twin

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Temporary use of point-of-use filters in microbial contaminated potable water installations

General information

Point-of-use filters can be used as a temporary measure in cases of microbial contamination of the potable water installation before and during the reconstruction, measures to restore and maintain drinking water quality in the short term (see DVGW-Standard W 551-2). They serve to protect the consumer. “Point-of-use” means that there are no further technical components between the filter and the use of drinking water from an outlet. This twin gives advice for the selection, installation and application of point-of-use filters. For use in medical area, more advanced requirements in accordance with the Medical Devices Act and the Commission‘s Recommendations on Hospital Hygiene and Infection Prevention (KRINKO) shall be observed.

Basic Principles

Point-of-use filters may only be temporarily used at the outlets in cases of contamination in a potable water installation, until the system has been refurbished. Compliance with the safety requirements of the Drinking Water Ordinance (TrinkwV) are not fulfilled with permanent filter use, even if the filters are exchanged regularly. A microbial contaminated potable water installation shall be renovated according to DVGW-Standard W 551-2.

If point-of-use filters are used at installations contaminated with Legionella, all outlets where Aerosols can occur shall be fitted with filters. These outlets include, for example, showers, bathtub showers and kitchen tapping fittings. Filter installation at other outlets should depend on the extent of the potable water installation contamination and the immune status of the users. If so, consult and follow the advice of the Health Authority.

For other microbial contamination of the potable water installation (e.g. *Pseudomonas aeruginosa*), the health authority should be consulted if, and which, outlets should be equipped with filters. Measures to be taken in the event of contamination with *Pseudomonas aeruginosa* are detailed in DVGW-Standard W 551-4.

Point-of-use filters usually have a pore size of 0.2 µm. The filters shall have evidence for the adequate retention of bacteria. Currently there is the method according to ASTM F 838-20. Moreover, the filter should have proof of successful testing under practical/in-use conditions (e.g. pressure impact strength, temperature ranges).

Technical Requirements for Filters

Point-of-use filters are supplementary devices for tapping fittings. As the filters are used to protect human health in cases of contaminated potable water installations, the following requirements should be met by during delivery and proven by the manufacturer:

- The materials used in filter construction can influence the quality of the drinking water, and therefore membranes and all parts in the fluid pathway shall be suitable for contact with drinking water and installation in the potable water installation according to § 14 TrinkwV. Particularly proof of successful certification with DVGW-Standard W 270 or DIN EN 16421 and compliance with the Bases of Assessment of the Federal Environment Agency shall be presented.

- The filters shall be compatible for temperatures of at least 60 °C and a pressure of at least 500 kPa as this is appropriate for use in potable water installations.

- In cases where the drinking water is chemically disinfected according to § 20 TrinkwV disinfecting Agent and concentrations, only point-of-use filters compatible with these disinfection procedures should be used.

- Point-of-use filters should be individually tested by the manufacturer for “fit for purpose” and integrity. Every filter should be permanently and individually marked with serial number and manufacturer’s name to ensure traceability. Furthermore, the filter should be labelled such that the installation and exchange date can be marked.

- The filter manufacturer should have a certified quality management system for production of the filters. If the manufacturer is reprocessing terminal filters, the individual filter have to be unambiguously identifiable to assert the frequency of use. After reprocessing, the same checks and tests shall be performed as for the initial filter production or use.

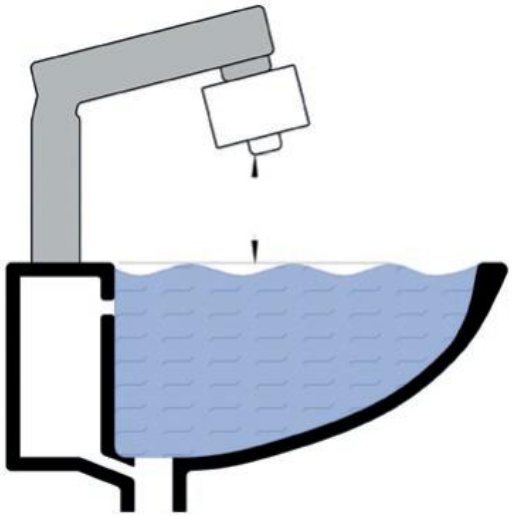
- Point-of-use filters have a limited lifetime (use), due to the increasing risk of retrograde bacterial contamination during installation time. If the filter becomes retrograde contaminated during use, the protection of human health can no longer be maintained. The lifetime shall be defined by the manufacturer. In determining filter lifetime, the manufacturer shall consider minimising the risk of possible retrograde bacterial contamination.

- According to the Product Safety Act (§ 3 ProdSG), a complete and detailed instruction for filter connection and use shall be available.

Transport and Storage

The filters should be individually packaged in order to exclude any contamination or exposure during transport and storage. Additionally, the individual packaging shall ensure clear distinction between new and used filters when at the site of use. The maximum filter shelf life expiration date (before installation) should be on the filter unit packaging.

Figure 1:
Unrestricted air gap: the distance shall not be smaller than at least 20 mm (Source: Dr. Gerhardy)



Installation and Operation

The manufacturer‘s instruction for installation and use shall be observed. Installation should be completed by instructed and trained personnel only. Due to the limited lifetime, the filter shall be permanently marked at the time of installation with the installation and latest exchange date (installation date and lifetime).

If filters are installed at fixed fitting outlets, such as a basin, the free activity space between the highest possible water level in the basin and the outlet of the filter shall be at least 20 mm (see Figure 1). For all Point-of-use filters, whether attached to fixed outlets or flexible hoses (showers, bathtubs and sinks), the risk of retrograde contamination from outside (e.g. by water backsplash) shall be avoided. Therefore, users and consumers should be informed about the function and handling of the point-of-use filters, for example with pictorial posters.

If flushing of the potable water installation or system disinfections (according to DVGW-Standard W 551-3) or sampling is undertaken during point-of-use filter installation, the manufacturer’s instructions on reuse/reinstallation of filters shall be followed. Preferable and recommended for technical and hygienic reasons, is to replace the filter with a new one. Used Point-of-use filters should not be installed at other outlets or stored during lifetime.

Filter Exchange

Filter exchange shall be carried out according to the manufacturer‘s instructions and filter lifetime. They usually last for 30 days. Shorter service life can be the result of filter blockage as a result of particulate loading of the drinking water (e.g. with limescale particles, rust). Disposal of used filters is as according to the manufacturer‘s instructions.

Impressum

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