Overview of the Liquefied Petroleum Gas Safety Ordinance

Unofficial translation
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The High Pressure Gas Safety Institute of Japan (KHK)

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Table of Contents

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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 Act on the Securing of Safety and the Optimization of Transactions of Liquefied Petroleum Gas, related ministerial ordinances, etc.

1. Introduction

1-1. Overview of the Liquefied Petroleum Gas Safety Ordinance

Liquefied Petroleum Gas Safety Ordinance was created when the Ordinance for Enforcement of the High Pressure Gas Control Law was revised in 1966 to be divided into the following four new ordinance that were established according to the types of gas and handling thereof: the General High Pressure Gas Safety Ordinance, Liquefied Petroleum Gas Safety Ordinance, Refrigeration Safety Ordinance, and Container Safety Ordinance (hereinafter referred to as "General Ordinance," "LPG Ordinance," "Refrigeration Ordinance," and "Container Ordinance" respectively).

Among the four newly established Ordinances, the LPG Ordinance regulates the handling of mixtures of hydrocarbon gases, called liquefied petroleum gas (hereinafter referred to as "LPG"), which were started to be used in large quantities as fuel for domestic use and commercial use, such as at restaurants. Its ordinance target relatively limited business categories; however, that the volume of distribution, the number of Dealers, and naturally, the number of accidents associated with LPG were characteristically much larger than with the other gases. Under such circumstances, the ordinance concerning the business of selling LPG to domestic and commercial consumers were separated from the High Pressure Gas Control Law and made into a new law called the Act on the Securing of Safety and the Optimization of Transaction of Liquefied Petroleum Gas (hereinafter referred to as "the LPG Act") in the following year, 1967, in order to ensure safety for General Consumers, etc., including domestic and commercial users who did not have much knowledge about the safety of LPG.

Furthermore, the current LPG Ordinance stipulates the safe handling of LPG; provided, however, that the following types of LPG listed below are excluded from the scope of this Ordinance, pursuant to the provisions of Article 1 of the LPG Ordinance, and that those listed in 1) or 2) are subject to the General Ordinance (or the Industrial Ordinance):

1) LPG in equipment for separation or refining of LPG;
2) LPG in storage equipment for raw material of high pressure gas other than LPG; and
3) LPG subject to the Refrigeration Ordinance.

Also, excluded from the scope of the LPG Ordinance is safety of LPG pertaining to LPG Dealers, which is provided for in the LPG Act as stated above, and the safety in production of LPG at Specified Production Plants, which is subject to the Industrial Ordinance.

On a different note, the definition of LPG was changed from "mixtures of hydrocarbons containing 3 or 4 carbon atoms" to "limited to that composed mainly of hydrocarbons containing 3 or 4 carbon atoms" when the Ordinance was revised along with the amendment of the High Pressure Gas Control Law into the High Pressure Gas Safety Act. Therefore, it must be noted that simple hydrocarbons such as propane, butane, propylene, etc., are also considered LPG since then and are subject to the LPG Ordinance (enforced on April 1, 1997).

The LPG Ordinance is composed of the following 13 Chapters in mostly the same format as the General Ordinance:

Chapter I	General Provisions (Articles 1 and 2)
Chapter II	Permission, etc., for Production and Storage of High Pressure Gas (Articles 3 to 37)
Chapter III	Notification, etc., of Sales Business of High Pressure Gas (Articles 38 to 41)
Chapter IV	Notification of Commencement, etc., of High Pressure Gas Production (Articles 42 to 44)
Chapter V	Inspection, etc., for Import of High Pressure Gas (Articles 45 to 46)
Chapter VI	Safety Measures, etc., for Transport of High Pressure Gas (Articles 47 to 50)
Chapter VII	Notification, etc., of High Pressure Gas Consumption (Articles 51 to 58)
Chapter VIII	Technical Standards, etc., for Disposal of High Pressure Gas (Articles 59 and 60)
Chapter IX	Voluntary Safety Measures (Articles 61 to 76)
Chapter X	Safety Inspection and Periodical Self Inspection (Articles 77 to 81-2)
Chapter XI	Measures Taken to Prevent Disaster (Article 82)
Chapter XII	Accreditation, etc., Regarding Completion Inspection and Safety Inspection (Articles 83 to 92)
Chapter XIII	Miscellaneous Provisions (Articles 93 to 99)

Supplementary Provisions
Appended Tables (No. 1 to 5)
Forms (No. 1 to 59)

As mentioned above, LPG used to be regulated as flammable gas in a single Ordinance, and thus many provisions of the LPG Ordinance are the same as those for flammable gases in the General Ordinance. For that reason, this document explains the matters that are prescribed separately, based on the properties, etc., of LPG. Those provisions which are the same as those of the General Ordinance are to be referred to in the Overview of the General Ordinance.

Nonetheless, many of the exceptive clauses are not included; therefore, details of the provisions must be verified with the original text of the LPG Ordinance.

2. Overview of the Liquefied Petroleum Gas Safety Ordinance

2-1. General Provisions (Chapter I)

Article 1 Scope of Application

Article 1 defines the scope of application of this Ordinance. As indicated above, maintenance of safety in the handling of LPG, other than what is provided for in the LPG Act, falls within the scope of application of this Ordinance, except for LPG other than those subject to the General Ordinance and the Refrigeration Ordinance, and for the safety of LPG production at Specified Production Plants, which is regulated under the Industrial Ordinance.

For instance, sales of LPG by LPG Dealers, who sell LPG to General Consumers, etc., are regulated under the LPG Act, whereas the transport of such LPG, from an LPG filling plant to a sales location or from a sales location to the general consumer, shall comply with the technical standards for transport set forth in the LPG Ordinance (Refer to Diagram 1). Furthermore, the scope of application of the Industrial Ordinance is limited only to the production of high pressure gas by stationary production equipment, and thus, the LPG Ordinance is applicable to production using mobile production equipment or other handling within an industrial complex (sales of LPG to those who consume LPG for industrial use, import and transport of LPG, industrial consumption of LPG, etc.).

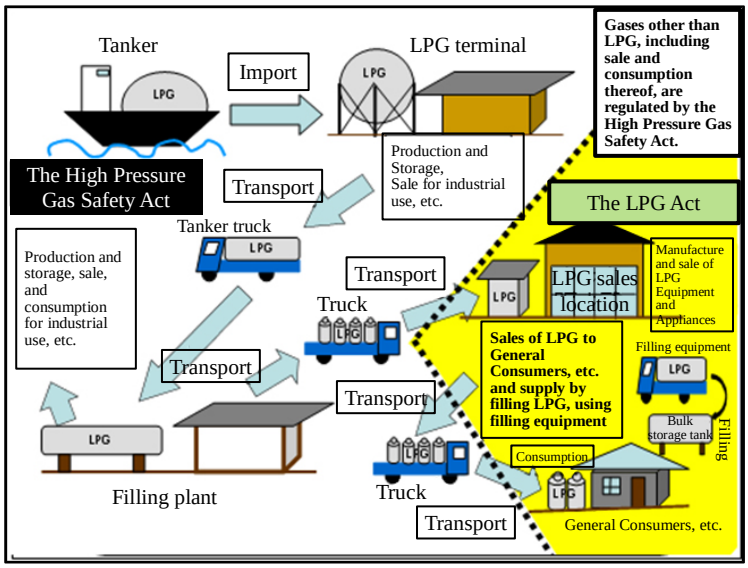

Diagram 1: Regulatory division of the Acts concerning LPG (Current)

Article 2 Definitions of Terms

Article 2 defines the meanings of the terms used in this Ordinance. Terms that are especially important and that are not defined in the General Ordinance are explained here, as it is difficult to understand the contents of this Ordinance without first understanding the meanings of these terms.

(1) Low temperature storage tanks (item (iv))

Storage tanks that store LPG at a temperature of 0°C or less or a pressure of 0.1 MPa or less at its normal pressure in the vapor space and that have insulation and cooling measures in place. The construction is mostly the same as that for low temperature storage tanks for flammable gas under the General Ordinance. Consequently, the applicable technical standards are also mostly the same. Due to the lower pressure of LPG in the storage tanks compared to the atmospheric pressure, low temperature storage tanks shall have measures to prevent fracture under external pressure. In addition, low temperature storage tanks tend to have a larger storage capacity than other storage tanks; therefore, they are subject to larger Class 1 Equipment Setback and Class 2 Equipment Setback requirements than normal storage tanks and have no provisions to allow reduced setbacks, due to the significance thereof in terms of safety.

Photo 1: An example of low temperature storage tank

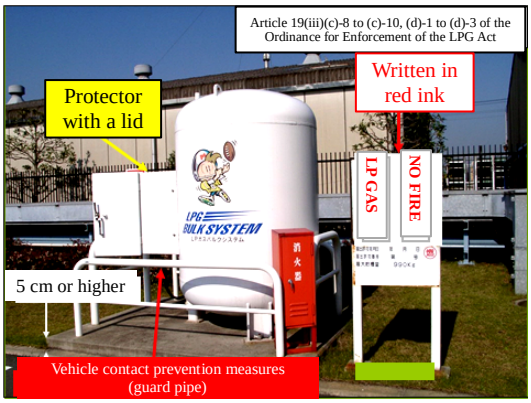

Photo 2: An example of bulk storage tank

(2) Bulk storage tanks (item (v))

Bulk storage tanks, provided for in Article 1, paragraph (2), item (ii) of the Ordinance for Enforcement of the LPG Act, are tanks that are equipped with the necessary safety measures to be employed in the LPG sales system, which were newly approved in the amendment of the Ordinance for Enforcement of the LPG Act in 1997 as an effort to streamline LPG delivery to general consumers and commercial consumers. Bulk storage tanks are installed at the place of consumption for General Consumers, etc., so that LPG can be supplied on the spot by filling equipment (bulk lorry). In this way, they are, originally, the equipment for General Consumers, etc., subject to the LPG Act; however, the use of bulk storage tanks is currently also approved for storage of LPG for industrial consumption, which is subject to the LPG Ordinance under the High Pressure Gas Safety Act. (Specifically, the standards related to bulk supply set forth in the Ordinance for Enforcement of the LPG Act are cited in the technical standards for storage and the technical standards for Class 1 Storage Place and Class 2 Storage Place.)

(3) Class 1 Equipment Setback, Class 2 Equipment Setback (item (xvi), item (xvii))

Class 1 Equipment Setback refers to the minimum distance to be maintained from the exterior of storage equipment and processing equipment of a high pressure gas production facility to Class 1 Protected Properties. Similarly, Class 2 Equipment Setback is the distance to Class 2 Protected Properties. In addition to the storage equipment and processing equipment for production, Class 1 Storage Places, Class 2 Storage Places and pressure reduction equipment of Specific High Pressure Gas consumption equipment shall also maintain the Class 1 Equipment Setback and Class 2 Equipment Setback distances.

A setback distance for storage equipment is to be calculated based on the value of storage capacity, in the same way as prescribed in the General Ordinance, whereas the distances for processing equipment and pressure reduction equipment are to be calculated differently from the General Ordinance, based on the storage capacity of the storage equipment to which the processing equipment and pressure reduction equipment are connected.

Another standard that is different from the General Ordinance and is specific to the LPG Ordinance is the provision which allows reduced setback distances for equipment (except low temperature storage tanks) that cannot meet the Class 1 Equipment Setback and Class 2 Equipment Setback requirements with the implementation of specified safety measures (combination of measures such as underground storage tank installation, barrier wall installation, water spray system installation, etc.) (Such provision to allow reduced setbacks is not provided in the technical standards for Specific High Pressure Gas Consumers.). In addition, Class 1 Equipment Setback is expressed as L_1 while Class 2 Equipment Setback is expressed as L_4 in the LPG Ordinance, which provides specified calculation formulas for each Setback and for the reduced setbacks, expressed as L_2, L_3, L_5, and L_6.

Diagram 2 shows an example of setbacks for storage equipment, while Diagram 3 shows an example of setbacks for processing equipment.

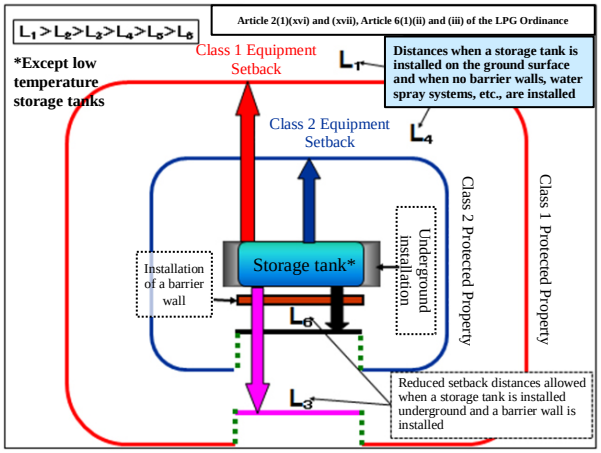

Diagram 2: An example of setbacks for storage equipment

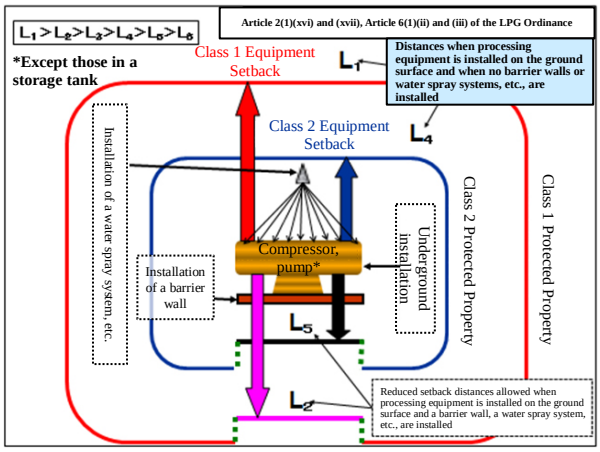

Diagram 3: An example of setbacks for processing equipment

(4) Class 1 Storage Setback, Class 2 Storage Setback (item (xviii), item (xix))

A container storage place of a high pressure gas production facility, Class 1 Storage Place, or Class 2 Storage Place, where containers stored thereto are not connected to pipes (not storage equipment), shall maintain a distance no less than the Class 1 Storage Setback between the exterior thereof and Class 1 Protected Properties and a distance no less than the Class 2 Storage Setback between the exterior thereof and Class 2 Protected Properties.

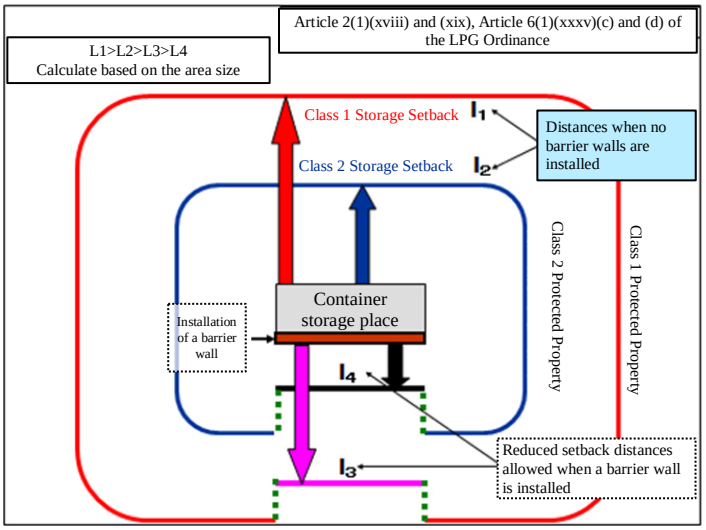

Diagram 4: Setbacks for a container storage place which is not a storage equipment

The calculation formulas of the Class 1 Storage Setback and the Class 2 Storage Setback provided in the LPG Ordinance are the same as those for a storage place of flammable gas containers, pursuant to the General Ordinance. The provision to allow reduced setback distances with the installation of barrier walls is also the same as in the General Ordinance.

Diagram 4 shows Class 1 Storage Setback, Class 2 Storage Setback, and the reduced setback distances with a barrier wall installation.

(5) LPG filling station (item (xx))

Stationary production equipment with processing equipment that directly fills a container fixed on a vehicle, which uses LPG as its fuel, with the LPG used as the fuel for such vehicle.

(6) Class 1 Production Equipment, Class 2 Production Equipment (item (xxi), item (xxii))

A Class 1 Production Equipment refers to stationary production equipment (except an LPG

filling station) which is equipped with a storage tank or a pipeline. Class 2 Production Equipment refers to stationary production equipment (except a LPG filling station) which is not equipped with a storage tank or a pipeline.

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

Articles 3 to 18 Permission, etc., for Production of High Pressure Gas

Production of high pressure gas (except those persons who intend to produce high pressure gas for the purpose of refrigeration) is regulated in the following categories based on the scale of production:

1) Class 1 Producer
In cases where only the LPG Ordinance is applicable, a Class 1 Producer refers to a person who intends to produce LPG using equipment with a processing capacity of 100 m^3/day or greater, and who has obtained the permission of the prefectural governor, as provided in paragraph (1) of Article 5 of the High Pressure Gas Safety Act (For the cases where both the General Ordinance and the LPG Ordinance are applicable, the Overview of the General Ordinance is to be referred to.).

2) Class 2 Producer
A person who engages in the business of producing high pressure gas (who repeatedly and continuously produces high pressure gas), other than those who fall under the category of 1). A notification report shall be submitted to the prefectural governor for each plant.

3) Other production
Production of high pressure gas by persons other than 1) and 2). In this case, although permission by and notification to the prefectural governor are not necessary, the production of high pressure gas shall conform to the technical standards specified. However, production that falls under the category of other production is rare in the case where only the LPG Ordinance is applicable, unlike the case with the General Ordinance.

(1) Article 3 Application for permission of Class 1 Producer
Refer to the Overview of the General Ordinance.

(2) Article 4 Submission of notification of Class 2 Producer
Refer to the Overview of the General Ordinance.

(3) Articles 5 to 9 Technical standards for Class 1 Producers

The technical standards for a Class 1 Producer are set forth in the following categories according to the type of production equipment he/she uses for the production:

1) Article 6 Class 1 Production Equipment
2) Article 7 Class 2 Production Equipment
3) Article 8 LPG filling station
4) Article 9 Mobile production equipment

The technical standards for the production with Class 1 Production Equipment prescribed in Article 6 [1) above] are the principle standards, and are composed of paragraph (1) providing 36 items pertaining to the location, construction, and equipment of the production facilities, and paragraph (2) providing 7 items pertaining to the production methods.

The technical standards for production with other production equipment [2) to 4) above] that are common with the technical standards for Class 1 Production Equipment cite the provisions of Article 6 while the standards that require specific ordinance according to the type of production equipment provide the specific ordinance in their individual provisions.

Although the descriptions of all the technical standards cannot be explained here, as representative examples Table 1 summarizes the comparison of the main items of the technical standards for production with Class 1 Production Equipment, to which Article 6 is applied, and the technical standards for the small-scale Class 2 Producers, as explained in the following paragraph, to which Article 12 is applied.

(4) Articles 11 to 13 Technical standards for Class 2 Producers

Production with equipment with a processing capacity of 30 m^3/day or greater used to be classified as production by a Class 1 Producer. Consequently, the technical standards for current Class 2 Producers are divided into Article 12, applicable for production with a processing capacity of 30 m^3/day or greater, and Article 13, applicable for production with a processing capacity of less than 30 m^3/day. Note that the standards provided in Article 12 essentially cite the entire technical standards for Class 1 Producers prescribed in Articles 6 to 9, and thus are exactly the same as those for Class 1 Producers.

(5) Article 14 Technical standards for other production

The technical standards for production which does not require permission or notification are prescribed. However, unlike the case with the General Ordinance, there is no equipment specified to be subject to the ordinance for other production when such equipment conforms to the specified standard, as is the case with an accumulator, etc. For this reason, it is suspected that cases which fall under the category of other production in terms of the LPG Ordinance hardly exist. Specifically, the provision cites only small parts of the technical standards concerning production methods for Class 1 Producers and Class 2 Producers.

(6) Articles 15 to 18 Procedures etc., for change of facilities for production

In addition to the procedures to apply for permission of change pertaining to Class 1 Producers (Article 15), the specific scope and the procedures for minor changes, which do not require application of permission for change, pursuant to the proviso of Article 14, paragraph (1) of the Act, are also stipulated (Article 16). Furthermore, notification report of alteration work pertaining to Class 2 Producers (Article 17) and the scope of minor changes (Article 18) are also prescribed, as with the case for Class 1 Producers.

3-2. Articles 19 to 31 Permission, etc., for Storage of High Pressure Gas

A person who stores high pressure gas, the volume of which exceeds 0.15 m^3 (10 kg = 1 m^3 for liquefied gas; the same shall apply for 3-2.), shall comply with the technical standards of storage methods when storing high pressure gas, except for the following cases:

a) Where high pressure gas is stored by a Class 1 Producer in accordance with the terms of permission; or
b) Where LPG is stored by an LPG Dealer specified in the LPG Act in supply equipment or at a storage facility specified in the LPG Act.

Moreover, permission from or notification to the prefectural governor as well as a storage place which satisfies the specified technical standards are required for the storage of high pressure gas of the volume listed below or more:

1) Class 1 Storage Place
A person who stores high pressure gas, the volume of which is equal to or greater than the volume specified by Article 5 of a Cabinet Order for each type of gas (1,000 m^3 for the storage of LPG only), shall obtain permission from the prefectural governor.

2) Class 2 Storage Place
A person who stores high pressure gas, the volume of which is equal to or greater than 300 m^3 and who is not 1) shall submit a notification report to the prefectural governor.

(1) Article 19 Technical standards of storage methods

Technical standards of storage methods are divided into the provisions for storage tanks and provisions for containers, as well as the provisions for bulk storage tanks in the case of the LPG Ordinance. The main provisions are as follows:

1) Storage in storage tanks
The same technical standards apply as for storage of flammable gas in storage tanks, pursuant to the General Ordinance.

2) Storage in containers
The same technical standards apply as for storage of flammable gas in containers, pursuant to the General Ordinance.

3) Storage in bulk storage tanks
The provisions of the technical standard pertaining to bulk storage tanks provided for in the Ordinance for Enforcement of the LPG Act are cited.

(2) Article 21 Application for permission of a Class 1 Storage Place

Refer to the Overview of the General Ordinance.

(3) Article 26 Submission of notification to set up a Class 2 Storage Place

Refer to the Overview of the General Ordinance.

(4) Articles 22 to 24 Technical standards for Class 1 Storage Places

The technical standards pertaining to the location, construction, and equipment of Class 1 Storage Places are divided into the provisions for storage in storage tanks or bulk storage tanks and the provisions for storage in containers. The former is stipulated in Article 23 and the latter is stipulated in Article 24. Both provisions are prescribed by citing necessary parts of the technical standards for production.

(5) Article 27 Technical standards for Class 2 Storage Places

The provisions of the technical standards pertaining to the location, construction, and equipment of Class 2 Storage Places cite the provisions of Article 23 and Article 24, and thus are exactly the same as for Class 1 Storage Places.

(6) Articles 28 to 31 Procedures etc., for alteration work of a storage place

In addition to the procedures to apply for permission of alteration work for a Class 1 Storage Place (Article 28), the specific scope and the procedures for minor changes that do not require application for permission, pursuant to the proviso of Article 19, paragraph (1) of the Act, are also stipulated (Article 29). Furthermore, notification report of alteration work for a Class 2 Storage Place (Article 30) and the scope of minor changes (Article 31) are also prescribed, as with the case for Class 1 Producers.

Articles 32 to 37 Completion Inspection

(1) Article 32 Application, etc., for a Completion Inspection

Refer to the Overview of the General Ordinance.

(2) Article 34 Scope of alteration work which does not require a Completion Inspection

Refer to the Overview of the General Ordinance.

(3) Article 36 Methods of Completion Inspection

Refer to the Overview of the General Ordinance.

(4) Article 37 Period of validity of a Designated Equipment Inspection Certificate, etc.

Refer to the Overview of the General Ordinance.

2-3. Notification, etc., of Sales Business of High Pressure Gas (Chapter III)

(1) Article 38 Notification of sales business pertaining to Dealers

Refer to the Overview of the General Ordinance.

(2) Articles 39 and 40 Duty of information dissemination

Dealers and Sellers who are engaged in the business of selling LPG for specified usages [Refer to 3)] shall inform the buyers of the LPG who are listed in 1) the items listed in 4), by distributing a written statement at the timing specified in 2), for maintenance of safety.

1) Target audience:

Any person who purchases and consumes LPG for the purposes listed in 3), and who is not a Class 1 Producer, Dealer, Specific High Pressure Gas Consumer, or a person who consumes LPG as fuel for a vehicle.

2) Timing of dissemination:

At the time of sales contract and at the time of LPG delivery if more than a year has passed since the previous time the information was provided.

3) Uses of LPG for which the information shall be disseminated:
   - i) For welding or thermal cutting; and
   - ii) As fuel.

4) Information to be disseminated:
   - i) Compatibility of the consumption equipment with the LPG;
   - ii) Precautions for operations, maintenance and inspection of the consumption equipment;
   - iii) Environment where the consumption equipment is used;
   - iv) Precautions for changing consumption equipment;
   - v) Emergency measures to be taken by the consumers when a gas leak is detected or when other disaster caused by LPG occurs or is suspected to occur, as well as the matter related to communication of such occurrence to the sales office, etc.; and
   - vi) Other information necessary to prevent the occurrence of disasters caused by LPG.

(3) Article 41 Technical standards for Dealers and Sellers

Dealers and Sellers shall comply with the technical standards for the sale of LPG. The main items of such technical standard are as follows:

1) Records shall be kept describing the safety maintenance status of the places where LPG was delivered;
2) Filled/empty containers to be delivered shall be free of any external defects, such as corrosion, cracks, lines, creases, etc. which hinder the use of such containers, and shall have no gas leak;
3) Filled/empty containers to be delivered shall have passed a reinspection of container within 6 months and shall have a clear indication of such information;
4) When selling LPG to the consumers who use it as a fuel (excluding fuel for industrial use), the sale shall not take place before verifying the conformity of the consumption equipment therefor to the technical standards specified; and
5) A person selling LPG to the consumers who use it as a fuel (excluding fuel for industrial use) shall be equipped with an instrument for a leakage test of pipes.

(4) Articles 38-2 Other procedures, etc.

Notification report of the succession of a Dealer is prescribed.

2-4. Notification of Commencement, etc., of High Pressure Gas Production (Chapter IV)
Refer to the Overview of the General Ordinance.

2-5. Inspection, etc., for Import of High Pressure Gas (Chapter V)

(1) Articles 45, 45-2, and 45-5 Application, etc., for an import inspection
Refer to the Overview of the General Ordinance.

(2) Articles 45-3, 46 Technical standards for imported high pressure gas and the methods of an import inspection
Refer to the Overview of the General Ordinance.

(3) Article 45-4 High pressure gases that do not require an inspection

LPG within a container fixed on a vehicle that uses the LPG as its fuel (limited to a container that is filled with the LPG used as the fuel for said vehicle) does not require an import inspection.

2-6. Safety Measures, etc., for Transport of High Pressure Gas (Chapter VI)

The methods of transport of high pressure gas are roughly classified into transport 1) by containers fixed on a vehicle (transport by a tanker truck), 2) by containers loaded on a vehicle (bulk transport); and 3) by pipelines.

The technical standards, etc., for the transport of high pressure gas mainly by the methods of 1) and 2) are compared in Table 2. Furthermore, transport by pipelines [3) above] falls under the category of production of high pressure gas and thus shall conform to the provisions of pipelines provided for in Article 6, paragraph (1), item (xxxvi), pursuant to the provisions of Article 50.

Table 2: Outlines of the technical standards for the transport of high pressure gas (except by pipelines)

Outlines of the technical standards	Transport by containers fixed on vehicle (Article 48)	Other transport (bulk transport) (Article 49)
Mandatory display of warning sign	○ (item (i))	○ (item (i))
Temperature restriction of filled/empty containers (40°C or less), etc.	○ (item (ii))	○ (item (ii))
Measures to prevent sloshing within the filled/empty containers of LPG	○ (item (iii))	No provisions
Mandatory installation of a height pole	○ (item (iv))	No provisions
Ordinance on the location of the operation box	○ (items (v) to (vii))	No provisions
Measures to prevent damages on container accessories	○ (item (viii))	No provisions
Material restriction for level gauge	○ (item (ix))	No provisions
Obligatory indication of the opening and closing directions and open/close status of valves, etc.	○ (item (x))	No provisions
Obligatory inspection before and after transport	○ (item (xi))	No provisions
Requirement to carry fire extinguishing equipment and necessary materials, etc., during transport	○ (item (xii))	○ (item (v))
Restriction to park a transport vehicle in an area where protected properties are established in concentration	○ (item (xiii))	○ (item (vii))
Requirement to be transported by a transport overseer who is required to carry his/her license, etc., as well as methods of transport	○ (items (xiv), (xv) and (xvii))	○ (item (viii)) (Article 48 is applied mutatis mutandis)
Measures to be taken when filled/empty containers fall into a dangerous state or when a disaster happens during transport	○ (item (xvi))	○ (item (viii)) (Article 48 is applied mutatis mutandis)
Requirement to carry a yellow card	○ (item (xviii))	○ (item (ix)) (Article 48 is applied mutatis mutandis)
Installation of a fixed protector or caps on the filled/empty containers with protruding valves	No provisions	○ (item (iii))
Fall and overturn prevention for filled/empty containers and prohibition of rough handling	No provisions	○ (item (iv))
Restrictions on mixed load of filled/empty containers and dangerous substances	No provisions	○ (item (vi))

2-7. Notification, etc., of High Pressure Gas Consumption (Chapter VII)

As with the case for the General Ordinance, consumption of high pressure gas is regulated under two categories, Specific High Pressure Gas Consumers and other consumers. However, it must be noted that in cases where the amount stored is increased, some types of LPG regulated under the LPG Act may be subject to the ordinance of the High Pressure Gas Safety Act (The details are to be referred to the Overview of the General Ordinance.).

(1) Article 51 Notification of Specific High Pressure Gas consumption

A Specific High Pressure Gas Consumer shall submit a notification report of Specific High Pressure Gas Consumer in the form specified by an Ordinance of METI and the detailed statement of the consumption facility, etc. (a written statement with information about storage capacity of the storage equipment for Specific High Pressure Gas, conformity thereof to the technical standards, etc., and drawings of the location of consumption facility and conditions of surrounding area, etc.), to the prefectural governor who has jurisdiction over the location of the plant.

(2) Article 53 Technical standards for Specific High Pressure Gas consumption

The provisions of the standards for high pressure gas production facilities are applied, mutatis mutandis, to many of the technical standards pertaining to the location, construction, and equipment of the facilities that consume Specific High Pressure Gases.

The outlines of the technical standards pertaining to the location, construction, and equipment of the facilities for Specific High Pressure Gas consumption are summarized in Table 3.

Table 3: Technical Standards for Consumption of Specific High Pressure Gases (Outlines)

Article 53, paragraph (1)	
item	Outlines of the technical standards
(i)	Mandatory display of boundary lines and warning signs
(ii)	Requirement to maintain a safety setback from pressure reduction equipment (no provisions to allow reduced setbacks)
(iii)	Spacing requirement, etc., between storage equipment, etc., and a place where fire is used
(iv)	Construction which prevents gas build-up in the room where consumption equipment is installed
(v)	Mandatory installation of gas leak detection alarms at consumption facilities
(vi)	Pressure resistance and airtightness of storage equipment, etc.
(vii)	Restrictions on materials to be used for consumption equipment
(viii)	Measures to prevent deformation of the foundation of consumption equipment (except pipes)
(ix)	Sufficient strength of storage equipment, etc.
(x)	Prevention of fracture caused by the external pressure on low temperature storage tanks
(xi)	Mandatory installation of a pressure gauge and safety devices on storage equipment, etc. (except on the pressure reduction equipment of compressed gas)
(xii)	Static electricity removal measures for consumption equipment
(xiii)	Mandatory installation of fire prevention and extinguishing equipment at consumption facilities
(xiv)	Measures to prevent erroneous operation of valves or cocks of consumption equipment
(xv)	Subsidence monitoring and prevention measures for storage tanks

Furthermore, the technical standards specifying the consumption methods of Specific High Pressure Gases are provided in paragraph (2), including the standards pertaining to 1) the prohibition of the use of fire around storage equipment, etc.; 2) the inspection of consumption equipment before and after use and an operation inspection therefor at least once a day; and 3) the repair and cleaning of consumption equipment.

(3) Articles 57 and 58 Other technical standards for consumption and specifications of gases which shall comply with said standards

LPG (except that consumed only as fuel for the vehicles that use LPG for fuel) is specified as the gas which shall comply with the other technical standards for consumption (Article 57).

The main technical standards are as follows (Article 58):

1) Gentle opening and closing of the valves of filled/empty containers (item (i))
2) Prohibition of rough handling of filled/empty containers (item (ii))
3) Heating methods of filled/empty containers, valves or pipes (item (iii))
4) Corrosion prevention measures for filled/empty containers (item (iv))
5) Consumption at a place with good ventilation and maintenance of temperature at 40°C or less (item (v))
6) Measures to avoid damage to valves after consumption (item (xi))

2-8. Technical Standards, etc., for Disposal of High Pressure Gas (Chapter VIII)

The technical standards for disposal of LPG are as follows (Article 60):

1) Prohibition of disposal of LPG in container (item (i))
2) Dispose in small quantities at a time at a location with good ventilation. Avoid places where fire is used or where flammable or pyrophoric substances are accumulated and the area within an 8 m radius of such places (item (ii); refer to Diagram 5)
3) Measures to detect LPG build up in case of continuous and repeated disposal (item (iii))
4) Measures to avoid damage to valves after disposal (item (iv))
5) Heating methods of filled/empty containers, valves or pipes (item (v))

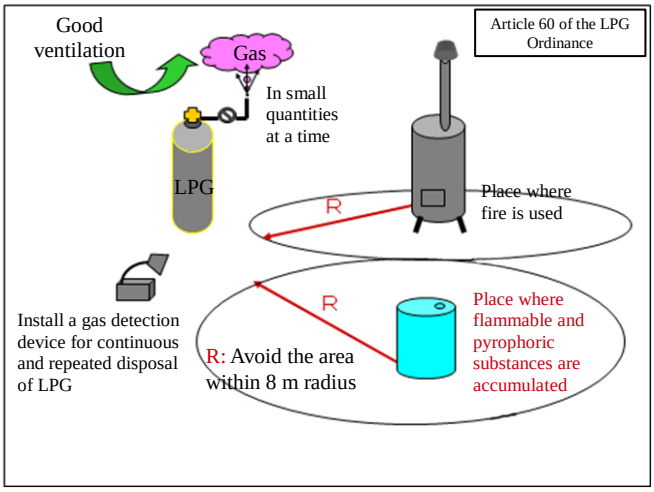

Diagram 5: LPG Disposal

2-9. Voluntary Safety Measures (Chapter IX)

Article 61 Preparation and Notification of Hazard Prevention Rule
Refer to the Overview of the General Ordinance.

Articles 62 to 69, 74 to 76 Safety Management System of Production Plants

(1) Safety management system of Class 1 Producers

The safety management system required of a Class 1 Producer varies depending on the scale (processing capacity), etc., of his/her plant. Diagram 6 shows examples of safety management organizational charts for large-scale plants (e.g., plants with a processing capacity of 1,000,000 m^3/day or greater), mid-scale plants (e.g., plants with a processing capacity of less than 1,000,000 m^3/day), and small-scale plants.

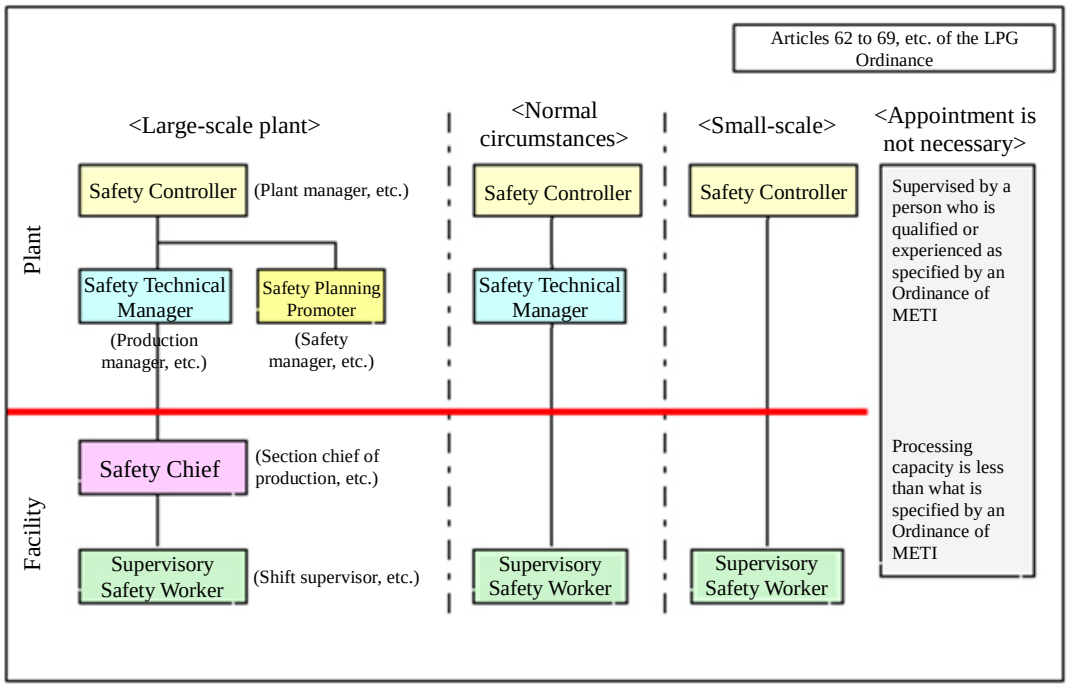

Diagram 6: Examples of appointment of the Safety Controller and Other Personnel

Furthermore, Class 1 Producers who satisfy either of the following requirements are exempt from appointing a Safety Controller and other personnel:

1) A Class 1 Producer with a High Pressure Gas Production Safety Management Certificate (except refrigeration) who exclusively fills LPG into containers fixed on vehicles that use LPG as fuel at a plant where an LPG filling station with a processing capacity of less than 250,000 m^3/day has been installed, and who has a person with no less than 6 months of experience in LPG production supervise the safety of such production; or

2) A Class 1 Producer who produces LPG with mobile production equipment prescribed in Article 9, paragraph (3) of the LPG Ordinance (which corresponds to the filling equipment specified in Article 37-4, paragraph (1) of the LPG Act), and who has a person with specified qualification supervise the safety of such production:

(2) Safety management system of Class 2 Producers

A Class 2 Producer who produces by installing LPG pumps, which has a processing capacity

of 30 m^3/day or greater, shall have a safety management system in the same way as the Class 1 Producers (Falls under either <Normal circumstance> or <Small-scale> in Diagram 6).

(3) Requirement for appointment, etc., of a Safety Controller and other personnel and their deputies

Appointment requirements, etc., of the Safety Controller and other personnel and their deputies are shown in Diagram 7.

Safety Controller, etc. and the deputies	Division of appointment	Required qualifications, etc., for appointment	Obligatory training course	Duties, etc.
Safety Controller	for each plant	Position as a general manager of the business	NO	General management of all work in relation to the safety
Deputy		Position as an assistant to the above		
Safety Technical Manager	for each plant	Certificate and experience	NO	Assist the Safety Controller and manage technical matters
Deputy				
Safety Planning Promoter	for each plant	Knowledge and experience	YES	Assist the Safety Controller in planning, maintenance, and promotion of the Hazard Prevention Rule and the Safety Training Program; provide guidance and recommendation of standards, such as operation standards, etc.; plan and promote emergency drills; investigate the causes when an accident or disaster occurs; collect safety information; etc.
Deputy			NO	
Safety Chief	for each division of the facilities	Certificate and experience	YES	Assist a Safety Technical Manager (Safety Controller) with respect to technical matters and lead Supervisory Safety Workers
Deputy	No provisions		NO	
Supervisory Safety Worker	For each division, line, and shift of the facilities	Certificate and experience	YES	Monitor, patrol, and inspect the facilities (construction and equipment) and operations (method of production); provide advice on standards for emergency measures and operation standards, etc.; provide emergency responses; and supervise periodical self inspections
Deputy	No provisions		NO	

Diagram 7: Requirements for appointment of a Safety Controller, etc., and their deputies

(4) Notification of appointment or dismissal of a Safety Controller and other personnel and their deputies

Diagram 8 summarizes the procedures to notify the prefectural governor of an appointment or dismissal of a Safety Controller and other personnel and their deputies.

Articles 27-2(5) and (6), 27-3(3), 28, 33-3 of the Act, Articles 65 and 69 of the LPG Ordinance

Safety Controller and other personnel		Procedures of notification to the prefectural governor
Officials	Deputies	
Safety Controller	○	Upon appointment or dismissal, without delay (on each occasion)
Safety Technical Manager	★	Notify all the personnel who were appointed and dismissed between August 1 of the previous year and July 31 of the current year, after August 1 of the current year without delay (all at once)
Safety Planning Promoter	★	
Safety Chief	★	
Supervisory Safety Workers	★	

Diagram 8: Procedures for notification of appointment or dismissal of a Safety Controller and other personnel (and the deputies)

(5) Duties of a Safety Controller and other personnel

The duties of a Safety Controller and other personnel are stipulated in Article 32 of the High Pressure Gas Safety Act and Articles 74 and 75 of the LPG Ordinance (Refer to Diagram 7).

(6) Article 66 Participation to the training courses for Safety Planning Promoters, Safety Chiefs and Supervisory Safety Workers

The Safety Planning Promoters, Safety Chiefs, and Supervisory Safety Workers shall acquire the safety information, skills, and knowledge for the prevention of disasters and accidents caused by high pressure gas at all times as a part of their duties. As a way of acquisition thereof, periodical participation in the training courses on the prevention of high pressure gas accidents given by the High Pressure Gas Safety Institute of Japan or a Designated Training Agency is stipulated.

Articles 70 and 72 Safety Management System of Sales Location of High Pressure Gas

A person who engages in sales of LPG shall appoint a Sales Safety Chief from among the holders of the specified certificates (Class 2 Sales Safety Chief Certificates and others), who has experience in production or sales of LPG for a period of 6 months or longer.

Articles 71 and 73 Safety Management System of Specific High Pressure Gas Consumption Plants

Any Specific High Pressure Gas Consumer who consumes LPG shall appoint an Operation Safety Chief among the persons listed below:

1) A holder of the specified certificate (Class C Chemical Safety Management Certificate, etc.);
2) A person with experience of a year or longer in production or consumption of LPG (limited to consumption as a Specific High Pressure Gas Consumer; the same shall apply for 4));
3) A person who has completed the specified training course of the High Pressure Gas Safety Institute of Japan; and
4) A person with specified academic background; provided, however, a person with experience of 6 month or longer in production or consumption of LPG, if he/she is a high school graduate.

2-10. Safety Inspection and Periodical Self Inspection (Chapter X)

Articles 77 to 80 Safety Inspection

Refer to the Overview of the General Ordinance.

Articles 81 and 81-2 Periodical Self Inspection

Refer to the Overview of the General Ordinance.

2-11. Measures Taken to Prevent Disaster (Chapter XI)

Refer to the Overview of the General Ordinance.

2-12. Accreditation, etc., Regarding Completion Inspection and Safety Inspection (Chapter XII)

Refer to the Overview of the General Ordinance.

3. Supplement

3-1. Comparison of Technical Standards for Production Facilities with Stationary Production Equipment (Class 1 Production Equipment)

Outlines of the technical standards	Plants subject to Article 6 (Class 1 Producers, etc.[*1])	Plants subject to Article 13[*3] (Class 2 Producers[*2])
Boundary lines and warning signs (Indication of boundary lines and display of warning signs)	○ (paragraph (1), item (i))	○ (paragraph (1), item (i)) (Article 6 is cited)
Safety setbacks (Ensuring Class 1 Equipment Setback and Class 2 Equipment Setback)	○ (paragraph (1), item (ii))	No provisions
Standards for reduced safety setbacks (Combination of underground storage tank installation, barrier walls, and water spray device)	○ (paragraph (1), item (iii))	No provisions
Designation of storage tanks to be installed underground	○ (paragraph (1), items (iv) and paragraph (3))	No provisions
Standards for underground storage tank installation	○ (paragraph (1), item (v))	No provisions
Standard for partially underground installation of storage tanks	○ (paragraph (1), item (vi))	No provisions
Distance to facilities using fire (Spacing distance, measures to prevent gas flow, etc.)	○ (paragraph (1), item (vii))	○ (paragraph (1), item (i)) (Article 6 is cited)
Spacing between storage tanks (Ensuring enough spacing between LPG storage tanks and flammable gas or oxygen storage tanks)	○ (paragraph (1), item (viii))	No provisions
Measures for identification of LPG storage tanks	○ (paragraph (1), item (ix))	○ (paragraph (1), item (i)) (Article 6 is cited)
Measures to prevent flow of LPG (Dikes, etc.)	○ (paragraph (1), item (x))	No provisions
Restriction on installation of equipment inside and outside of the dikes	○ (paragraph (1), item (xi))	No provisions
Measures to prevent gas build-up (A room where production equipment is installed)	○ (paragraph (1), item (xii))	○ (paragraph (1), item (i)) (Article 6 is cited)
Airtight structure of gas equipment (except for high pressure gas equipment)	○ (paragraph (1), item (xiii))	○ (paragraph (1), item (i)) (Article 6 is cited)
Restrictions on materials to be used for gas equipment	○ (paragraph (1), item (xiv))	No provisions
Foundation of high pressure gas equipment	○ (paragraph (1), item (xv))	No provisions
Subsidence monitoring of storage tanks	○ (paragraph (1), item (xvi))	No provisions
Pressure resistance of high pressure gas equipment	○ (paragraph (1), item (xvii))	○ (paragraph (1), item (i)) (Article 6 is cited)
Airtightness of high pressure gas equipment	○ (paragraph (1), item (xviii))	○ (paragraph (1), item (i)) (Article 6 is cited)
Strength of high pressure gas equipment	○ (paragraph (1), item (xix))	○ (paragraph (1), item (i)) (Article 6 is cited)
Seismic resistant design for high pressure gas equipment	○ (paragraph (1), item (xx))	○ (paragraph (1), item (i)) (Article 6 is cited)
Installation of pressure gauge and safety devices	○ (paragraph (1), item (xxi))	○ (paragraph (1), item (i)) (Article 6 is cited)
Discharge pipes for safety valves, etc.	○ (paragraph (1), item (xxii))	○ (paragraph (1), item (i)) (Article 6 is cited)
Measures to prevent negative pressure on low temperature storage tanks	○ (paragraph (1), item (xxiii))	No provisions
Installation of level gauge on storage tanks	○ (paragraph (1), item (xxiv))	○ (paragraph (1), item (i)) (Article 6 is cited)
Multiple valves for receive and send pipes of storage tanks	○ (paragraph (1), item (xxv))	No provisions
Emergency shutoff device for storage tanks	○ (paragraph (1), item (xxvi))	No provisions

Outlines of the technical standards	Plants subject to Article 6 (Class 1 Producers, etc.[*1])	Plants subject to Article 13[*3] (Class 2 Producers[*2])
Explosion-proof electrical equipment	○ (paragraph (1), item (xxvii))	○ (paragraph (1), item (i)) (Article 6 is cited)
Measures to prevent temperature rise of storage tanks installed above ground and the columns therefor	○ (paragraph (1), item (xxviii))	No provisions
Mandatory installation of LPG leak detection alarms	○ (paragraph (1), item (xxix))	○ (paragraph (1), item (i)) (Article 6 is cited)
Measures to remove static electricity	○ (paragraph (1), item (xxx))	○ (paragraph (1), item (i)) (Article 6 is cited)
Fire prevention and extinguishing equipment	○ (paragraph (1), item (xxxi))	○ (paragraph (1), item (i)) (Article 6 is cited)
Mandatory measures to secure electric power for safety equipment	○ (paragraph (1), item (xxxii))	No provisions
Emergency reporting equipment	○ (paragraph (1), item (xxxiii))	No provisions
Measures to prevent erroneous operation of valves, etc.	○ (paragraph (1), item (xxxiv))	No provisions
Standards for container storage place and filled/empty containers (warning signs, setback for storage place, measures to block direct sunlight, structure that prevents gas build-up, fire extinguishing equipment, etc.)	○ (paragraph (1), item (xxxv))	○ (paragraph (1), item (i)) (Article 6 is cited)
Standards for pipelines[*4] (warning signs, spacing, pressure resistance, airtightness and strength, measures to prevent corrosion or pressure rise, etc.)	○ (paragraph (1), item (xxxvi))	No provisions
Measures to keep safety valves and stop valves open	○ (paragraph (2), item (i), sub-item (a))	No provisions
Limitation on amount of LPG to be filled in a storage tank (Maximum 90% of the internal volume of a storage tank)	○ (paragraph (2), item (i), sub-item (b))	No provisions
Measures to lock the vehicle when transferring LPG to and from a container fixed on the vehicle	○ (paragraph (2), item (i), sub-item (c))	No provisions
Standards for connection and removal of pipes when transferring LPG to and from a container	○ (paragraph (2), item (i), sub-item (d))	No provisions
Methods of heating filled/empty containers when filling containers with LPG	○ (paragraph (2), item (i), sub-item (e))	No provisions
Restrictions on FRP composite containers, etc., to be filled	○ (paragraph (2), item (i), sub-item (f))	○ (paragraph (2), item (v))
Standards for filling high pressure gas	○ (paragraph (2), item (ii))	○ (paragraph (2), item (iv)) (Article 6 is cited)
Standards for aerosol production	○ (paragraph (2), item (iii))	No provisions
Obligation to inspect production facilities before and after use and to conduct operation inspection at least once a day	○ (paragraph (2), item (iv))	No provisions
Standards for repair and cleaning of gas equipment	○ (paragraph (2), item (v))	No provisions
Measures to avoid excessive force on valves when manipulating valves	○ (paragraph (2), item (vi))	No provisions
Standards for container storage place and filled/empty containers	○ (paragraph (2), item (vii))	○ (paragraph (2), item (iv)) (Article 6 is cited)
Restrictions on location for filling LPG	No provisions	○ (paragraph (2), item (i))

*1 Including Class 2 Producers (Only those with processing capacity of 30 m^3/day or greater).
*2 Limited to Class 2 Producers with processing capacity of less than 30 m^3/day.
*3 Limited to the plants that are subject only to the provisions of Article 13, paragraph (1), item (i) and paragraph (2), items (i), (iv), and (v).
*4 Pipelines referred herein are the pipes through which high pressure gas passes that are laid outside of the plant site.