

Glass Fiber Filter (45 mm, EO-treated)

1 Components

1.1 Product content

Product	REF
REF	740564
Glass Fiber Filter	50 discs
User manual	1

1.2 Reagents, consumables, and equipment to be supplied by user

The product is recommended to be used in conjunction with NucleoSpin® eDNA Water (REF 740402). For details, required materials, and recommended filtration equipment see user manual of the NucleoSpin® eDNA Water kit.

2 Product description

The Glass Fiber Filter (45 mm, EO-treated) is a filter disc recommended for the filtration of water samples from aquatic ecosystems for subsequent isolation of eDNA from the filter with the NucleoSpin® eDNA Water kit. This filter is recommended for this application due to its outstanding properties: high flow rate, large volume filtration and high retention of eDNA.

The filters are pre-treated with ethylene oxide (EO) for highest certainty of a DNA-free state.

Consumables used in eDNA research need to be treated carefully to prevent DNA contamination. MACHEREY-NAGEL therefore has a stringently controlled production process to avoid DNA contamination of consumables. Further, MACHEREY-NAGEL uses ethylene oxide (EO) treatment to remove amplifiable DNA, which might still be introduced during the manufacturing process. MACHEREY-NAGEL Glass Fiber Filters (REF 740564) are EO treated. This means, any DNA present on the filter disc after production is inactivated by treatment with ethylene oxide in order to prevent PCR amplification of DNA contaminants.

Ethylene oxide treatment has been shown to be the method of choice to prevent DNA profiles due to DNA contamination (Shaw et al. 2008; Int J Legal Med 122: 29–33).

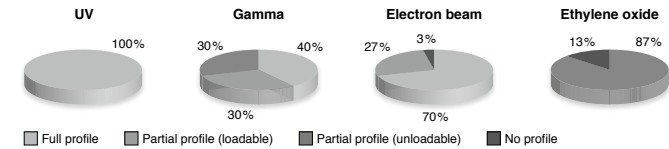


Figure 1 According to Shaw et al., 2008, Comparison of the effect of sterilization techniques on subsequent DNA profiling Int J Med 122: 29–33

2.1 The basic principle

Water from aquatic ecosystems is filtered through the Glass Fiber Filter. Subsequently, eDNA can be isolated from the filter with the use of the NucleoSpin® eDNA Water kit.

2.2 Product specifications

Kind	Glass fiber
Diameter	45 mm
Grade	MN GF-5
Weight	85 g/m ²
Thickness	0.4 mm
Filtration speed	80 s
Average retention capacity	0.4 µm
Surface	smooth
Binder-free	yes
Application	for eDNA retention from water samples
Ethylene oxide treated	yes

3 Storage conditions

It is recommended to store the product in a dry and clean environment at room temperature (18–25°C).

4 Safety instructions

Use the product according to the user manual. The product does not contain components requiring GHS hazard or precaution phrases.

5 Protocol – Procedure of water filtration

Filtration can be performed by either inserting the round filter (grid pattern facing down, side of water outlet) into an e.g. Nalgene™ Analytical Test Filter Funnel (Thermo Scientific™, 0.45 µm–250 mL) in which the 0.45 µm filter membrane is replaced by the Glass Fiber Filter or a similar device (see Figure below).

Alternatively, the round filter can be inserted into an ADVANTEC PP47 Polypropylene Inline and Aerosol Holder.

It is recommended to insert the Glass Fiber Filter in an oriented way: let the side with the more regular, grid-like pattern, facing down, i.e. to the water outlet side, see fig. 2. Note: The grid-like pattern originates from the sieve on which the filter was produced.

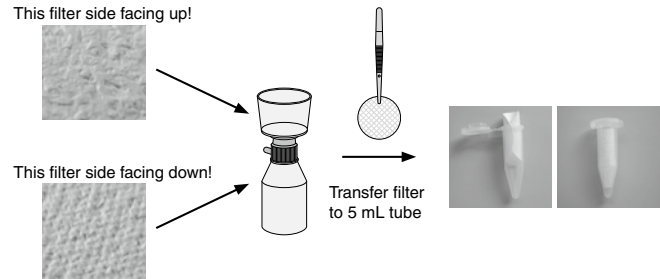


Figure 2 Usage of the recommended GF-5 round filter. Let the water flow through the filter by vacuum.

6 Appendix

6.1 Troubleshooting

Problem: Filter Clogging
Possible cause and suggestions: Filtration capacity or clogging of the filter strongly depend on the water quality, i.e. total suspended matter. Especially in seasons with strong biomass turnover (e.g. in spring in Europe) high concentration of microorganisms might cause filter clogging. If the water sample clogs the filter, use of Filter flocs MN 2101 and a support filter MN 750N are recommended as a pre-filter. In order to do so, insert a Nalgene™ Analytical Test Filter Funnel containing the support Filter MN750N and approximately 1.6 g of filter flocs into a second Funnel which contains the Glass Fiber Filter.

6.2 Ordering information

Product	REF	Pack of
Glass Fiber Filter	740564	50 discs
Filter flocs MN 2101	281120	500 g
Support Filter MN 750N	upon request	

6.3 Product use restrictions/warranty

The Glass Fiber Filters are intended, developed, designed, and sold FOR RESEARCH PURPOSES ONLY. They are suitable for in vitro uses only. No claim or representation is intended for its use to identify any specific organism or for clinical use. MACHEREY-NAGEL does not warrant against damages or defects arising in shipping and handling (transport insurance for customers excluded), or out of accident or improper or abnormal use of this product; against defects in products or components not manufactured by MACHEREY-NAGEL, or against damages

resulting from such non-MACHEREY-NAGEL components or products.

In no event shall MACHEREY-NAGEL be liable for claims for any other damages, whether direct, indirect, incidental, compensatory, foreseeable, consequential, or special (including but not limited to loss of use, revenue or profit), whether based upon warranty, contract, tort (including negligence) or strict liability arising in connection with the sale or the failure of MACHEREY-NAGEL products to perform in accordance with the stated specifications.

This warranty is exclusive and MACHEREY-NAGEL makes no other warranty expressed or implied. Please refer to www.mn-net.com for the Material Safety Data Sheet of the product and for complete product use restriction/warranty have a look at the user manual available at the product page.

Trademarks

NucleoSpin is a registered trademark of MACHEREY-NAGEL GmbH & Co KG

Nalgene and Thermo Scientific are registered trademarks of Thermo Fisher Scientific Inc.

ADVANTEC is a registered trademark of Advantec MFS, Inc. (Toyo Roshi Kaisha, Ltd. (Japan))