

Water testing

Taking the complexity out of compliance

Understanding the new EN ISO 7704:2023 Standard

Introduction

The International Organization for Standardization (ISO) has recently published the EN ISO 7704:2023 standard, which specifies the requirements for performance testing of membrane filters used for the retention and subsequent direct enumeration of microorganisms by culture methods. This new standard replaces ISO 7704:1985 and introduces several important updates relevant to manufacturers and microbiological laboratories involved in water testing. It applies to the following specific standards:

ISO 14189

Enumeration of
Clostridium perfringens

ISO 6461-2

Detection and enumeration of the
spores of sulfite-reducing anaerobes

ISO 7899-2

Detection and enumeration
of intestinal enterococci

ISO 9308-1

Enumeration of *Escherichia coli*
and coliform bacteria

ISO 11731:2019

Enumeration of
Legionella

ISO 16266

Detection and enumeration of
Pseudomonas aeruginosa

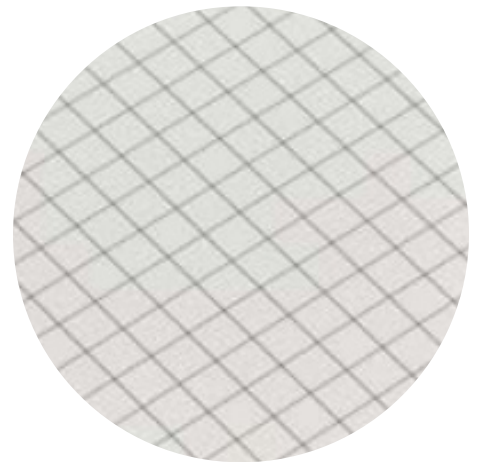
Key Points of EN ISO 7704:2023

- **Scope:** This standard applies to all membrane filters used with solid culture media for tests designed to demonstrate the suitability of the entire system (membrane filter in combination with the culture medium), including the filtration step.
- **Application:** It is applicable to the analysis of different water samples, including:
 1. Drinking water, bottled water, and other water samples with expected low numbers of microorganisms.
 2. Water with expected higher numbers of microorganisms, such as surface water or process water.



What's new in the new standard?

- **Batch Testing:** The standard describes the required batch testing of membrane filters in combination with specific selective culture media. Testing must be performed for each batch of membrane filters with each batch of different culture media, eliminating the need to evaluate membrane filters separately from the culture medium batch.
- **Performance Criteria:** The standard specifies performance testing for productivity, selectivity, and specificity, aligned with EN ISO 11133. Optional quantitative and qualitative supplementary testing are also described.
- **Procedures and Examples:** Practical examples of batch testing and optional additional testing are provided, along with diagrams of the procedures. The steps in the procedure for batch testing of membrane filters include:
 1. **Inoculum Preparation:** Preparation of suspension using a working culture or certified reference material (CRM).
 2. **Reference Count:** Conduct a reference count on a non-selective culture medium by spread plating.
 3. **Testing:** Assess productivity, selectivity, and specificity using membrane filters with the specific selective culture medium as given in the relevant specific standard (e.g., EN ISO 9308-1).
 4. **Result Determination:** Determine the productivity ratio (PR) by comparing the reference count with the count from the membrane filter on the specific selective culture medium; the PR needs to reach a defined minimum limit.
 5. **Batch Release:** Release the batch of membrane filters for use with the batch of specific culture medium.



By using products (membrane filters) adhering to EN ISO 7704:2023, laboratories can ensure their membrane filtration methods are robust, reliable, and compliant with international standards, ultimately contributing to accurate water quality testing and public health protection.

Our updated range of products

Our products have been tested in accordance with the methods described in ISO 7704:2023, providing laboratories the assurance of compliance with the latest standards.

This testing applies to the following media and filters from the 1st of January 2025:

Product name	Format	Product code
Slanetz and Bartley Medium (Enterococcus Agar)	90 mm plate, 1 x 10 pack	PO5018A
	55 mm plate, 2 x 10 pack	PO5410J
	55 mm plate, 10 x 10 pack	PO5423J
Cetrimide Agar	90 mm plate, 1 x 10 pack	PO5076A
	55 mm plate, 1 x 10 pack	PO5413J
Chromogenic Coliform Agar	90 mm plate, 1 x 10 pack	PO5318A
	55 mm plate, 1 x 10 pack	PO5428J
Tergitol 7-Lactose-TTC Medium	90 mm plate, 2 x 10 pack	PO5411J
	55 mm plate, 1 x 100 pack	PO5424J
TSC Agar	90 mm plate, 1 x 10 pack	PO5315A

All media plates are tested with the following membrane filters:

Product name	Format	Product code
Microsart™ Membrane Filter white with black grid for dispenser	3 x 100 units	GFS13
	100 units	GFS14
Nalgene™ Sterile Analytical Filter Units	50 units	NG145-0045
Nalgene™ Membrane Filter for water testing, sterile	100 units	NG02054045

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