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

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**Equipment integrity of hazardous chemical enterprises - Part 2:
Guide on technology implementation**

危险化学品企业设备完整性 第2部分：技术实施指南

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Table of Contents

1 Scope	1
2 Normative references	1
3 Terms and Definitions	1
4 General Principles	2
5 Equipment classification evaluation method	3
5.1 Overview	3
5.2 Classification feature parameters	3
5.3 Grading parameter weights	4
5.4 Quantification rules for classification parameters	4
5.5 Rating	5
6 Equipment risk rating method	5
6.1 Overview	5
6.2 Risk Factors	5
6.3 Risk factor weights	5
6.4 Value at Risk Calculation	5
6.4.1 Single factor risk value determination	5
6.4.2 Multi-factor risk value calculation	5
6.5 Risk Rating	6
7 Equipment defect classification method	6
7.1 Overview	6
7.2 Defect Classification Principles	6
7.3 Defect Classification Evaluation	6
7.3.1 Defects leading to equipment failure	6
7.3.2 Defects leading to deterioration of equipment operation status	7
8 Reliability Evaluation and Life Prediction Technology	9
8.1 Overview	9
8.2 Establishment of Standardized Defect Database	9
8.3 Reliability Evaluation	10
8.3.1 Reliability evaluation index	10
8.3.2 Fault Distribution Assumptions	10
8.3.3 Reliability evaluation method	10
8.4 Life Assessment and Remaining Life Prediction	10

8.4.1 Lifespan assessment method	10
8.4.2 Remaining life prediction method	11
8.4.3 Application of life assessment and remaining life prediction results	12
9 Corrosion monitoring and risk assessment technology	12
9.1 Overview	12
9.2 Corrosion loop	12
9.3 Corrosion Monitoring and Detection Program	12
9.4 Key corrosion parameters and integrity operating window	13
9.5 Corrosion risk assessment	14
9.6 Corrosion risk alarm	14
10.1 Overview	14
10.2 Monitoring and diagnostic technology	14
20 Reference	22

Foreword

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

1. Structure and drafting rules for standardization documents" Drafting. This document is Part 2 of GB/T 44692 "Equipment Integrity for Hazardous Chemical Enterprises". Device Integrity has been published in the following sections.

1. Management system requirements;

2. Technical implementation guidelines. Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents. This document was proposed and coordinated by the National Technical Committee for Standardization of Hazardous Chemicals Management (SAC/TC251). This document was drafted by: Sinopec Safety Engineering Research Institute Co., Ltd., Sino-Korea (Wuhan) Petrochemical Co., Ltd., Sinopec Management Certification (Qingdao) Co., Ltd., China National Petroleum Corporation Safety and Environmental Protection Technology Research Institute Co., Ltd., Sinopec National Petrochemical Project Risk Assessment Technology Co., Ltd. Technology Center Co., Ltd., Sinopec Great Wall Energy Chemical (Ningxia) Co., Ltd., Sinopec Cangzhou Branch, Tianjin Bohai Chemical Industry Development Co., Ltd., Sinopec Sales Co., Ltd. Zhejiang Petroleum Branch, Sinopec Co., Ltd. West Bei Oilfield Branch, Sinopec Shengli Oilfield Branch, Emergency Management Department Chemical Registration Center, China Special Equipment Equipment Testing Institute, Beijing University of Chemical Technology, Shandong Jingbo Petrochemical Co., Ltd., Binhua Group Co., Ltd., CNOOC Huizhou

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Equipment is the material basis for safe production of enterprises. Dangerous chemical enterprises are accompanied by flammable, explosive, toxic and harmful materials and products, involving the use of During the use, storage, manufacturing, processing or transportation of equipment, there are characteristics such as severe equipment corrosion, frequent failures, and difficulty in identifying potential risks, especially with With the development of my country's chemical industry, the number of equipment and facilities that exceed their design life is increasing, and equipment aging management has attracted great attention from the society. Equipment integrity management is an important part of process safety management, a development trend of international equipment management, and an important factor for hazardous chemical companies to improve equipment integrity. Advanced control methods to improve equipment management level, manage equipment risks, eliminate equipment hidden dangers, and prevent equipment accidents. GB/T 44692 "Equipment Integrity of Hazardous Chemical Enterprises" aims to guide hazardous chemical enterprises to establish and implement equipment integrity management The system continuously maintains the physical and functional integrity of the equipment, keeps it in a safe and reliable controlled state, and meets the expected functions of its life cycle. functions and uses, thereby avoiding safety accidents or environmental pollution incidents such as leakage, poisoning, fire, explosion, etc. of hazardous chemicals, and ensuring the safety of equipment Full-cycle operation lays the foundation for the implementation of process safety management of hazardous chemicals. The implementation of GB/T 44692 "Integrity of Equipment in Dangerous Chemical Enterprises" is based on the management system as the criterion, the application of technology as the support, and the performance as the basis. With the efficiency index as evaluation and the information system as carrier, we can jointly realize the establishment, implementation, maintenance and continuation of equipment integrity management in hazardous chemical enterprises. Improvement. GB/T 44692 "Equipment Integrity for Hazardous Chemical Enterprises" is planned to consist of 4 parts.

1.Management system requirements. The purpose is to specify the organizational

environment, leadership, planning, support, operation, performance evaluation, improvement The basic content of the equipment integrity management system elements such as progress.

2. Technical implementation guide. The purpose is to provide equipment classification evaluation, risk classification, defect classification, reliability evaluation and life Provide guidance on key supporting technologies for equipment integrity management, such as life prediction, corrosion monitoring and risk assessment, and dynamic equipment monitoring and diagnosis.

3. Performance indicator setting and calculation method. The purpose is to develop key performance indicators (KPI) for equipment integrity management Technology in setting principles, formulating procedures, setting and calculating indicators for each discipline, decomposing and implementing indicators, and statistics and analysis of indicators. Require.

4. Information technology specifications. The purpose is to develop the system architecture, technical architecture, Technical specifications for application architecture, functional design, system configuration, etc. Equipment integrity of hazardous chemical enterprises Part

1 Scope

GB/T 44692.2-2024 is Part 2 of the Chinese series on equipment integrity in hazardous chemical plants, and is the technical implementation guide. Mechanical integrity is the element of process safety management that decides which of tens of thousands of items of equipment gets inspected, how often, and by what technique, and the honest answer is that no plant can treat them all alike; the work is therefore a ranking exercise before it is an inspection one. Part 2 sets the general principles, then the equipment classification method - the classification feature parameters, their weights, the quantification rules and the resulting rating - and the equipment risk ranking method, with its risk factors, factor weights and the calculation of single-factor and multi-factor risk values. From the classification and the risk ranking it derives the inspection, testing and preventive maintenance strategy, the acceptance criteria and the handling of deficiencies, and the data and continuous improvement requirements. It takes effect on 1 April 2025.

This document provides the following information. equipment classification evaluation, risk grading, defect classification, reliability evaluation and life prediction, corrosion monitoring, etc. Guidance on detection and risk assessment, dynamic equipment monitoring and diagnosis, etc. This document applies to static equipment, dynamic equipment, electrical equipment, instrumentation equipment and other equipment involved in the equipment management of hazardous chemical enterprises. Facility integrity management. Other companies' equipment management can be used as a reference.