



## Disposable filters

### Declaration on quality control and quality assessment

#### Basic quality certification:

These disposable filters are produced by a European manufacturer that is certified according to: ISO 9001-2008 and ISO14001-2004 for the development, manufacturing and servicing of products for biotechnology; certified according to ISO 13485-2003 for the development, manufacturing and distribution of medical devices for sterile and particle filtration of liquids and gasses; certified according to Directive 93/42/EEC Annex 11 (excluding section 4) for the following products: Sterile syringe filters, sterile venting filters, sterile wash water capsules.

#### Disposable groundwater filtration filters 0.45 micron 20, 300 and 700 cm<sup>2</sup>

#### Producer declares that:

Disposable groundwater filtration filters 0.45 micron 20, 300 and 700 cm<sup>2</sup> are fit for use for filtration of (ground)water for all parameters listed on the backside of this certificate. For some parameters a very limited interference can not be excluded at extremely low research levels when no pre-rinsing is done.

Analysis of leaching characteristics of the filters is done:

Yearly and after each change in production procedure or material composition of membranes and housing.

The filters are tested by Aqualab Zuid in the Netherlands; a laboratory that mainly guards the drinking water quality produced by drinking water production facilities in the Netherlands.

Aqualab Zuid is with respect to quality assurance for sampling and research accredited according to NEN-EN-ISO/IEC 17025 by the Dutch Council for Accreditation.

#### Way of testing:

To determine the leaching characteristics of the filters, a number of 20, 300 or 700 cm<sup>2</sup> filters (of a specified batch) are used for the filtration of a small quantity of ultra-pure water. The quantities are 150 ml for a 20 cm<sup>2</sup> filter, 500 ml for a 300 cm<sup>2</sup> filter and 1000 ml for a 700 cm<sup>2</sup> filter. NO pre-flushing or pre-rinsing is done prior to this test. Due to the small water quantity and the absence of pre-rinsing the test is considered very critical.

#### About the table:

The table not only shows the analysis results. To put the found values in a perspective the table also shows the famous and worldwide respected Dutch environmental groundwater target values for shallow and deep groundwater with background values. Further, also the intervention values -all as known per june 2009- are shown. Also the Dutch drinking water maximum values are shown.

World Health Organization concentrations for drinking water generally are higher than the Dutch values.

To judge ordinary groundwater samples please refer to local and current applicable tables and values. Some parameters have no limits set but have been added to the list on request of researchers. No limit in the table does not mean that the parameter is innocent !

The table shows the results of the analysis of the filtered water expressed in mg/l or µg/l. Based on these values and compared with the stringent Dutch background values an interference risk is given too. Terms used: Absent (no risk), possible (some risk at lowest concentrations), probable (interference probable at a certain concentrations), no limit (no known limit set so no judgment possible). Although the filters have shown to be excellent, you may further reduce the risk of contamination of a sample by pre-rinsing with the water to be analysed. Simply discard the first water of the sample that needs to be filtered and only collect the second part of the sample in the bottle.

## Recommendations:

- This random test does not fully guarantee the quality of every individual filter. Small variations may occur.
- This test does not guarantee the quality of the filters for parameters that are not tested. You must consider performing a similar test yourself if you are going to use the filters with parameters that are not mentioned in the list of parameters.
- Keep filters packed until use. Do not touch in- and output connectors of the filters.
- Read the manual before using the filters.
- The test does not pass judgment on sorption characteristics.
- Prevent overheating of a sample prior to filtration (in a pump). Never expose a sample to air before filtration. A peristaltic pump directly at the well set at a low flow rate is ideal.

Parameter		Target values undep and deep and background concentrations for Dutch ground water	Ground water intervention value	Drinking water max. value	Lowest reporting limits	Results found filters 20 cm <sup>2</sup> (12.30.01 and 12.30.02) Batch no.: 20069113	Risk of interference filters 20 cm <sup>2</sup>	Results found filters 300 cm <sup>2</sup> (12.30.10 and 12.30.11) Batch no.: 23002703	Risk of interference filters 300 cm <sup>2</sup>	Results found filters 700 cm <sup>2</sup> (12.30.05 and 12.30.06) Batch no.: 233005603	Risk of interference filters 700 cm <sup>2</sup>	
Aluminium	Al	µg/l		200	<1.5 µg/l	<1.5 µg/l	absent	<1.5 µg/l	absent	<1.5 µg/l	absent	
Antimone	Sb	µg/l	/-0.15/0.09	20	5	<0.1 µg/l	<0.1 µg/l	possible	<0.1 µg/l	possible	<0.1 µg/l	possible
Arsene	As	µg/l	10/7.2/7	60	10	<0.05 µg/l	<0.05 µg/l	absent	<0.05 µg/l	absent	<0.5 µg/l	absent
Barium	Ba	µg/l	50/200/200	625		<0.2 µg/l	<0.2 µg/l	absent	<0.2 µg/l	absent	<0.2 µg/l	absent
Beryllium	Be	µg/l	/-0.05/0.05	15		<0.05 µg/l	<0.05 µg/l	possible	<0.05 µg/l	possible	<0.05 µg/l	possible
Boron	B	µg/l			500	<0.9 µg/l	1.8 µg/l	absent	2.3 µg/l	absent	2.3 µg/l	absent
Cadmium	Cd	µg/l	0.4/0.06/0.06	6	5	<0.08 µg/l	<0.08 µg/l	possible	<0.08 µg/l	possible	<0.08 µg/l	possible
Calcium	Ca	mg/l				<0.0092 mg/l	0.01 mg/l	no limit	0.014 mg/l	no limit	0.011 mg/l	no limit
Chromium	Cr	µg/l	1.0/2.5/2.4	30	50	<0.07 µg/l	<0.07 µg/l	absent	<0.07 µg/l	absent	0.11 µg/l	absent
Cobalt	Co	µg/l	20/0.7/0.6	100		<0.02 µg/l	<0.02 µg/l	absent	<0.02 µg/l	absent	<0.02 µg/l	absent
Copper	Cu	µg/l	15/1.3/1.3	75	200	<1.1 µg/l	<1.1 µg/l	absent	<1.1 µg/l	absent	<1 µg/l	absent
Iron	Fe	mg/l			200	<0.0008 mg/l	0.001 mg/l	absent	<0.0008 mg/l	absent	<0.0008 mg/l	absent
Lead	Pb	µg/l	15/1.7/1.6	75	10	<0.3 µg/l	<0.3 µg/l	absent	<0.3 µg/l	absent	<0.3 µg/l	absent
Magnesium	Mg	mg/l				<0.005 mg/l	<0.005 mg/l	no limit	<0.005 mg/l	no limit	<0.005 mg/l	no limit
Manganese	Mn	mg/l			50	<0.0001 mg/l	0.00019 mg/l	no limit	0.00014 mg/l	no limit	0.00016 mg/l	no limit
Mercury	Hg	µg/l	0.05/0.01/-	0.3	1	<0.03 µg/l	<0.03 µg/l	possible	<0.03 µg/l	possible	<0.03 µg/l	possible
Molybdenum	Mo	µg/l	5/3.6/0.7			<0.1 µg/l	<0.1 µg/l	absent	<0.1 µg/l	absent	<0.1 µg/l	absent
Nickel	Ni	µg/l	15/2.1/2.1	75	20	<0.1 µg/l	0.2 µg/l	absent	0.14 µg/l	absent	0.21 µg/l	absent
Ortho-phosphate	o-PO <sub>4</sub>	mg/l				<0.01 mg/l	<0.01 mg/l	no limit	0.01 mg/l	no limit	0.01 mg/l	no limit
Potassium	K	mg/l				<0.024 mg/l	<0.024 mg/l	no limit	<0.024 mg/l	no limit	<0.024 mg/l	no limit
Selene	Se	µg/l	/-0.07/0.02	160	10	<0.07 µg/l	<0.07 µg/l	possible	<0.07 µg/l	possible	<0.07 µg/l	possible
Silver	Ag	µg/l	/-/-	40		<0.5 µg/l	<0.5 µg/l	absent	<0.5 µg/l	absent	<0.5 µg/l	absent
Sodium	Na	mg/l				<0.02 mg/l	<0.02 mg/l	no limit	<0.02 mg/l	no limit	<0.02 mg/l	no limit
Strontium	Sr	µg/l				<0.1 µg/l	0.11 µg/l	no limit	0.17 µg/l	no limit	0.15 µg/l	no limit
Sulphate	SO <sub>4</sub>	mg/l			150	0.02 mg/l	0.06 mg/l	absent	0.076 mg/l	absent	0.02 mg/l	absent
Tellurium	Te	µg/l	/-/-	70		<0.1 µg/l	<0.1 µg/l	absent	<0.1 µg/l	absent	<0.1 µg/l	absent
Thallium	Th	µg/l	/-/-<2	7		<0.2 µg/l	<0.2 µg/l	absent	<0.2 µg/l	absent	<0.2 µg/l	absent
Tin	Sn	µg/l	/-2.2/<2	50		<0.1 µg/l	<0.1 µg/l	absent	<0.1 µg/l	absent	<0.1 µg/l	absent
TOC		mg/l				<50 µg/l	0.79 mg/l	no limit	0.56 mg/l	no limit	1.48 mg/l	no limit
Vanadium	V	µg/l	/-1.2/1.2	70		<0.05 µg/l	<0.05 µg/l	absent	<0.05 µg/l	absent	<0.05 µg/l	absent
Zinc	Zn	µg/l	65/24/24	800	300	<0.8 µg/l	<0.8 µg/l	absent	<0.8 µg/l	absent	1.3 µg/l	absent

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