... 1.500 l/h approx.
Connections	Sample inlet	Hose barb fitting, 3/4" I.D.
	Drain outlet	PVC pipe fitting, 51.97 in. (50 mm) I.D., pressureless
	Rinsing outlet	Hose barb fitting, 3/4" I.D.
	Permeate outlet	Screw fitting, 0.06" dia. (1.54 mm)
Electrical Requirements	Voltage	230 VAC / 115 VAC (depending on version)
	Power consumption	150 VA approx. (without pump)
	EMC	According to EN 62 326 class B, Annex A, FCC class A
Mechanical, Protection Rating	Dimensions (HxWxD)	2.38 x 1.86 x 0.71 ft. (735 x 575 x 220 mm)
	Material	316 stainless steel; IP 33
	Weight	Approx. 79.38 lb (36 kg)
Maintenance Requirements	Municipal applications	Depends on location and wastewater load, typically 20 min / month
Ambient Conditions	Temperature	Storage: –13 ... 140 °F (–25 ... 60 °C) / Operating: 32 ... 104 °F (0 ... 40 °C)
Certification	CE, TÜV-Mark, DIN-GOST	
Guaranty	2 years for defects of quality	

Ordering Information

PurCon®		Order No.
PurCon®/ 230	Sample preparation system for 230 VAC, with 1 m permeate tubing with adapter, 3 hose clamps for feed tubing	810 000
PurCon®/ 115	Sample preparation system for 115 VAC, with 1 m permeate tubing with adapter, 3 hose clamps for feed tubing	810 008



2 Year Guaranty

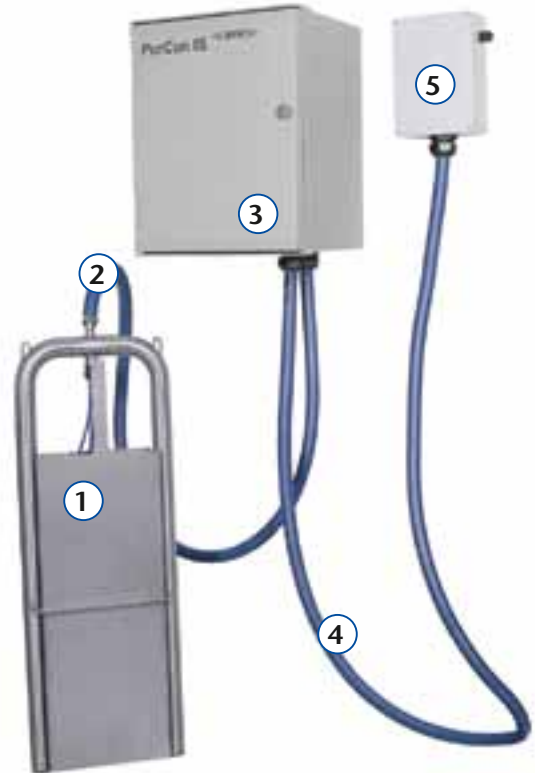
PurCon® IS

- Direct in-situ operation
- Continuous sample preparation
- Self-cleaning “BubbleClean®”

Sample Preparation on-site with no external Pumps required

PurCon® IS consists of a filter unit ①, that is put directly in the sample, a suction hose ②, a control unit for outside mounting ③, that takes the permeate in and a permeate line ④ for the transport of the permeate to the analyzer units. The permeate line can – according to the ambient temperature conditions at the site – be specified with or without freeze protection.

At the end of the permeate line a box ⑤, is mounted that delivers the permeate.



Technical Data PurCon® IS

Permeate Stream Sufficient for	PurCon® IS/2-230: supply of one TresCon® analyzer module PurCon® IS/4-230: supply of up to three TresCon® analyzer modules
Hose Length	Suction hose: 5.47 yds (5 m) Permeate line 5.47, 10.94 or 21.87 yds (5, 10 or 20 m)
Operating Temperature	-4 ... 104 °F (-20 ... +40 °C); with freeze protection
Applications	Suited for outside operation
Mounting	Filter unit: Chain-, railing-, wall-, basin-, column mounting Control unit: railing-, wall mounting In combination with mounting sets and the WTW mounting system
Dimensions (B x H x T, lb/kg), Weight, Protection Rating	Filter unit: 1.04 x 3.03 x 0.23 ft. (321 x 934 x 71 mm), 22 lb (10 kg), IP 68 Control unit: 1.34 x 1.66 x 1.12 ft. (412 x 513 x 345 mm), 33 lb (15 kg), IP 33
Guaranty	2 years for defects of quality

Ordering Information

PurCon® IS		Order No.
PurCon® IS/2-230	PurCon® IS filter unit with 2 filter membranes, 5.47 yds (5 m) suction hose and control unit (230 V AC) for supply of one TresCon® analyzer module	810 050
PurCon® IS/4-230	PurCon® IS filter unit with 4 filter membranes, 5.47 yds (5 m) suction hose and control unit (230 V AC) for supply of up to three TresCon® analyzer modules	810 051
PCIS-Set115	Adaption set to 115 V AC mains supply	810 070
Permeate line – required for operation		Order No.
PCIS-PL5/H	5.47 yds (5 m), with freeze protection	810 065
PCIS-PL10/H	10.94 yds (10 m), with freeze protection	810 066
PCIS-PL20/H	21.87 yds (20 m), with freeze protection	810 067
PCIS-MSK	Set for chain mounting for PurCon® IS filter unit	810 071
PCIS-MSS	Set for bar mounting for PurCon® IS filter unit	810 072
PCIS-MSG	Set for bar mounting for PurCon® IS control unit	810 073



Further Accessories see brochure “Product Details”

Secondary Sedimentation Stage / Final Effluent

In the effluent water from the secondary sedimentation the concentration of solids is often so high that sample preparation is required before on-line analysis can take place. In the effluent from wastewater treatment plant it is possible to carry out on-line analysis with TresCon® without any sample preparation as the analyzer module uses the AutoClean® method; this is a very efficient automatic self-cleaning system.

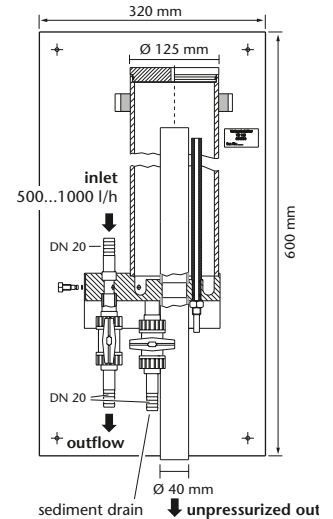
Final Effluent

If TresCon® analyzers are used in slightly loaded wastewater such as wastewater treatment plant effluent the

- **PF 105 sample bypass** is used to provide the analyzer module with unfiltered sample. The unit consists of a Y-shaped pipe branch with a valve for regulating the flow in the bypass. The supply to the TresCon® analyzer can be set with a second fine valve in the sample branch. To protect the TresCon® analyzer module coarse particles are retained by a woven-wire sieve in the branch.
- **Overflow vessel VB 105** with continuous sample flow is used to feed the analysis modules with non-filtrated sample. The unit is made up of a cylindrical vessel with a volume of approx. 2 l. This vessel is continuously being flown through and thus always supplies up-to-date sample.



PF 105 sample bypass



Overflow vessel VB 105

Secondary Sedimentation

PurCon®

Apart from its use in aeration basins, the PurCon® system is ideal for the preparation of samples from the secondary sedimentation stage. In such cases PurCon® also continuously supplies an adequate amount of high-quality permeate. As only residual solids need to be removed from the sample, extremely low maintenance requirements are achieved.

Technical Data PF 105	
Tubing connections	20 mm dia.
Permeate tubing	Length 1.09 yds (1 m), 0.24 in. (6 mm) I.D.
Feed	1000 ... 1500 l/h
Branch	Approx. 3 l/h
Dimensions (H x W)	1.28 x 1.07 ft. (395 x 330 mm)
Ordering Information	
Accessories	Order No.
PF 105	Submersible pump without cutting blade for PurCon®, PF 105 or FPB 000 670
VB 105	Low power submersible pump without cutting blade, power 350 W 830 860

*Pumps are not included in scope of delivery.
Pumps and further Accessories see brochure "Product Details"*