

Code for Facilities, Technology and Inspection for Manufacturing of Non-refillable Cylinders for High-pressure Gases

Personnel

Gas Technical Standards Committee

Chairman	Kwang-Won Lee, Professor of Hoseo University
Vice-Chairman	Seung-Hoon Nam, Principal Researcher of KRISS
Ex Officio Member	Hui-Won Lee, Manager of Energy Safety Department, Ministry of Trade, Industry & Energy
	Hae-Myeong Yang, Director of Technology and Safety, Korea Gas Safety Corporation
High-Pressure Gas	Seung-Hoon Nam, Principal Researcher of KRISS
	Beom-Seok Lee, Principal Professor of Kyung Hee University
	Dong-Myeong Ha, Professor of Semyung University
	Chang-Gi Kim, Principal Researcher of Korea Institute of Machinery and Materials
	Hyuk-Myun Kwon, Director General of Occupational Safety & Health Research Institute
	Su-Dong Byun, CEO of Q-Best
Liquefied Petroleum Gas	Doo-Seon Park, Managing Director of Daesung Industrial Gas Co., Ltd
	Hyeong-Hwan Ann, Professor of Korea National University of Transportation
	Byeong-Hak Choei, Professor of Gangneung-Wonju National University
	Seong-Min Lee, Director of KOGAS Research Institute
	Yong-Gwon Lee, Vice-President of EG CNE Co.,Ltd
	Gi-hyeon Jang, Director of Kiturmi
	Jeong-Sik Chon, Direto of E1 CO., Ltd.

Urban Gas Kwang-Won Lee, Professor of Hoseo University

Jae-Wuk Koh, Professor of Kwangwoon University

Jong-Nam Kim, Principal Researcher of Korea Institute of

Energy Research

Dong-Il Shin, Professor of MyoungJi University

Jin-Deok Kim, Director of Korea City Gas Association

This code is the detailed standards established by the Gas Technical Standards Committee in accordance with Article 22-2 of "High-Pressure Gas Safety Control Act", Article 45 of "Safety Control and Business of Liquefied Petroleum Gas Act" and Article 17-5 of "Urban Gas Business Act". Since conformity to this Code is deemed to conform to the laws and regulations above, this Code must be observed.

This English version of KGS Code is an informal translation from its Korean original version. Only the Korean version of the KGS Code is officially effective since it has been authorized by the Gas Technical Standards Committee (KGS Code Committee). The secretariat of the Committee reserves the right to revise the English version whenever translation errors are found.

History of Establishment and Revision of KGS Code	
Code Number	KGS AC216 ²⁰¹⁸
Code Title	Code for Facilities, Technology and Inspection for Manufacturing of Non-refillable Cylinders for High-pressure Gases

Date of Establishment/Revision	Description
December 30, 2008	Established (Notification of the Ministry of Knowledge Economy No. 2008-379)
May 15, 2009	Revised (Notification of the Ministry of Knowledge Economy No. 2009-193)
June 29, 2009	Revised (Notification of the Ministry of Knowledge Economy No. 2009-250)
January 6, 2010	Revised (Notification of the Ministry of Knowledge Economy No. 2009-480)
January 3, 2011	Revised (Notification of the Ministry of Knowledge Economy No. 2010-489)
May 25, 2011	Revised (Notification of the Ministry of Knowledge Economy No. 2011-261)
June 26, 2012	Revised (Notification of the Ministry of Knowledge Economy No. 2012-313)
December 28, 2012	Revised (Notification of the Ministry of Knowledge Economy No. 2012-549)
May 20, 2013	Revised (Notification of the Ministry of Knowledge Economy No. 2013-087)
December 31, 2013	Revised (Notification of the Ministry of Trade, Industry & Energy No. 2013-353)
August 1, 2014	Revised (Notification of the Ministry of Trade, Industry & Energy No. 2014-370)
December 10, 2015	Revised (Notification of the Ministry of Trade, Industry & Energy No. 2015-641)

January 8, 2016	Revised (Notification of the Ministry of Trade, Industry & Energy No. 2016-6)
July 11, 2016	Revised (Notification of the Ministry of Trade, Industry & Energy No. 2016-354)
September 29, 2017	Revised (Notification of the Ministry of Trade, Industry & Energy No. 2017-475)
April 10, 2018	Revised (Notification of the Ministry of Trade, Industry & Energy No. 2018-193)
	- Hereinafter blank -

Table of Contents

T. Gen	erai	⊥
1.3	1 Scope	1
1.2	2 Validity of Code	1
1.3	3 Reference Codes and Standards	1
	1.3.1 Inspection standard for new technology products	1
	1.3.2 Manufacturing registration standard for foreign cylinders < Revised on Ju	ne 26
	2012>	2
1.4	4 Definitions	2
1.	5 Application of Codes and Standards	5
1.0	6 Interim measures (currently not used)	5
1.	7 Restriction to Filling	5
1.3	8 Service life (currently not used)	6
1.9	9 Change in Manufacturing Registration (currently not used) <revised 28,<="" december="" on="" th=""><th>2012></th></revised>	2012>
		6
2. Man	nufacturing Installation Standard	6
2.:	1 Manufacturing Facilities	6
2	2 Inspection Facilities	7
3. Man	nufacturing Technology Standard	7
3.	1 Design (currently not used)	7
3.2	2 Materials	7
3.3	3 Thickness	8
3.4	4 Construction and Dimensions	9
	3.4.1 Construction	9
	3.4.2 Dimensions	9
3.	5 Fabrication (currently not used)	10
3.0	6 Welding	10
3.	7 Heat Treatment	10
3.8	8 Performance (currently not used)	11
3.9	9 Painting	11
	3.9.1 Pretreatment < Deleted on June 29, 2009>	11
	3.9.2 Painting method <deleted 2009="" 29,="" june="" on=""></deleted>	11
3.	10 Attachment of Safety Devices (currently not used)	11
3.:	11 Attachment of Accessories	11
3.:	12 Coloring and Marking	11

5.12.1 Coloring of external surface of cylinders	
3.12.2 Marking of kind of gases	11
3.12.3 Marking of products	12
3.12.4 Marking of acceptance	12
4. Inspection Standard	13
4.1 Kinds of Inspection	13
4.1.1 Manufacturing installation inspection	13
4.1.2 Product inspection <revised 2011="" 25,="" may="" on=""></revised>	13
4.2 Object Audit of Process Inspection	15
4.2.1 Application for audit	16
4.2.2 Audit method	16
4.2.3 Adjudication committee	16
4.3 Inspection Items	17
4.3.1 Manufacturing installation inspection	17
4.3.2 Product inspection	17
4.4 Inspection Method	21
4.4.1 Manufacturing installation inspection	21
4.4.2 Product inspection	21
4.5 Other Inspection Standards	29
4.5.1 Inspection of imported products (currently not used)	29
4.5.2 Partial omission of inspection <revised 2012="" 26,="" june="" on=""></revised>	29
4.5.3 Disposal of rejected products	30
Appendix A General Standard for Operation of Quality Control System for Cylinders M	1anufacturing
Plants	31

Code for Facilities, Technology and Inspection for Manufacturing of Non-refillable Cylinders for High-pressure Gases

1. General

1.1 Scope

This Code applies to the facilities, technology and inspection for manufacturing of non-refillable cylinders (hereinafter referred to as "cylinders") in conformity to the High-Pressure Gas Safety Control Act (hereinafter referred to as "the Act"), Article 3, Clause 2.

1.2 Validity of Code

- **1.2.1** This Code has passed the deliberation and resolution by Gas Technical Standards Committee (Bill No. 2018-2, March 16, 2018) in accordance with the Act, Article 22-2, Clause 2, has been approved by the Minister of Trade, Industry & Energy (Notification No. 2018-193 of the Ministry of Trade, Industry & Energy, April 10, 2018), and is valid and effective as the detailed standards in conformity to the Act, Article 22-2, Clause 1.
- **1.2.2** Conformity to this Code is deemed to conform to Table 10 of the Enforcement Regulation of the Act (hereinafter referred to as "Enforcement Regulation") in accordance with the Act, Article 22-2, Clause 4.

1.3 Reference Codes and Standards

1.3.1 Inspection standard for new technology products

1.3.1.1 In case the Minister of Trade, Industry & Energy accepts that the cylinders developed through technology development do not meet the inspection standard conforming to this Code in accordance with the Enforcement Regulation, Table 10, No. 4-c but do not hinder safety control, as new cylinders developed through new technology development, such manufacturing and inspection methods of those cylinders may apply only restrictively to them.