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Test methods for nanofiltration membranes

纳滤膜测试方法

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009. This standard by the National Standardization Technical Committee membrane separation (SAC/TC382) and focal point. This standard was drafted unit. Guiyang era Wharton Technology Co., Ltd., Salt Jintan salinization limited liability company, Tianjin Membrane Technology shares Co., Ltd., Tianjin Polytechnic University, Hainan Lishui Water Technology Industry Co., Ltd., Jiangsu Jiuwu High-tech Co., Ltd., the State Oceanic Administration Tianjin Institute of seawater desalination and utilization, Shandong Zhaojin Membrane Co., Ltd., Beijing Bishuiyuan Membrane Technology Co., Ltd., Jilin City, the gold Match Technology Development Co., Ltd., Hangzhou Qiu Membrane Technology Co., Ltd., Xinjiang Tak Blue Co., Ltd., Hangzhou satisfied satisfied satisfied net water purification equipment Co., Ltd., Hangzhou Water Treatment Technology Research and Development Center, Shandong Haihua Group Co., Ltd., Tianjin Membrane Engineering Technology Co., Ltd.. The main drafters of this standard. Liang Song Miao, Wang Si Liang, Jiang Can, Wang Wei, Huang Hongwei, Hu Xiaoyu, Chen Qing, Peng Wenbo, Pan Xianghui, Xia Jianzhong, Jin Shujie, Zhao Hui, Zeng Fanfu, Chen Shuichao, Li Junjun, Meng Fanxiang, Wang Jie, Fan Yun Shuang, Wang Han Yi. Nanofiltration test method

1 Scope

China's national test methods for nanofiltration membranes, covering thickness uniformity, water flux, ion rejection, rejection of low molecular weight organics, and resistance to acid and alkali. It applies to flat sheet nanofiltration membranes, with other forms able to refer to it. Nanofiltration occupies the gap between ultrafiltration, which passes dissolved salts, and reverse osmosis, which rejects nearly everything. It rejects divalent ions - calcium, magnesium, sulfate - while letting much of the monovalent salt through, and it rejects organic molecules above a few hundred daltons. That selectivity is what makes it useful and what makes it hard to test. A membrane is not characterised by a single rejection figure: it has one for each species, and the interesting property is the ratio between them. So the standard specifies separate determinations for ions and for small organics, and adds acid and alkali resistance because nanofiltration is used in places - dye effluent, dairy processing, pharmaceutical separation - where the cleaning chemistry is harsher than the

process stream.

This standard specifies the nanofiltration membrane thickness uniformity, water flux, ion removal rate, low molecular weight organic removal rate, acid and alkali resistance test method. This standard applies to flat nanofiltration test, other forms of nanofiltration can refer to the implementation.

2 Normative references

The following documents for the application of this document is essential. 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 5750.4 standard test methods for drinking water sensory traits and physical indicators Determination of chloride ion in industrial circulating cooling water and boiler water GB/T Membrane separation technology terminology Test methods for ultrafiltration membranes

GB/T 32360-2015 Reverse osmosis membrane test method

3 Terms and definitions

GB/T 20103-2006 defined and the following terms and definitions apply to this document. For ease of use, the following list is repeated GB/T 20103-2006 and GB/T 32373-2015 related terms and definitions.

3.1 Flat membrane membrane flatmembrane Shape for the flat sheet or paper film. NOTE Flat sheet membranes typically have a backing layer (eg, a non-woven fabric) for making sheet-frame, folded, and spiral wound membrane elements. [GB/T 20103-2006, Definition 2.1.27]

3.2 Nanofiltration membrane nanofiltrationmembrane Semi-permeable membrane for the removal of polyvalent ions, salts of partial monovalent ions, and organic compounds with a molecular weight greater than.200. [GB/T 20103-2006, Definition 4.1.2]

3.3 Desalination layer desaltinglayer Membrane surface of the ions play a role in retaining the thin cortex. [GB/T 32373-2015, Definition 3.6]

3.4 Water flux waterflux Under certain operating conditions, the unit membrane area per unit time through the amount of water. [GB/T 32373-2015, Definition 3.3]