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Electrical and Mechanical Services Department
Gas Authority

GUIDANCE NOTE GU19

SAFETY OF DISPOSABLE LPG CYLINDERS



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Safety of Disposable LPG Cylinders GU19

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Section 1: Foreword and Scope

- 1.1 This document is prepared as a general guideline for disposable cylinders containing liquefied petroleum gas (LPG). LPG is pressurised and stored in liquid form in disposable cylinders for a variety of purposes. These include cartridges for gas appliances such as portable cassette cookers, camping appliances, canisters for LPG lighter refill and industrial uses, etc.
- 1.2 This guidance note does not include the safety requirements which are related to disposable cylinders containing fuel other than LPG which is outside the jurisdiction of the Gas Safety Ordinance, Cap. 51.
- 1.3 LPG is one of the gases falling within the definition of gas under the Gas Safety Ordinance, Cap. 51 and the LPG containers including disposable cylinders are under the control of the Ordinance. Importers, local manufacturers, suppliers and retailers have to comply with all relevant current statutory provisions under the Laws of the Hong Kong Special Administrative Region, with particular reference to the Gas Safety Ordinance, Cap. 51 and the subsidiary regulations, and related statutory provisions under the jurisdiction of other government department(s), such as Fire Services Department, Buildings Department, etc.
- 1.4 This guidance note must be read in conjunction with the relevant manufacturer's instructions and shall not supersede such instructions unless the latter conflict with the statutory provisions.
- 1.5 This guidance note should not be regarded as exhaustive. It is not intended to relieve person from undertaking the work of their statutory responsibilities in accordance with the safety legislations.
- 1.6 This guidance note does not purport to address all of the safety concerns, if any, associated with the safety requirements therein. It should determine the applicability of relevant regulatory

requirements and establish the appropriate safety and health practices prior to the use of this guidance note.

Section 2: Terminology

Container – a bulk tank, mini-tank or cylinder.

Disposable LPG Cylinder – a container which is not constructed or intended to be refilled with liquefied petroleum gas after once containing such gas.

Liquefied Petroleum Gas (LPG) – any gas which is a mixture of –
(a) hydrocarbons primarily consisting butanes, butylenes, propane or propylene; or
(b) all or any of the hydrocarbons referred to in paragraph (a).

Gas Authority – the Gas Standards Office (GasSO), Electrical and Mechanical Services Department, Government of the Hong Kong Special Administrative Region, on behalf of the Gas Authority appointed under section 5 of the Gas Safety Ordinance, Cap. 51.

Gas Supply Company – (for the purpose of this guidance note) a company which as a business –
(a) import; or
(b) manufactures,
disposable LPG cylinders.

Importer – a person who engages in the business of importation of disposable LPG cylinders for use in Hong Kong.

Manufacturer – a maker of disposable LPG cylinders for use in Hong Kong.

Supplier – an organisation in connection with local sale or supply business of disposable LPG cylinders for use in Hong Kong excluding the importer and local manufacturer.

Retailer – a person, shop or business that sells disposable LPG cylinders to the public.

Recognised Certification Authority – means an independent organisation recognised by the Gas Authority which is empowered under law or decree, (e.g. notified body appointed by the Commission of European Communities), to certify that a disposable LPG cylinder is designed and produced in compliance with international or national safety standard(s).

Recognised Safety Standard – an international or national safety design and manufacture standard recognised by the Gas Authority.

Type-test Certificate – a certificate issued by a Recognised Certification Authority to certify that a disposable LPG cylinder filling with LPG equivalent to its retail product state complies with relevant international or national safety standard(s).

Notifiable Gas Installation – a gas installation which is defined under the interpretation of “notifiable gas installation” in section 2 of Gas Safety Ordinance, Cap. 51.

Section 3: Legislative Requirements

3.1 Gas Safety Ordinance, Cap. 51

Gas Safety Ordinance

An Ordinance to control, in the interests of safety, the importation, manufacture, storage, transport, supply and use of gas, and to provide for matters incidental thereto or connected therewith.

3.2 Regulation 3 of the Gas Safety (Registration of Gas Supply Companies) Regulations, Cap. 51E reads:

Only registered gas supply company may carry on business of gas supply company

No person other than a registered gas supply company shall carry on the business of a gas supply company.

3.3 Regulation 7 of the Gas Safety (Gas Supply) Regulations, Cap. 51B reads:

Only approved containers may be used to contain liquefied petroleum gas

(1) Subject to subregulation (2), the owner of a container shall not use the container to contain liquefied petroleum gas unless the container –

(a) has been approved in writing, or is of a type which has been approved in writing, by the Authority for such use; or

(b) is of a type which has been approved under regulation 64 of the Dangerous Goods (General) Regulations (Cap. 295B) for such use and such approval was in force immediately before the commencement of the Ordinance.

(2) Where the Authority is satisfied that a container to which subregulation (1)(a) or (b) applies –

- (a) has shown to be prejudicial to the safety of the members of the public; or
- (b) has, for any other reason (including its supersession by another type of container), ceased to be of a standard of safety acceptable to the Authority,

then the Authority may, by notice in the Gazette, specify a date on and after which the owner of the container shall cease to use the container to contain liquefied petroleum gas.

An importer or a local manufacturer wishing to import or manufacture respectively for sale or supply of a model of disposable LPG cylinder for use in Hong Kong shall apply to the Gas Authority for: (1) type approval of the disposable LPG cylinder and (2) registration as a registered gas supply company before the import or manufacture of the product.

3.4 For the legislative requirements of transportation and storage of disposable LPG cylinders, please refer to Section 7 of this guidance note.

Section 4: Type Approval of Disposable LPG Cylinders

4.1 Requirements:

- (a) A registered gas supply company (RGSC) wishing to supply a new model of disposable LPG cylinder in Hong Kong shall apply to the Gas Authority for type approval in accordance with this guidance note.
- (b) Disposable LPG cylinders should comply with all the requirements specified in a relevant reputable international or national standard which is acceptable to Gas Authority.
- (c) Disposable LPG cylinders should have relevant type-test certificate and full test report issued by an independent recognised testing laboratory showing the full compliance with international or national standard concerned. This testing laboratory or some independent organisations should be responsible for monitoring the quality of the disposable LPG cylinders to ensure that they are maintained at an acceptable standard.
- (d) If there is any change on the design or construction of the disposable LPG cylinder, the RGSC shall be responsible for ensuring the validity of the type-test certificate by obtaining supporting documents by the issuing bodies or renewing the certificate.
- (e) An instruction advising the user on how to operate and maintain the disposable LPG cylinders safely shall be provided. Essential safety information and user instructions in both Chinese and English shall be provided to the users.
- (f) Suitable warnings and instructions shall be durable, legible and clearly printed or affixed onto the cylinder in both Chinese and English.
- (g) The connection of the disposable LPG cylinder to the gas equipment should be fully compatible with each other.

- (h) All disposable LPG cylinders should incorporate with self-sealing valves.
- (i) Proper and safe arrangement on transportation and storage of disposable LPG cylinders in Hong Kong shall be adopted (Refer to Section 7).
- (j) If necessary, factory inspection may be conducted by the Gas Authority to assess the integrity of manufacturer/supplier, the application of quality control measures and the range of testing facilities available in the factories.

4.2 Documents/Material to be Submitted for Type Approval of Disposable LPG Cylinder

- (a) Completed application form (Refer to Appendix 1).
- (b) Technical literature, specification and international/national standard for design and manufacture of the disposable LPG cylinder.
- (c) Relevant type-test certificate and test report issued by an independent recognised testing authority and the formal arrangement for quality control of the production process.
- (d) The composition of LPG in the cylinder and the developed vapour pressure and filling volume of the contents of the cylinder at a reference temperature as specified in the international or national standard.
- (e) Sectional diagrams showing the connection between the disposable LPG cylinder and the gas equipment.
- (f) Sample of warnings and instructions (bilingual) affixed onto the cylinder.
- (g) Sectional diagrams to show the disposable LPG cylinder and its valve design.

- (h) The importer's confirmation and details showing that the requirements in Section 4.1(h) will be satisfied.
- (i) Written details on the proper and safe arrangement on transportation and storage of the disposable LPG cylinders in Hong Kong (Refer to Section 4.1(i)).
- (j) Undertaking by importer to carry out remedial measures when necessary, and collect unclaimed/abandoned disposable LPG cylinder as requested by the Gas Authority.
- (k) Certified true copy of Business Registration Certificate and two samples of the disposable LPG cylinder.

Section 5: Remedial Measures for Unsafe Disposable LPG Cylinders

5.1 General

5.1.1 Where the Gas Authority has reason to believe that a disposable LPG cylinder is shown to be prejudicial to the safety of the members of the public, the Authority may suspend or withdraw the approval of the disposable LPG cylinder. The RGSC, importer, local manufacturer, supplier(s) and retailer(s) shall cease to import, manufacture in Hong Kong, sell or expose for sale, supply or offer to supply the disposable LPG cylinders for use in Hong Kong.

5.1.2 Upon suspension or withdrawal of approval of the disposable LPG cylinder, the Gas Authority would serve on the RGSC a written notice to take reasonable remedial measures in association with its retailer(s).

5.1.3 Apart from remedial measures as directed by the Gas Authority, the RGSC should, in consultation with the Gas Authority, initiate voluntary remedial measures to, as far as reasonably practicable, avoid a safety hazard arising from an unsafe disposable LPG cylinder at his/her own expense.

5.2 Objectives

Remedial measures for unsafe disposable LPG cylinders involve prompt and effective actions to be carried out by the RGSC aiming at:

- (a) Minimising the risk of injury to the public and/or damage to property;
- (b) Complying with statutory provisions; and
- (c) Where appropriate, restoring public confidence in the safety of the disposable LPG cylinders in question.

5.3 Planning

- 5.3.1 The RGSC shall appoint a coordinator who represents the company to liaise with the Gas Authority, media and the public, where necessary.
- 5.3.2 The RGSC shall develop and maintain communication channels with all parties in the supply chain and where possible, customers/end users so as to ensure that prompt and effective actions can be taken where necessary.
- 5.3.3 The RGSC shall maintain necessary information which should include product identification, product supply quantities and locations, customer information where applicable, etc. so as to facilitate the implementation of remedial measures.

5.4 Implementation

- 5.4.1 When the RGSC has reason to believe a disposable LPG cylinder is potentially unsafe, he/she shall immediately investigate the situation and devise appropriate remedial strategies for implementation at his/her expense. The remedial actions shall be implemented in agreement with the Gas Authority.
- 5.4.2 Implementation of remedial measures by the RGSC shall normally consist of:
 - (a) Public notification;
 - (b) Progress monitoring
- 5.4.3 Means of notifying the public will depend on the extent of the problem and the size of population affected, etc. The following means of notification may be considered:
 - (a) Direct notification to relevant parties of supply chain and where appropriate, customers. Notification should contain instructions that the

disposable LPG cylinders must be immediately withdrawn from supply or sale.

- (b) Public announcements through mass media through Chinese and English television and/or radio broadcast and/or newspapers and any other appropriate electronic means to disseminate the remedy message.
- (c) Display of point-of-sale posters/notices at retail outlets, supermarkets, chain stores, department stores and any other places visited by the public as appropriate, where the disposable LPG cylinders has been supplied. Posters/notices should be displayed at strategic conspicuous locations in the premises to arouse wide attention where necessary.

5.4.4 Notification to the public which is made for a sufficient period in a clear and precise manner, shall include all relevant information, for example:

- (a) Description of the disposable LPG cylinders including brand name, model or serial number, if applicable, product identification code, lot number and/or production date, supplemented with photograph or drawing.
- (b) Reason for remedial action, i.e. problem of the disposable LPG cylinders and specific hazard.
- (c) Advice to customers on immediate action to be taken.
- (d) A telephone hotline for enquiries and/or assistance.

5.4.5 Notwithstanding the above and in order to rectify the safety defect of the disposable LPG cylinders, the RGSC shall formulate urgent product recovery strategies. The following options may apply:

- (a) Retrieval of disposable LPG cylinders from sale outlets.
- (b) Withdrawal of disposable LPG cylinders from the production lines, if manufactured and supplied in Hong Kong.

5.4.6 The RGSC shall record all decisions made, actions taken and achievements attained for the purposes of monitoring the progress of remedial action. It is crucial that the product recovery period should be kept to a minimum. This may necessitate stepped up actions to expedite remedial measures, for example reiterating or intensifying notification to the public, highlighting remedial measures, etc.

5.4.7 The RGSC shall analyse and monitor the ongoing progress taking consideration of the set targets and potential risks associated with the outstanding products yet to be remedied. Consultation or assistance may need to be sought from the Recognised Certification Authority or an appropriate independent party to carry out investigation, testing, evaluation, etc. Interim reports and other required information shall be submitted periodically to the Gas Authority for examination.

5.5 Follow-up on Post-remedial Action

5.5.1 Before the remedial action is concluded, the RGSC shall outline, evaluate and review the whole incident, and draw on lessons learnt with respect to identifying the problems, promulgating remedy messages, taking corrective actions, etc. with a view to making recommendations for possible room for improvement in terms of product design, manufacture or transportation, and remedial action procedure per se, etc. as deemed necessary.

5.5.2 If the situation warrants, the RGSC shall collect and

dispose of unsafe or unserviceable disposable LPG cylinders in a secure and proper manner and maintain a record of the disposal.

- 5.5.3 The RGSC shall submit a final report to the Gas Authority. The report should contain analysis of incident, summary of remedial process, results of remedial action taken, evaluation, conclusion and improvement plans. Upon scrutiny of the report, the Gas Authority may require further follow-up on post-remedial action to be taken as deemed necessary in the interests of public safety.
- 5.5.4 The Gas Authority may serve a notice in writing upon the RGSC to suspend the approval of the disposable LPG cylinder at the implementation stage. When the RGSC has confirmed in writing the completion of all measures and post-remedial action and follow-up, if any; and the Gas Authority is fully satisfied that members of the public are not exposed to undue risk, such a suspension will be lifted and the RGSC may then re-market the disposable LPG cylinder.

Section 6: Design and Manufacture of Disposable LPG Cylinders

- 6.1 The design and manufacture of disposable LPG cylinders should comply with relevant international or national safety standards.
- 6.2 In general, disposable LPG cylinders should conform to the following basic requirements.

Design and Manufacture

- (a) The cylinder shall be made of metal and compatible with LPG. It shall be corrosion resistant and heat resistant.
- (b) The dimensions of the cylinder shall comply with the gas appliances designated and relevant international or national safety standard.
- (c) Surface of the contacting part of connections should be smooth for use.
- (d) Airtightness should be maintained after applying the same vibration which can be given during transportation.
- (e) Gas should be extracted in gaseous state from the cylinders at the normal operating condition.
- (f) Measures should have been taken to ensure gas not be discharged after separating the cylinders from gas appliances.
- (g) Measures should have been taken to protect the projecting part of the valve.

Filled Gas

- (a) Gas quantity

The gas quantity in each cylinder should be in compliance with the requirement specified in relevant international or national standards.

- (b) Distinctive Smell

Odorous additive should be added in the gas to ensure that a distinctive smell can be maintained in the gas all the times.

This requirement shall not apply to the supply of gas for use in cigarette lighters.

Indications

The disposable LPG cylinders shall be marked with the following basic information by an indelible method and displayed prominently on the cylinders.

- Manufacturer: Name and Country
- RGSC: name, registration no and contact information
- Type of gas contained
- Year and month of manufacture
- Manufacturing number/lot number
- Type of gas equipment to be used
- Method of use of the disposable LPG cylinder
- Mounting method/preserving method
- EMSD Approval Mark



Warnings and Instructions

Suitable warnings and instructions shall be affixed onto the cylinders in English and Chinese. Wordings may vary accordingly to the products. Samples of warnings and instructions are shown as follows.

Directions 使用指南：

- Follow the **Instructions for Use** supplied with the gas appliance.
遵照氣體用具的指示使用。
- Use and change the disposable LPG cylinder only in well-ventilated area and away from ignition sources.
只可在通風良好及遠離火源的地方使用或更換氣瓶。

Caution 警告:

- Flammable gas under pressure.
壓縮易燃氣體。
- Keep in a cool place (below XX°C), out of the sunlight.
擺放於陰涼處(XX°C以下)並遠離陽光。
- Keep out of reach of children.
擺放在兒童不能觸及的地方。
- Do not inhale contents.
切勿吸入瓶內氣體。
- No smoking while in use.
使用時不可吸煙。
- WARNING: DO NOT REFILL.
警告：不可重新注氣。
- Do not puncture, pierce or burn even when empty.
氣瓶用完後，不得將其刺穿或燃燒。

Others 其他:

- Net weight / volume of LPG ___ g / ___ ml.
石油氣淨重/ 容量 ___ 克 / ___ 毫升。
- Distinctive Smell (Except Lighter Refill)
特有氣味 (打火機氣體除外)
- Use up the LPG before disposal as domestic garbage.
耗盡石油氣後可當一般家居廢物處理。
- Return the unused LPG cylinder to the gas supply company.
未耗盡的石油氣瓶應交回氣體供應公司。

6.3 If the RGSC would like to change the indications, warnings and instructions, cautions or any other wordings or images on the surface of the cylinders, approval from the Gas Authority must be obtained before such changes can be made.

Section 7: Transportation and Storage of Disposable LPG Cylinders

7.1 Transportation

7.1.1 Under the regulation 25(2) of the Gas Safety (Gas Supply) Regulations, no person shall use a motor vehicle to carry on a road (a) any cylinder which has a water capacity of not less than 130 litres; or (b) any combination of cylinders which have a combined water capacity of not less than 130 litres, unless (i) the vehicle is a cylinder wagon; and (ii) there is valid permit issued in respect of the wagon. Therefore, it is required to transport disposable LPG cylinders in bulk with total aggregated water capacity more than 130 litres by a valid motor vehicle and to comply with all relevant gas safety regulations.

7.1.2 There is no statutory requirement specified for transportation of small quantity of disposable LPG cylinders. However, general safety precautions should be adopted to ensure proper and safe transportation.

7.1.3 Transportation of disposable LPG cylinders should also be in compliance with related statutory requirements under the jurisdiction of other government departments.

7.2 Storage

7.2.1 Under the Gas Safety (Gas Supply) Regulations, the aggregate water capacity of LPG from all cylinders should not be over 130 litres inside the storage room. If aggregate water capacity of the LPG from all cylinders exceeds 130 litres, prior approval must be sought from the Gas Authority for construction and use of a notifiable gas installation (NGI) in accordance with regulation 3 of the Gas Safety (Gas Supply) Regulations. The permitted number of stored disposable LPG cylinders may vary according to LPG storage water capacity of each disposable LPG cylinder.

7.2.2 Storage of disposable LPG cylinders should also be in compliance with related statutory requirements under the jurisdiction of other government departments.

Section 8: General Requirements for Registered Gas Supply Company

Registered Gas Supply Company (RGSC) for disposable LPG cylinders shall have the following general duties and obligations:

- (a) General self-regulating duty to ensure, in carrying out on its business as a gas supply company, so far as is reasonably practicable, the health and safety at work of all its employees and to conduct its operations in a safe manner so that members of the public are not exposed to undue risk from gas.
- (b) Obligation to comply with the conditions imposed in granting registration, inter alia, the collection of unclaimed/abandoned disposable LPG cylinder as requested by the Gas Authority and the receipt of unused disposable LPG cylinders returned by the public.

For application for registration, an applicant shall furnish to the Gas Authority the information and particulars as required for the purpose of determining whether registration as a gas supply company should be granted or rejected (Refer to Appendix 2).

Section 9: Gas Safety Tips to Use Disposable LPG Cylinders

As LPG leaked from disposable LPG cylinder may form explosive mixture with air and cause serious injuries if not properly handled, consumer should know some gas safety tips and take safety precautions when using disposable LPG cylinders.

DOs:

- √ Check the disposable LPG cylinder for damage and leak before using
- √ Use only in a well-ventilated area and away from flammable materials
- √ Keep the disposable LPG cylinder in a dry, cool and well-ventilated place
- √ Keep out of reach of children
- √ Follow user instructions printed on the disposable LPG cylinder
- √ Check that there is no smell/sound of gas leaking from the disposable LPG cylinder connection
- √ Where a disposable LPG cylinder is to be scrapped, the LPG in the container should be consumed as far as possible before disposal. If in doubt, the gas supply company should be contacted for assistance.

DON'Ts

- × Refill the disposable LPG cylinder
- × Use disposable LPG cylinders without self-sealing valve
- × Smoke or use the disposable LPG cylinder in a confined area where electrical appliances are in operation
- × Spray on naked flame, fire or incandescent surface
- × Inhale the contents of disposable LPG cylinder
- × Keep the disposable LPG cylinder in an enclosed space, such as inside the car compartment exposed to high temperature of sunlight
- × Puncture or burn the used disposable LPG cylinder

Appendix 1

Application for Type Approval of Disposable LPG Cylinder

The application form could be downloaded from the following website:

https://www.emsd.gov.hk/en/gas_safety/how_to_apply/index.html

Enquiries may be directed to the Gas Standards Office (Tel: 2808 3683, Fax: 2576 5945).

Appendix 2

Application for Registration as a Gas Supply Company

For the application of registration as a gas supply company, please refer to the following website:

https://www.emsd.gov.hk/en/gas_safety/how_to_apply/for_registration_as_a_gas_supply_company/index.html

Enquiries may be directed to the Gas Standards Office (Tel: 2808 3683, Fax: 2576 5945).