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**INDUSTRY STANDARD OF THE
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**Technical specifications for Anaerobic-Anoxic-Oxic activated
sludge process**

厌氧-缺氧-好氧活性污泥法污水处理工程技术规范

(English Translation)

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Foreword

To implement the Law of the People's Republic of China on Water Pollution Prevention and Control, prevent and control water pollution, improve environmental quality, and regulate anaerobic anoxic aerobic active pollution this standard is formulated for the application of mud method in sewage treatment engineering.

This standard specifies the process design, electrical, testing and control, construction of wastewater treatment engineering using anaerobic-anoxic-aerobic activated sludge process.

Technical requirements for acceptance, operation and maintenance.

Appendix A of this standard is a normative appendix.

This standard is the first release.

This standard was formulated by the Science and Technology Standards Department of the Ministry of Environmental Protection.

This standard is mainly drafted by. China Environmental Protection Industry Association (Water Pollution Control Committee), Machine Development Technology Co., Ltd., Beijing Urban Drainage Group Co., Ltd., Beijing Municipal Engineering Design and Research

Institute.

This standard was approved by the Ministry of Environmental Protection on October 12, 2010.

This standard has been implemented since January 1, 2011.

This standard is explained by the Ministry of Environmental Protection.

Technical specification for anaerobic-anoxic-aerobic activated sludge wastewater treatment engineering

1 Scope of application

This standard specifies the process design, electrical, detection and control, construction and construction of wastewater treatment engineering using anaerobic anoxic aerobic activated sludge process.

Technical requirements for acceptance, operation and maintenance.

This standard is applicable to urban sewage and industrial wastewater treatment projects using anaerobic anoxic aerobic activated sludge process, which can be used as an environmental impact assessment.

The technical basis for price, design, construction, acceptance and operation and management after completion.

2 Normative references

The contents of this standard refer to the terms in the following documents. For undated references, the valid version applies to this standard.

GB 3096 Acoustic Environmental Quality Standard GB 12348 Environmental noise emission standards for industrial enterprises GB 12523 Construction site boundary noise limit General rules for safety and health requirements of GB 12801 production process GB 18599 General industrial solid waste storage and disposal site pollution control standards GB 18918 Pollutant discharge standard for urban sewage treatment plants GB 50014 Outdoor Drainage Design Code GB 50015 Building Water Supply and Drainage Design Code GB 50040 power machine basic design specification GB 50053 10 kV and below substation design specifications GB 50187 General Plan for Design of Industrial Enterprises GB 50204 Concrete Structure Engineering Construction Quality Acceptance Specification GB 50222 Building interior decoration design fire protection specification General specification for construction and acceptance of GB 50231 mechanical equipment installation engineering GB 50268 Water supply and drainage pipeline engineering construction and acceptance specifications GB 50352 General rules for civil building design GB J 16 Building Design Fire Code GB J 87 Industrial Enterprise Noise Control Design

Specification GB 50141 Water supply and drainage structure engineering construction and acceptance specification GBZ 1 industrial enterprise design hygiene standard GBZ 2 workplace occupational exposure limit CJ 3025 Urban sewage treatment plant sewage sludge discharge standard CJJ 60 Urban Wastewater Treatment Plant Operation, Maintenance and Safety Technical Regulations CJ/T 51 Standard for urban sewage quality inspection methods HJ/T 91 Surface Water and Wastewater Monitoring Technical Specifications HJ/T 242 environmental protection product technical requirements belt press filter for sludge dewatering HJ/T 251 environmental protection product technical requirements Roots blower HJ/T 252 environmental protection product technical requirements, microporous aerator HJ/T 278 environmental protection product technical requirements single-stage high-speed aeration centrifugal blower HJ/T 279 environmental protection product technical requirements push flow submersible mixer HJ/T 283 environmental protection product technical requirements chamber filter press and plate and frame filter press HJ/T 335 environmental protection product technical requirements sludge concentration belt dewatering machine HJ/T 353 Water Pollution Source Online Monitoring System Installation Technical Specification (Trial) HJ/T 354 Water Pollution Source Online Monitoring System Acceptance Technical Specification (Trial) Technical Specifications for Operation and Assessment of HJ/T 355 Water Pollution Source Online Monitoring System (Trial) Measures for the Administration of Environmental Protection Acceptance for Completion of Construction Projects (State Environmental Protection Administration, 2001)

3 Terms and definitions

The following terms and definitions apply to this standard.

Anaerobic-anoxic-oxic activated sludge process Refers to the removal of organic pollutants and nitrogen in water through various combinations of anaerobic zone, anoxic zone and aerobic zone and different sludge reflux methods.

Activated sludge method for phosphorus treatment such as phosphorus, referred to as AAO method. The main deformation is improved anaerobic anoxic aerobic activated sludge method, anaerobic hypoxia Anoxic aerobic activated sludge method, anoxic anaerobic anoxic aerobic activated sludge method, and the like.

Anaerobic zone (area) anaerobic zone Refers to the non-oxygenation tank (zone), the dissolved oxygen mass concentration is generally less than 0.2 mg/L, the main function is to release phosphorus.

Anoxic zone

Refers to the non-oxygenation tank (zone), the dissolved oxygen mass concentration is generally 0.2 ~ 0.5 mg/L, the main function is to carry out denitrification and denitrification.

Aerobic pool (zone) oxic zone Refers to the oxygenation tank (zone), the dissolved oxygen mass concentration is generally not less than 2 mg/L, the main function is to degrade

organic matter, nitrated ammonia nitrogen and excessive exposure phosphorus.

Nitrification

Refers to the process of oxidizing ammonia nitrogen to nitrate nitrogen in aerobic conditions in sewage biological treatment process.

Denitrification Refers to the process of reducing nitrate nitrogen to nitrogen in the absence of oxygen in the biological treatment process of sewage.

Biological phosphorus removal it means that the phosphorus-accumulating bacteria in the sludge release phosphorus under anaerobic conditions, and take more phosphorus under aerobic conditions, and discharge the residual pollution with high phosphorus content.

The process of removing phosphorus from sewage by mud.

Sludge retention time Refers to the average residence time of activated sludge in the reaction tank (zone), also known as mud age.

Pretreatment

Refers to the conventional treatment measures set in front of the AAO reaction tank when the influent water quality can meet the biochemical requirements of AAO. Such as grilles, grit chambers, Primary sedimentation tank, air flotation tank, grease trap, fiber and hair traps, etc.

3.10

Preprocessing

When the influent water quality does not meet the biochemical requirements of AAO, the treatment set in front of the AAO reaction tank according to the need to adjust the water quality art. Such as hydrolysis acidification tank, coagulation sedimentation tank, neutralization tank and so on.

3.11

Standard state

It refers to a state where the atmospheric pressure is 101 325 Pa and the temperature is 293.15 K.

4 General requirements

4.1

AAO should be used in large and medium-sized urban sewage and industrial wastewater treatment projects.