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**Hollow fibre membrane modules for membrane aerated biofilm
reactors**

膜曝气生物膜反应器（MABR）中空纤维膜组件

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part

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Co., Ltd., Jiangsu Julan Nano Technology Co., Ltd., Ordos Yongsheng Sewage Treatment Co., Ltd. company. The main drafters of this document. Li Baoan, Tian Zhongyan, Wang Xi, Zhang Chengci, Wang Guofeng, Wei Hongyong, Zhang Xingxing, Zhang Weizheng, Han Ailong, Lu Xiaolong, Sun Linqun, Wang Zhiwei, Chen Chen, Ren Fengwei, Lei Peishu, Wu Fugen, Zheng Xianqiang, Shen Hongmei, Yang Yongqiang, Chen Xiaobin, Li Li, Shen Jintao, Xu Yinong, Cai Cheng, Zhang Xijian, Yao Fujian, Luo Min, Ye Weibing, Xin Yongguang, Zhou Guolin, Huang Jiangyi, Yu Hui, Zhang Kaizhou, Wu Qiang, Lin Zhenfeng, Liu Yang, Hu Cuihua, Guan Xiaolin, Ma Bing, Huang Xiaojun, Ma Yonghong, Chen Shunquan, Jia Qiuying, Ou Hongsen, Wang Hanyi. Membrane Aerated Biofilm Reactor (MABR) Hollow Fiber Membrane Module

1 Scope

China's national standard for the hollow fibre membrane modules used in membrane aerated biofilm reactors. The reactor is an elegant piece of process engineering. In conventional activated sludge, air is bubbled into the tank and most of the oxygen escapes to the atmosphere unused; aeration is typically half the energy consumption of a wastewater works. In a membrane aerated biofilm reactor, oxygen is supplied through the wall of a gas-permeable hollow fibre on which the biofilm grows, so it is delivered directly to the organisms from beneath with essentially no loss. That also inverts the biofilm's structure - oxygen from inside, substrate from outside - which creates aerobic and anoxic layers in the same film and allows nitrification and denitrification to happen together. The module is what makes it practical, and its requirements turn on gas transfer rate, on mechanical durability under biofilm loading, and on being cleanable.

This document specifies the model, technical requirements, test methods, and inspection specifications of the hollow fiber membrane modules of the membrane aerated biofilm reactor (MABR). Rules, as well as labeling, packaging, transportation and storage. This document is applicable to the production, Research, use and management.

2 Normative references

The contents of the following documents constitute the essential provisions of this document through normative references in the text. Among them, dated references For documents, only the version corresponding to the date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to this document.

GB/T 191 Packaging, storage and transportation icon marks

GB/T 4456 Packaging polyethylene blown film

GB 5749 Hygienic Standards for Drinking Water

GB/T 6544 corrugated cardboard

GB/T 9174 General Technical Specifications for General Cargo Transport Packaging

GB/T 9969 General Rules for Instructions for Use of Industrial Products

GB/T 14436 General Rules for Warranty Documents of Industrial Products

GB/T 20103 Membrane Separation Technical Terminology

GB/T 25279 Hollow Fiber Curtain Membrane Module HY/T 110 polypropylene hollow fiber microporous membrane HY/T 213 Method for Determination of Tensile Strength at Break of Hollow Fiber Ultra/Microfiltration Membrane

3 Terms and Definitions

GB/T 20103, GB/T 25279, HY/T 110 and the following terms and definitions apply to this document.

3.1 The oxygen-permeable membrane is used as the microbial carrier and the biofilm on its surface transmits oxygen without bubbles, and the oxygen and pollutants diffuse from both sides of the biofilm respectively. Scattered into the biofilm sewage treatment system where the biofilm is gradually consumed.

3.2 membrane area membrane area The sum of the outer surface area of the membrane that can be effectively used by the hollow fiber membrane module.

3.3 Oxygen flux oxygen flux Under the specified temperature, air supply pressure, water depth and other test conditions, the total amount of oxygen permeating a unit membrane area per unit time.