ANSI/AWWA B130-13
(First Edition)

American Water Works Association

The Authoritative Resource on Safe Water®

AWWA Standard

Membrane Bioreactor Systems

STANDARD
Since 1881

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Contents

All AWWA standards follow the general format indicated subsequently. Some variations from this format may be found in a particular standard.

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Foreword

This foreword is for information only and is not a part of ANSI/AWWA B130-13.*

I. Introduction.

I.A. *Background.* The purpose of ANSI/AWWA B130-13 is to provide purchasers with a standard for the purchase and installation of membrane bioreactor (MBR) treatment systems.

A wealth of information about MBRs and their design is available from various sources, including *Journal - AWWA*, *Water Treatment Plant Design*,† *Water Quality and Treatment*,‡ and other references listed in Appendix A.

I.B. *History.* The MBR process was introduced by the late 1960s, as soon as commercial-scale ultrafiltration (UF) and microfiltration (MF) membranes were available. The concept of replacing the settling tank of the conventional activated-sludge process with a filtration membrane was attractive, but it was difficult to justify the use of such a process because of the high cost of membranes, low economic value of the product (tertiary effluent), and the potentially rapid loss of performance caused by membrane fouling.

The breakthrough for the MBR came in 1989 with the idea of submerging membranes in the bioreactor. Until then, MBRs generally had the separation device located external to the reactor (sidestream MBR) and relied on high transmembrane pressure (TMP) to maintain filtration.

Regulatory concerns may or may not be the primary drivers for the use of MBR treatment systems by a municipality, but in all cases the regulations must be assessed for applicability.

This MBR standard is intended to aid purchasers in the selection and procurement of MBR treatment systems and in the regulatory permitting process. This standard should be considered as a guideline with minimum requirements to ensure the required elements of planning, procurement, selection, construction, and commissioning of an MBR-based treatment system. However, its proper application requires it to be coupled with a thorough professional review of the specific water treatment case and site-specific conditions.

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* American National Standards Institute, 25 West 43rd Street, Fourth Floor, New York, NY 10035.
† *Water Treatment Plant Design*, Fifth Edition, AWWA and ASCE, McGraw-Hill (2012).
‡ *Water Quality & Treatment,* Sixth Edition, AWWA, McGraw-Hill (2010).

The AWWA Standards Council authorized a new AWWA standard for membrane biological treatment systems on March 2, 2009, and assigned the task of development to the AWWA Standards Committee on Membrane Standards.

This first edition of the new standard ANSI/AWWA B130-13, Membrane Bioreactor Systems, was approved by the AWWA Board of Directors on Jan. 20, 2013. The standard was approved and promulgated in the course of the activities of the AWWA Standards Committee on Membrane Standards.

II. Special Issues. This standard has no applicable information for this section.

III. Use of This Standard. It is the responsibility of the user of an AWWA standard to determine that the products described in that standard are suitable for use in the particular application being considered.

III.A. *Purchaser Options and Alternatives.* The following items should be provided by the purchaser:

1. Standard used, that is, ANSI/AWWA B130-13, Membrane Bioreactor Systems, of latest revision.
2. Details of other federal, state or provincial, and local requirements (Sec. 4.1.1).
3. Required spare parts (Sec. 4.6.6.1).
4. Plant inspection requirements (Sec. 5.1.2).
5. Request for a copy of a written quality control and inspection practices (Sec. 5.1.3).
6. Installation requirements (Sec. 5.1.5).
7. Definition of responsibilities during startup (Sec. 5.2.1.1).
8. Demonstration testing requirements (Sec. 5.4.3).
9. Performance testing requirements (Sec. 5.4.4).
10. Performance test report requirements (Sec. 5.4.5).
11. Affidavit of Compliance requirements (Sec. 6.4).

III.B. *Modification to Standard.* Any modification to the provisions, definitions, or terminology in this standard must be provided by the purchaser.

IV. Major Revisions. This is the first edition of this standard.

V. Comments. If you have any comments or questions about this standard, please call AWWA Engineering and Technical Services at 303.794.7711, fax at 303.795.7603, write to the department at 6666 West Quincy Avenue, Denver, CO 80235-3098, or email at standards@awwa.org.

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Membrane Bioreactor Systems

SECTION 1: GENERAL

Sec. 1.1 Scope

This standard sets minimum requirements for membrane bioreactor (MBR) systems for water reclamation and/or wastewater treatment systems.

Sec. 1.2 Purpose

The purpose of this standard is to provide a minimum set of requirements for submerged and sidestream-type MBR systems used for water reclamation and/or wastewater treatment systems. This standard is intended to assist with the design, procurement, installation, and commissioning of MBR systems.

Sec. 1.3 Application

This standard can be referenced for design, procurement, installation, and commissioning of MBR systems used for water reclamation and/or wastewater treatment systems.

SECTION 2: REFERENCES

This standard references the following documents. In their latest editions, they form a part of this standard to the extent specified within the standard. In any case of conflict, the requirements of this standard shall prevail.