

ICS 71.120.01
CCS G 90



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

GB/T 44692.1-2024

**Equipment integrity of hazardous chemical enterprises-Part 1:
Requirements for management systems**

危险化学品企业设备完整性 第1部分：管理体系要求

Issued on: September 29, 2024

Implemented on: April 1, 2025

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

Table of Contents

Preface	III
Introduction	IV
1 Scope	1
2 Normative references	1
3 Terms, definitions, abbreviations	1
3.1 Terms and Definitions	1
3.2 Abbreviations	2
4 Organizational environment	3
4.1 System operating environment	3
4.2 Stakeholder Needs and Expectations	3
4.3 System management scope	3
4.4 Equipment Integrity Management System	3
5 Leadership	4
5.1 Leadership and Commitment	4
5.2 Management Policy	4
5.3 Organizational structure, responsibilities and authorities	4
6 Planning	4
6.1 Laws, regulations and other requirements	4
6.2 Equipment Integrity Management System Planning	5
6.3 Management Objectives	5
6.4 Risk Management Planning	6
7 Support	6
7.1 Resources	6
7.2 Capabilities	6
7.3 Consciousness	6
7.4 Communication	6
7.5 Training	7
7.6 File and Data Management	7
7.7 Information Management	8
8 Run	8
8.1 Equipment Classification Management	8
8.2 Equipment Risk Management	9

8.3 Quality Management	10
8.4 Inspection, testing and preventive maintenance	11
8.5 Equipment operating environment management	12
8.6 Equipment Defect Management	13
8.7 Equipment Change Management	13
8.8 External Control	14
8.9 Equipment Emergency Management	15
8.10 Special Management	15
9 Performance Evaluation	16
9.1 Monitoring, measurement, analysis and evaluation	16
9.2 Internal Audit	16
9.3 Management Review	17
10 Improvements	17
10.1 Nonconformity and Corrective Action	17
10.2 Continuous Improvement	18
Appendix A (Informative) Examples of equipment integrity management job responsibilities	19
Appendix B (Informative) Comparison example between equipment integrity management elements and enterprise equipment management activities	21
Appendix C (Informative) Examples of Integrity Management Activities for Pressure Vessels and Piping Systems	24
References	29

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 is required.

This document is part 1 of GB/T 44692 "Integrity of equipment for hazardous chemicals enterprises". GB/T 44692 has been published for the following part.

--Part 1: Management system requirements;

--Part 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 is proposed and coordinated by the National Technical Committee on

Hazardous Chemicals Management Standardization (SAC/TC 251).

This document was drafted by: Sinopec Safety Engineering Research Institute Co., Ltd., Sino-Korea (Wuhan) Petrochemical Co., Ltd., China National Petroleum Corporation Safety and Environmental Protection Technology Research Institute Co., Ltd., Sinopec Management System Certification (Qingdao) Co., Ltd., China Petrochemical Corporation State Branch, Sinopec National Petrochemical Project Risk Assessment Technology Center Co., Ltd., Sinopec Great Wall Energy Chemical (Ningxia) Co., Ltd., China Petrochemical Corporation Northwest Oilfield Branch, Sinopec Sales Co., Ltd. Zhejiang Oil Branch, China Petrochemical Shengli Oilfield Branch of China National Chemical Corporation, Chemical Registration Center of the Ministry of Emergency Management, China Special Equipment Testing and Research Institute, Beijing University of Chemical Technology Shandong Jingbo Petrochemical Co., Ltd., Binhua Group Co., Ltd., Ningxia Baoting New Energy Co., Ltd., CNOOC Huizhou Petrochemical Co., Ltd., Anhui Jinhe Industrial Co., Ltd., Shanghai Huayi Tianyuan Chemical Logistics Co., Ltd., Shandong Haihua Hualong New Materials Co., Ltd. company.

The main drafters of this document are: Qu Dingrong, Yang Feng, Xu Shujian, Qiu Hongbin, Wei Dong, Dang Wenyi, Ren Gang, Sun Xinwen, Xu Xing, Lv Wei, Zhang Jiedong, Qiu Zhigang, Hu Jia, Liu Xin, Wang Ting, Chu Taian, Liu Xiaowei, Wu Wenbin, Luo Fangwei, Zheng Jinglei, Zhu Zhenjun, Chen Zengliang, Duan Binghong, Yan Limin, Dai Cheng, Liu Xize, Xu Ke, Liu Wencai, Li Jianxiang, Wang Huadong, Ma Xiaogang, Wang Qingfeng, Niu Luna, Chai Yongxin, Ning Zhikang, Zhang Shuping, Zhang Hantao, Xu Baoju, Gu Tianjie, Xing Meng, Zhu Zhe, Liu Guoshuai, Zheng Xianwei, Zhang Ying, Hao Anfeng, Zhu Qiang, Li Hejin, Zhang Wenbo, Sun Deqing, Tang Zheng, Lan Zhenggui, Liu Yongqiang, Yang Le, Wang Yu, Zhan Jiangqin, Xue Peigong.

Introduction

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 During the use, storage, manufacturing, handling or transportation process, there are characteristics such as severe equipment corrosion, frequent failures, and difficulty in identifying potential risks, especially With the development of China's chemical industry, the number of equipment and facilities that are in service beyond their design life is increasing, and equipment aging management has attracted great attention from society.

Strengthening equipment integrity management is an important part of process safety management, a development trend of international equipment management, and a Advanced control methods to improve equipment management level, control 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 implementing process safety management of hazardous chemicals.

GB/T 44692 "Integrity of Equipment in Dangerous Chemical Enterprises" is implemented based on the management system as the criterion, technology application as the support, and performance as the Based on the evaluation of efficiency indicators and the information system as the carrier, we will jointly realize the establishment, implementation, maintenance and sustainability of equipment integrity management in hazardous chemical enterprises.

GB/T 44692 "Equipment Integrity for Hazardous Chemical Enterprises" is planned to consist of 4 parts.

--Part 1: Management system requirements. The purpose is to define the organizational environment, leadership, planning, support, operation, performance evaluation, improvement, The basic content of the equipment integrity management system elements such as progress.

--Part 2: Technical Implementation Guide. The purpose is to provide equipment classification evaluation, risk classification, defect classification, reliability evaluation and 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.

--Part 3: Performance indicator setting and calculation method. The purpose is to develop key performance indicators (KPIs) for equipment integrity management.

Technical skills in setting principles, formulating procedures, setting and calculating indicators for each discipline, decomposing and implementing indicators, and statistics and analysis of indicators. Technical requirements.

--Part 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: Management system requirements

1 Scope