

# **Overview of The Industrial Complex Safety Ordinance**

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## Overview of the Industrial Complex Safety Ordinance

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This document has been compiled based on information available as of October 1, 2016. For the latest information or if there is any doubt or ambiguity, please refer to the High Pressure Gas Safety Act, related ministerial ordinances, etc.

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## 1. Introduction

### 1-1. Definition of Industrial Complex

An industrial complex is defined under Article 2, paragraph (1), item (xxi) of the Industrial Complex Safety Ordinance (hereinafter referred to as the “Industrial Ordinance”) as follows:

- The areas, listed in Appended Table No. 1, where production plants are established or are planned to be established in concentration, in such a way that those production plants within said area produce or are expected to produce an extremely large volume of high pressure gas in total.

Appended Table No. 1 lists ten areas, the locations of which are indicated in Diagram 1.



Diagram 1: Locations of the industrial complexes

### 1-2. The Background of the Establishment of the Industrial Complex Safety Ordinance

As indicated in the separate document, “Overview of the High Pressure Gas Safety Act,” the Industrial Ordinance was established in 1975. Table 1 shows the background of the establishment.

Table 1: The Background of the Establishment of the Industrial Complex Safety Ordinance

Year	Major events
Around 1950	Oil refinery industry was restored and resumed operations.
Around 1955	New oil refineries and petrochemical industries started their operations as the sites of former Japanese navy and army installations were sold off.
1958	A petrochemical industrial complex began its operations.
Early 1960s	Explosions and fires resulting in casualties started to occur.

Late 1960s	Ministry of International Trade and Industry (MITI) issued “(Provisional) Guidelines on Safety of Industrial Complexes” and “Establishment of Independent Safety Management System of Industrial Complexes” and instructed complete prevention of accidents at the plants in industrial complexes with independent safety measures.
1973	Catastrophic accidents that caused damages to the surrounding area occurred consecutively at industrial complexes around the country, causing serious social concerns. Safety issues of the industrial complexes were examined by the High Pressure Gas and Explosives Safety Council.
1974	Minister of MITI received reports regarding the safety issues of the industrial complexes from the High Pressure Gas and Explosives Safety Council. In response to the report, the MITI proceeded to establish the Industrial Complex Safety Ordinance, which aimed to tighten ordinance concerning the industrial complexes, in parallel with the amendment of the High Pressure Gas Safety Act.
1975	The Industrial Complex Safety Ordinance was enacted.

## 2. Overview of the Industrial Complex Safety Ordinance

The Industrial Ordinance is a Ministerial Ordinance (ordinance) that stipulates the safety of high pressure gas at the production plants, which are located in an industrial complex area or which possess the processing capacity surpassing a certain volume of gas, and is composed of the following 9 Chapters:

Chapter I	General Provisions
Chapter II	Permission for Production, etc., of High Pressure Gas
Chapter III	Notification Pertaining to the Commencement, etc., of High Pressure Gas Production
Chapter IV	Independent Safety Measures
Chapter V	Safety Inspection and Periodical Self Inspection
Chapter VI	Measures Taken to Prevent Disaster
Chapter VII	Accreditation, etc., Regarding Completion Inspection and Safety Inspection
Chapter VII-2	Accreditation, etc., Regarding Specified Equipment
Chapter VIII	Miscellaneous Provisions
	Supplementary Provisions
	Appended Tables (Nos. 1 to 8)
	Forms (Nos. 1 to 39)

This document outlines the ordinance of the Industrial Ordinance in accordance with its Chapters. However, the Industrial Ordinance contains ordinances that are similar to those included in the General High Pressure Gas Safety Ordinance (hereinafter referred to as the “General Ordinance”) and the Liquefied Petroleum Gas Safety Ordinance (hereinafter referred to as the “LPG Ordinance”), as indicated in Diagram 2. This document mainly explains the ordinance specific to the Industrial Ordinance (+β in Diagram 2). Therefore, please also see the separate documents, “The Overview of the

General High Pressure Gas Safety Ordinance” and “The Overview of Liquefied Petroleum Gas Safety Ordinance.” Furthermore, details of the exceptive clauses are not included in this document; therefore, the details of the provisions shall be verified with the original text of the Industrial Ordinance.

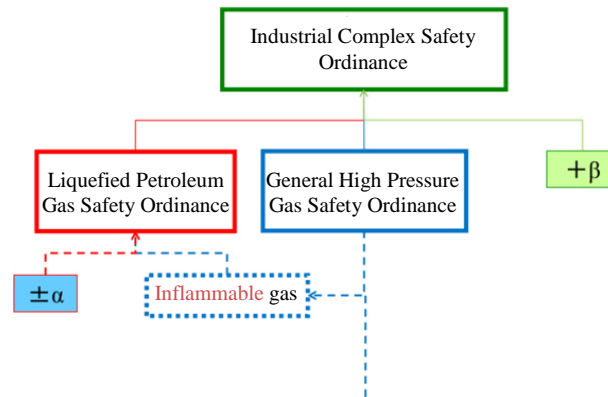


Diagram 2: Relationship of the Industrial Complex Safety Ordinance and other Ordinances

## 2-1. General Provisions (Chapter I)

### Article 1 Scope of Application

This Ordinance stipulates the safety of the production of high pressure gas at Designated Production Plants, based on the provisions of the High Pressure Gas Safety Act.

### Article 2 Definitions of Terms

Terms used in the Industrial Ordinance are defined. Some examples are as follows:

Paragraph (1), item (xx) A Production plant is a plant at which a person who produces high pressure gas engages in his/her business of production thereof, using production equipment that is capable of processing gas at a rate of 100 m<sup>3</sup>/day or greater (300 m<sup>3</sup>/day in case of inert gas or air).

Paragraph (1), item (xxii) A Designated Production Plant is a production plant which falls under any of the following items:

- (a) A production plant located in an industrial complex;
- (b) A production site capable of processing a gas, other than inert gas for safety, at a rate of 100,000 m<sup>3</sup>/day or greater; or
- (c) A production plant located within the use districts set forth in Article 8, paragraph (1), item (i) of the City Planning Act, and is capable of processing a gas, other than inert gas for safety, at a rate of 500,000 m<sup>3</sup>/day or greater.

Paragraph (1), item (xxiv) Designated Producer is a Class 1 Producer who produces high pressure gas at a Designated Production Plant.

## 2-2. Permission for Production, etc., of High Pressure Gas (Chapter II)

### Article 3 Permission for Production

Permission pertaining to production is prescribed.

#### Article 4 to Article 7-3 Technical Standards Pertaining to Production Facility

Technical Standards pertaining to facilities for production are stipulated.

Many technical standards are similar to those prescribed in the General Ordinance and the LPG Ordinance, as mentioned in 3.; however, technical standards specific to the Industrial Ordinance are also stipulated. Main examples of the technical standards specific to the Industrial Ordinance are as follows:

Article 5, paragraph (1), item (ii) Facilities for production of inflammable gas shall maintain a safety distance between the exterior of storage equipment and processing equipment therefor and the boundary line thereof (Refer to Diagram 3).

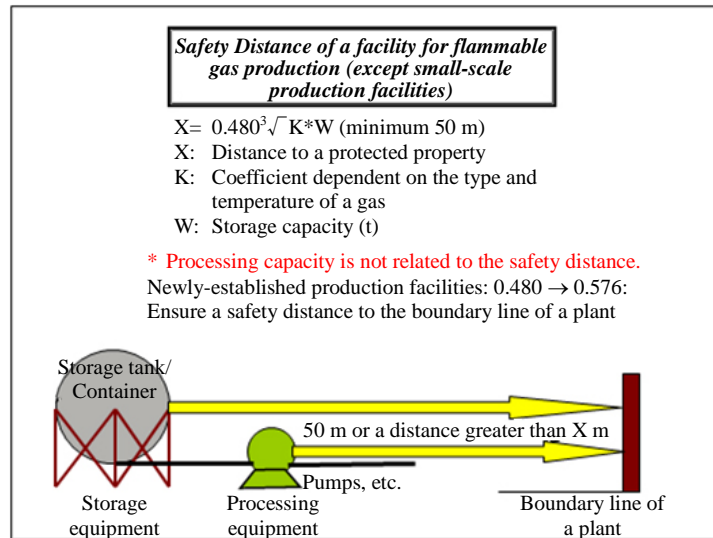


Diagram 3: Safety distance of a facility for flammable gas production

Article 5, paragraph (1), item (ix) Within the site for a Designated Production Plant, an area separated by passages and open spaces, etc., and at which a high pressure gas equipment is installed, shall be demarcated as a safety zone (Refer to Diagram 4).

Article 5, paragraph (1), item (x) High pressure gas equipment within a safety zone shall comply with the following standards (Refer to Diagram 4):

- The exterior of the equipment in said safety zone shall maintain a distance of no less than 30 m from any high pressure gas equipment installed in an adjacent safety zone; and
- The amount of heat of combustion of the equipment shall be no greater than 2.5 TJ.

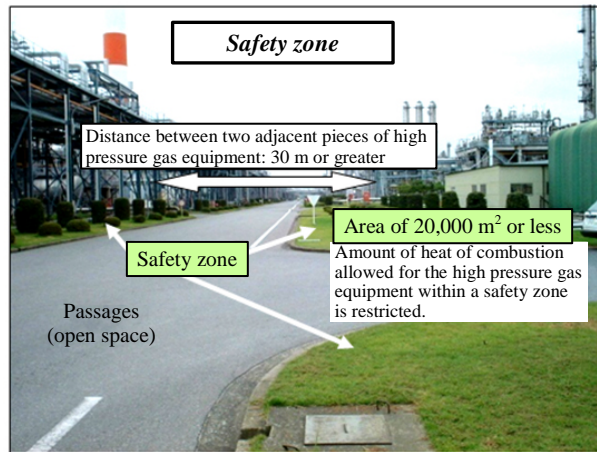


Diagram 4: Safety zone

Article 5, paragraph (1), item (xxv) Among high pressure gas equipment, a reactor or equipment similar thereto that is specified by the Minister as possessing high risk of causing disaster such as explosions due to significant exothermic reaction or second order reaction shall have an internal reaction monitoring device installed, which accurately monitors reaction status of the interior of said equipment and which is capable of sounding an alarm automatically when the temperature, pressure, flow rate, etc., of the interior of said equipment deviates or is likely to deviate from the normal reaction conditions.

Article 5, paragraph (1), item (lv) Height, location, and method of gas discharge of a vent stack shall be appropriate for the type, amount, and properties of said gas and the surrounding conditions (Refer to Diagram 5).

Article 5, paragraph (1), item (lvi) Height, location, combustion capacity, and construction of a flare stack shall be appropriate for the type, amount, and properties of said gas and the surrounding conditions (Refer to Diagram 5).

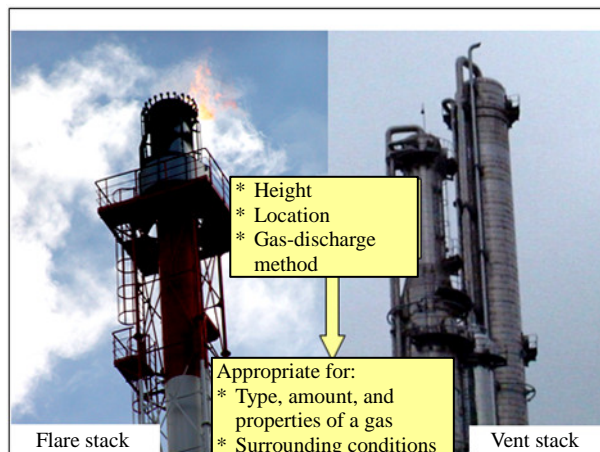


Diagram 5: A vent stack and a flare stack

Article 5, paragraph (1), item (lxi) The instrument control room of facilities for flammable gas production shall comply with the following standards:

- (a) The instrument control room shall be located in a safe area in proportion to the degree of risk associated with said production equipment;
- (b) The instrument control room shall have a safe construction in proportion to the degree of risk associated with said production equipment and to the distance from said production equipment; and
- (c) Necessary measures shall be taken to prevent invasion of gas from the outside into the interior of the instrument control room at a facility that produces acetaldehyde, isoprene, etc.

#### Articles 8 to 10 Technical Standards for Pipeline

Article 8 defines the terms. Some examples are as follows:

Article 8, paragraph (3) The term “waterways” under the provisions of this section shall mean waterways that fall under any of the following items:

- (1) Canals under the Canals Act;
- (2) Drainage facility that has open channel structure under the Sewerage Act; or
- (3) In addition to the preceding two items, important waterways specified by public notices.

Article 9 stipulates the technical standards for pipelines, other than those laid between the production plants in an industrial complex.

Article 10 stipulates the technical standards for pipelines laid between the production plants in an industrial complex.

Technical standards prescribed in Article 10 include standards specific to the Industrial Ordinances or standards which are similar to, while being stricter than, those stipulated in the General Ordinance, the LPG Ordinance, and Article 9 of the Industrial Ordinance (hereinafter referred to as “other ordinances, etc.”). Examples of the technical standards specific to the Industrial Ordinance or the standards which are similar to, while being stricter than, the other ordinances, etc., are as follows:

Article 10, paragraph (10) The following standards shall be observed when laying pipelines underneath the ground surface (Refer to Diagram6):

- (a) A pipeline shall maintain a horizontal distance, specified by the Minister of METI according to the type of high pressure gas, between its exterior and a building, etc.
- (b) A pipeline shall maintain a distance of no less than 0.3 m between its exterior and other structures, and may not compromise the integrity of said structure; and
- (c) A pipeline shall maintain a distance between its exterior and the ground surface that is no less than 0.9 m in forested mountains and fields and no less than 1.2 m in other areas\*.

\* Other ordinances, etc., stipulate that a pipeline shall be laid to a depth of no less than 0.6 m from the ground surface.



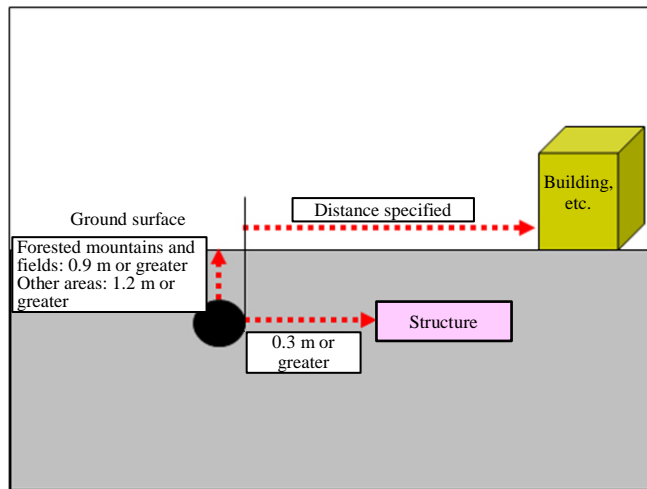


Diagram 6: When laying pipelines underground

Article 10, paragraph (14) The following standards shall be observed when laying pipelines on the ground surface (Refer to Diagram 7):

- (a) A pipeline shall maintain a horizontal distance, specified by the Minister of METI according to the type of high pressure gas, between its exterior and houses, schools, etc.; and
- (b) Empty spaces shall be kept on both sides of a pipeline for gases other than inert gas, as specified by the Minister of METI according to the working pressure of a high pressure gas of said pipeline.

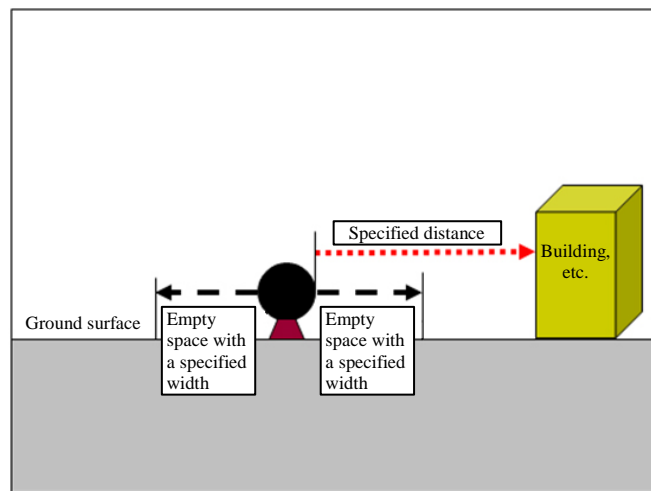


Diagram 7: When laying pipelines on the ground surface

#### Article 11 Liaison

Communication methods for the adjacent production plants in an industrial complex, and for production plants in an industrial complex that are linked for safety reasons, etc. are prescribed.

#### Articles 12 to 14 Permission, etc., Pertaining to Alteration Works

Provisions pertaining to alteration works, etc., of Designated Producer are provided.

Articles 15 to 20 Completion Inspection  
Procedures etc., pertaining to a completion inspection are prescribed.

2-3. Notification Pertaining to the Commencement, etc., of High Pressure Gas Production (Chapter III)

Article 21 Notification of Commencement or Discontinuation of Production  
Notification of commencement or discontinuation of production is prescribed.

2-4. Independent Safety Measures (Chapter IV)

Article 22 Notification of Hazard Prevention Rule  
Notification of Hazard Prevention Rule is prescribed.

Articles 23 to 33 Appointment, etc., of Safety Controller and Other Personnel  
Appointment, duties, etc., of the Safety Controller, Safety Technical Manager, etc., are described.

2-5. Safety Inspection and Periodical Self Inspection (Chapter V)

Articles 34 to 37 Safety Inspection  
Safety inspection of Designated Facilities is prescribed.

Articles 38 and 38-2 Periodical Self Inspection  
Periodical self inspection is prescribed.

2-6. Measures Taken to Prevent Disaster (Chapter VI)

Article 39 Measures Taken to Prevent Disaster  
Emergency measures for the prevention of disasters and accidents are prescribed.

2-7. Accreditation, etc., Regarding Completion Inspection and Safety Inspection (Chapter VII)

Articles 40 to 49 Accreditation, etc., Regarding Completion Inspection and Safety Inspection  
Procedures, standards, etc., pertaining to Accredited Completion Inspection Executors and Accredited Safety Inspection Executors are prescribed.

2-8. Accreditation, etc., Regarding Specified Equipment (Chapter VII-2)

Articles 49-2 to 49-9 Accreditation, etc., Regarding Specified Equipment  
Procedures, standards, etc., pertaining to Specified Equipment are prescribed.

2-9. Miscellaneous Provisions (Chapter VIII)

Article 50 Books  
Book keeping and information, etc. to be entered in the books are prescribed.

Articles 51 and 52 Entrance for Inspection  
The format of the on-site inspection is prescribed.

Articles 53 and 53-2 Notification Report of Accident, etc.

Procedures, format, etc., pertaining to notification report of accident are prescribed.

Articles 54 to 56 Others

Special provisions for the cases with no risk of danger, the facilities specified by an Ordinances of the Ministry, and the interim measures are prescribed.