

ICS 07.060; 23.100.60
CCS J 77



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 37200-2018

**Test methods for detecting leaks in reverse osmosis and
nanofiltration devices**

反渗透和纳滤装置渗漏检测方法

Issued on: December 28, 2018

Implemented on: November 1, 2019

**Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC**

Table of Contents

- 1 Scope
- 2 Normative references
- 3 Terms and definitions

Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009. This standard is proposed and managed by the National Separation Membrane Standardization Technical Committee (SAC/TC382). This standard was drafted. Tianjin Membrane Engineering Technology Co., Ltd., Time Wharton Technology Co., Ltd., Yixing City, product quality and food Safety Inspection and Testing Center, Tianjin Membrane Technology Co., Ltd., Shandong Zhaojin Membrane Co., Ltd., Beijing Bishui Source Membrane Technology Company, Suzhou Lisheng Membrane Separation Technology Co., Ltd., Jiangsu Jiuwu High-Tech Co., Ltd., Delan Water Technology Co., Ltd., Hangzhou Chao Na Water Purification Equipment Co., Ltd., Yantai Jinzheng Environmental Protection Technology Co., Ltd., Tianjin Polytechnic University, Zhejiang Jinyan Environmental Technology Co., Ltd. The main drafters of this standard. Fan Yunshuang, Wang Wei, Wang Siliang, Prince, Hu Xiaoyu, Wang Le translation, Xia Jianzhong, Chen Qing, Peng Wenbo, Zeng Fanfu, Chen Shuichao, Miao Jing, Zhao Ying, Chen Lei, Xu Yinong. Reverse osmosis and nanofiltration device leakage detection method

1 Scope

China's national test methods for finding leaks in reverse osmosis and nanofiltration equipment. It specifies overall leak detection for the device, leak detection for the membrane module, and methods for locating the leak point within a module. A leak in a membrane system is not a leak to the outside: it is a path by which untreated feed water reaches the permeate side without passing through the membrane, and the plant goes on running normally while producing water that is out of specification. The paths are few and well known - a failed O-ring at an interconnector, a damaged brine seal, a telescoped element, a glue line failure, or a physical hole in the membrane sheet - and finding which one requires working inward: first establishing that the system leaks, then which vessel and module, then where within it. The probe test and vacuum decay methods used for the last step are what turn an expensive process of elimination into a directed search.

This standard specifies the overall leakage detection of reverse osmosis or nanofiltration devices, membrane module leakage detection and detection methods for leak points in

membrane modules. This standard applies to reverse osmosis or nanofiltration devices equipped with rolled membrane elements in municipal and industrial water treatment systems for desalination purposes. Leak detection, installation of other types of reverse osmosis and nanofiltration membrane components can be referred to.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only the dated version applies to this article. Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 20103-2006 Membrane separation technology terminology

GB/T 32373-2015 Reverse osmosis membrane test method ASTM D4516-2000 (2010) Standard for reverse osmosis performance data (Standard Practice for Standardizing Reverse Osmosis Performance Data)

3 Terms and definitions

The following terms and definitions defined in GB/T 20103-2006 apply to this document. For ease of use, the following is repeated Certain terms and definitions in GB/T 20103-2006.

3.1 Reverse osmosis reverse osmosis; RO Under pressure above the osmotic pressure difference, a solvent (such as water) passes through the semipermeable membrane into the low pressure side of the membrane, while other components in the solution (eg The salt is blocked on the high pressure side of the membrane and discharged with the concentrated solution to achieve an efficient separation process. [GB/T 20103-2006, definition 4.2.2]

3.2 Nanofiltration nanofiltration; NF Pressure-driven, membrane separation process for removing multivalent ions, partially monovalent ions, and organic matter with a molecular weight of 200-1000. [GB/T 20103-2006, definition 4.2.3]

3.3 Membrane element membrane element A membrane separation unit composed of a membrane, a membrane support, a flow channel spacer, a perforated central tube, or the like. [GB/T 20103-2006, definition 2.2.1]

3.4 Shell housing A container that can be loaded into a membrane element.

Note. The outer layer of the membrane element bonded with epoxy resin or the like may also be considered as a casing. [GB/T 20103-2006, definition 2.2.2]