GROUNDWATER SAMPLING CONSUMABLES

You will return to the contents of
P2 WATER by clicking the pictogram

Filtration

The filtration of groundwater immediately in the field is necessary to allow for analysis, later in the laboratory, for, for instance heavy metals. If, for example, you have a sample containing groundwater with soil particles then there is a very high risk that, if the sample is analysed (as water), very high concentrations of heavy metals are recorded. This is caused by the fact that lutum and humus particles hold relatively high concentrations of these substances. During in-line filtration, floating particles (0.45 micron) are removed from the groundwater. There are two types of filters: a filter holder with exchangeable membranes and disposable filters.

12.31 Filter holder for in-line filtration

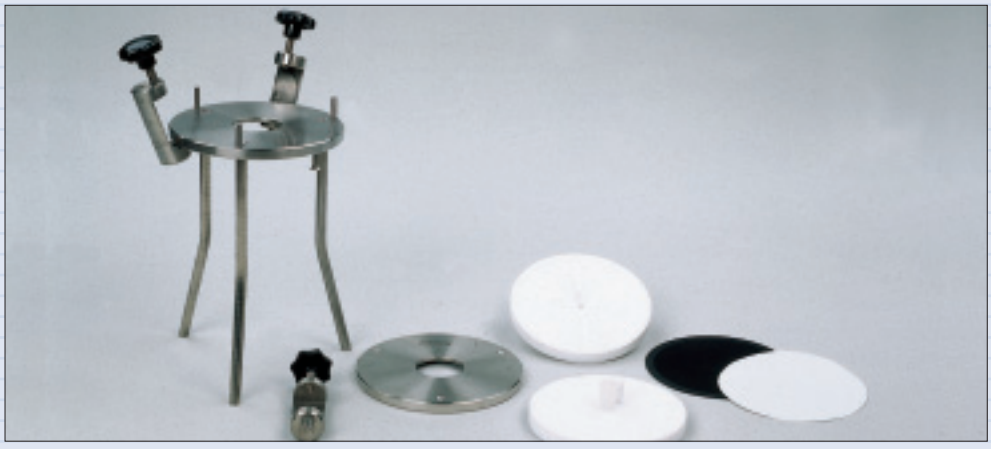
The filter apparatus, suitable for field and laboratory, has a net filtration area of 130 cm^2. The medium to be filtered only has contact with the chemically inert teflon. The rest of the apparatus consist of stainless steel. If the proper filter membrane is used, very agressive fluids and gasses can also be filtered.

The filter apparatus can be connected in-line to a peristaltic pump, nitrogen powered gas-lift pump or a bladder pump. Also vacuum filtrations are possible; any vacuum pump can be used to that purpose.

Advantages

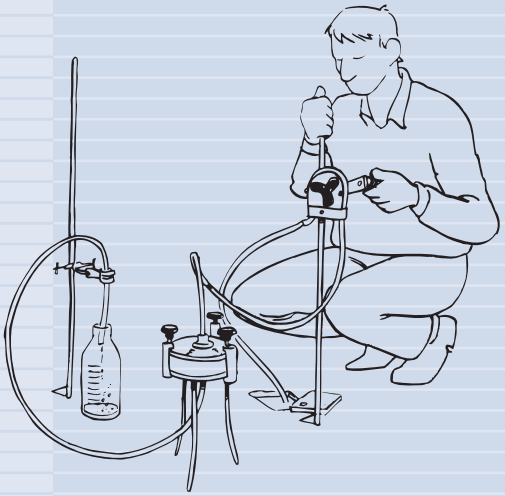
- Simple but adequate construction; can be decontaminated very fast.
- Contamination of the filtrate by internal leakages is impossible.
- Because of the presence of a deaeration valve the apparatus can be assembled wet.
- The contaminated 'wet' parts can be exchanged quickly with prepared clean filter units. This makes cleaning in the field unnecessary.
- Use of a pre-filter is possible.
- Fast operating tube connection for a tube with an external diameter of 8 mm.

Filterholder for in-line filtration

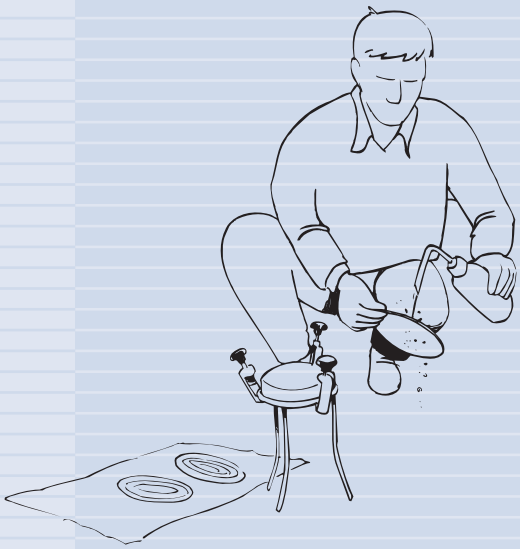


Filterholder demounted

During sampling the groundwater is filtrated in-line under anaerobe conditions.



For every next filtration the filter unit needs to be cleaned and a new filter membrane needs to be put in place.



GROUNDWATER SAMPLING CONSUMABLES

The water sampling tube is pressed to the disposable filter.

12.30 Disposable filters for in-line filtration

Four disposable filters for the filtration of groundwater are available: two with a limited, one with a medium and one with an extensive capacity.

The small filter (art. no.:12.30.01) has an effective filtration area of 20 cm^2 and is suitable for the filtration of a limited quantity of groundwater with not too many fine particles.

The second small filter (art. no.: 12.30.15) differs from the pre-mentioned because of its pore size of 0.20 micron.

The medium filter (art. no.: 12.30.10) has an effective filtration area of 300 cm^2 and universal hose barb connections.

The larger filter (art. no.:12.30.05) has an effective filtration area of 700 cm^2 (35 x the capacity of the smallest filter). Because of this large capacity it will not be necessary to exchange blocked filters. It also allows for quick filtration.

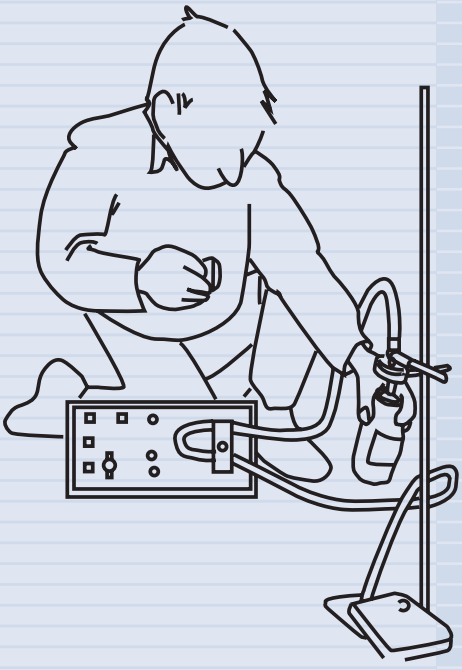
All filters have a pore size of 0.45 micron, a maximum working pressure of 4310 hPa and a maximum momentary pressure of 6865 hPa.
The smallest filter is also available with a pore size of 20 cm^2.

A tube with an internal diameter of 6-12 mm can be shoved on the inlet and outlet (large filter only 10 mm internal diameter).

The highest efficiency is reached if a filter is connected to the pressure-side of a peristaltic pump, adjusted to a low speed.

All filters are available in cost effective bulk packages.

Using the peristaltic pump 12 Vdc and a disposable filter the water sample is filtrated immediately in the field.



Disposable filters for in-line filtration

GROUNDWATER SAMPLING CONSUMABLES

P2.01

Advantages

- Efficient: decontamination and exchanging of a filter membrane are not necessary.
- Reliability: every filter has been tested for quality.
- Simple to apply: by single-use the risk of cross-contamination is eliminated.
- For filter holder and membrane very high grade inert materials have been used.
- High yield: filter membranes with a very high porosity.

12.20 Tubes and accessories

Depending on the application, various tubes are available for groundwater sampling. The tubes vary in diameter, length, type of material and package.

Polyethylene and silicon rubber tubes are tested within the ETU-hallmark.

During this test the products are subjected to a strict, selective leaching procedure for establishing the degree of discharge of toxicological substances to water.

Polyethylene tube is most commonly used as a transport tube for groundwater samples. To avoid cross contamination to other wells the tube is used only once. The tube meets the physical-chemical requirements as laid down in the DIN 8072 standard and the ETU-hallmark.

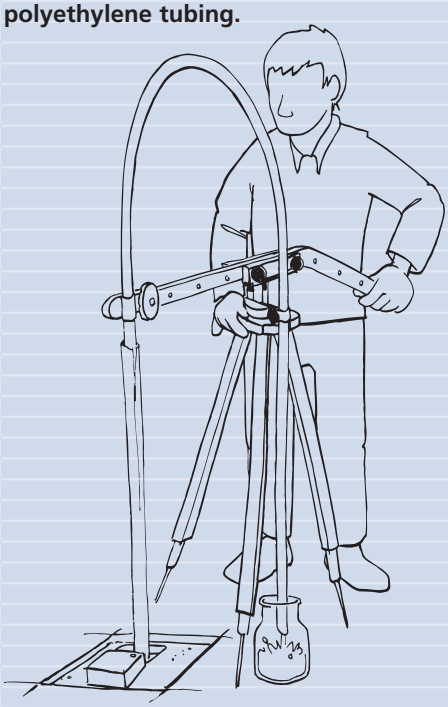
Furthermore there are teflon (fully inert) tubes available as transport tubes in various diameters.

A silicon rubber tube (in various diameters) is applied as pumping tube in combination with the peristaltic pump (manual or electrical). Here too, the tube is replaced before every sampling to avoid cross-contamination. The tube meets the requirements as set by the pharmaceutical- and food industry and the ETU-hallmark.

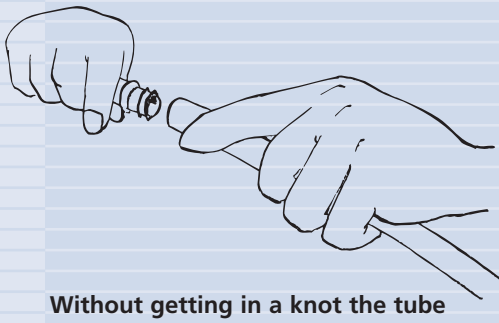
To prevent that during unrolling tube gets in a knot, it is recommended to apply a tube dispenser. The tube dispenser is suitable for tubes in various diameters.

To avoid that tube endings are contaminated by touching the soil (or slide from the sampler flask) the so called 'third hand' can be applied. It can also be used to clamp 0.45 micron groundwater filters.

Water is sampled using a hand operated foot valve pump with polyethylene tubing.



Mounting a ball valve in a polyethylene tubing.

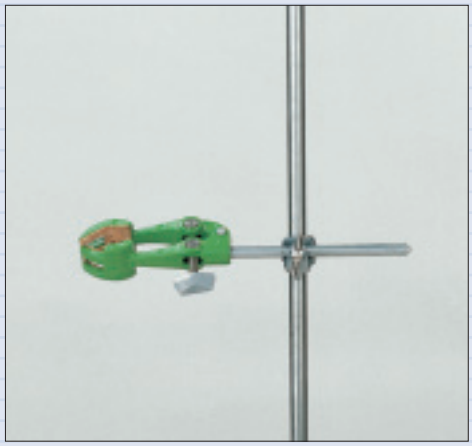


Without getting in a knot the tube is led directly from the dispenser into the monitoring well.

Various tubes

Tube dispenser

ETU-hallmark



Third hand to hold sample flasks

Eijkelkamp Agrisearch Equipment

www.eijkelkamp.com

PARTS LIST

Art.no.	Description	Qty. in set
Groundwater sampling consumables (P2.02)		
	FILTRATION **To filter groundwater we supply two systems:** **- disposable filters to use only once** **- filterholder with exchangeable filter membranes**	
12.30	**Disposable filters for in-line filtration:**	
12.30.01	Disposable filter for in-line filtration, effective filtrationarea 20 cm^2, pore size 0.45µ, universal hose barb connections, set of 5 pcs.	
12.30.02	Disposable filter for in-line filtration, effective filtration area 20 cm^2, pore size 0.45 micron, universal hose barb connections, packing of 250 pieces (50 sets of 5 pieces)	
12.30.10	Disposable filter for in-line filtration, effective filtration area 300 cm^2, pore size 0.45 micron, universal hose barb connections. Certified quality	
12.30.11	Disposable filter for in-line filtration, effective filtration area 300 cm^2, pore size 0.45 micron, universal hose barb connections, set of 50 pcs. Certified quality	
12.30.05	Disposable filter for in-line filtration, effective filtration area 700 cm^2, pore size 0.45 micron, hose barb connection for silicone tube 6 x 10 mm (with tube clamp) or the PE tube 10x12 mm. Certified quality.	
12.30.06	Disposable filter for in-line filtration, effective filtration area 700 cm^2, pore size 0.45 micron, hose barb connection for silicone tube 6x10 mm (with tube clamp) or the PE tube 10x12 mm, set of 50 pieces. Certified quality	
12.30.15	Disposable filter for in-line filtration, effective filtration area 20 cm^2, pore size 0.20 micron, universal hose barb connections, set of 5 pcs.	
12.31	**Filter holder for in-line filtration:**	
12.31.01	Filterholder for in-line filtration, complete with exchangeable PTFE filtration unit, suitable for filter membranes 142 mm, inclusive spare tube connection. Tube connections for tube outside Ø 8 mm	
12.31.01.02	Filter membranes, Ø 142 mm, pore size 0.45 micron, filter medium polyethersulfon, box of 25 pieces	
	Sampling tube for filter holder (12.31) (outside Ø 8 mm)	
12.20.04	Polyethylene tube, Ø 6x8 mm, roll of 100 m, with ETU-hallmark	

Art.no.	Description	Qty. in set
	Peristaltic pumps to be used for in-line filtration of groundwater (12.30 and 12.31):	
12.23	Hand-operated peristaltic pump with stand 12.25 Peristaltic pump 12 Vdc, specially suited for use in the field, micro-processor controlled, with 3 memory functions for fixed rates of revolution. CE-approved. Strong IP64 housing.	
12.25	Membrane keypads control. Incl. built-in battery 12 V. Excl. charger	
	Other accessories for groundwater filtration (12.30 and 12.31):	
12.20.95	Clamp with ground pin, for tubes and bottles	
99.08.07	Sample bottle, brown glass, wide neck, screw cap with teflon insertion, 1000 cc, set of 6 pcs.	
	Note: On the small disposable filters a sampling tube can be used with an inside Ø of 6-12 mm. (Large disposable filters only 10 mm.)	
12.20	**Tubes and accessories**	
	PE Tube	
12.20.02	Polyethylene tube, Ø 2x4 mm, roll of 100 m, with ETU-hallmark	
12.20.03	Polyethylene tube, Ø 4x6 mm, roll of 100 m, with ETU-hallmark	
12.20.04	Polyethylene tube, Ø 6x8 mm, roll of 100 m, with ETU-hallmark	
12.20.05	Polyethylene tube, Ø 6x8 mm, roll of 200 m, with ETU-hallmark	
12.20.07	Polyethylene tube, Ø 6x8 mm, roll of 200 m, set of 30 pieces, with ETU-hallmark	
12.20.08	Polyethylene tube, Ø 8x10 mm, roll of 100 m, with ETU-hallmark	
12.20.09	Polyethylene tube, Ø 8x10 mm, roll of 200 m, with ETU-hallmark	
12.20.13	Polyethylene tube, Ø 10x12 mm, roll of 75 m, with ETU-hallmark.	
12.20.16	Polyethylene tube, Ø 12x16 mm, roll of 50 m, with ETU-hallmark	
12.20.16.01	Polyethylene tube, Ø 12x16 mm, roll of 50 m, set of 22 pieces, with ETU-hallmark	
12.20.17	Polyethylene tube, Ø 12x16 mm, roll of 100 m, with ETU-hallmark	
12.20.18	Polyethylene tube, Ø 12x16 mm, roll of 100 m, with ETU-hallmark, in box of 12 pieces	
12.20.20	Polyethylene tube, Ø 16x20 mm,	

Art.no.	Description	Qty. in set
	roll of 50 m, with ETU-hallmark	
	Teflon tube	
12.20.22	Teflon tube, Ø 2x4 mm, roll of 10 m	
12.20.28	Teflon tube, Ø 8x10 mm, roll of 10 m	
12.20.32	Teflon tube, Ø 10x12 mm, roll of 10 m	
	Silicone tube	
12.20.46	Silicone tube, Ø 4x8 mm, pressure head lift 9.5 m, roll of 5 m, with ETU-hallmark	
12.20.48	Silicone tube, complete with polyamid tube clamp, Ø 6x10 mm, pressure head lift 5.5 m, roll of 5 m, with ETU-hallmark, talced	
12.20.49	Silicone tube, complete with polyamid tube clamp, Ø 6x10 mm, pressure head lift 5.5m, roll of 5m, set of 40 pcs., with ETU-hallmark, talced	
12.20.50	Silicone tube, complete with polyamid tube clamp, Ø 6x10 mm, pressure head lift 5.5 m, roll of 50 m, with ETU-hallmark	
12.20.52	Silicone tube, complete with polyamid tube clamp, Ø 6x10 mm, pressure head lift 5.5 m, roll of 5 m, untalced, with ETU-hallmark	
	Various accessories for tubes	
12.20.00	Tube dispenser for tube 2x4 mm (100 m), 4x6 mm(100 m), 6x8 mm (100+200 m), 8x10 mm (100 m) and 10x12 mm (75 m)	
12.20.95	Clamp with ground pin, for tubes and bottles	
12.20.97	Adjustable pinch clamp for tubes with 10 mm Ø max.	
12.20.98	Tube connector, single, reducing, with connection 4-8 mm and 8-12 mm, polypropylene, set of 10 pieces	

Art.no.	Description	Qty. in set