

GAS SAFETY Bulletin



In this issue of the *Gas Safety Bulletin*, readers will find feature articles on natural gas development in Hong Kong as well as regular safety checks of LPG cylinder installations. For members of the trade, we also provide information on the safe use and maintenance of gas appliances in commercial kitchens, and explain the causes of glass cracking in domestic gas appliances. We also continue to provide legal knowledge on gas safety and the 2008 statistics on gas incidents and prosecutions by type, for your information.

Our latest commemorative booklet *A Shared Commitment – 30 Years of Gas Safety* has been uploaded to the EMSD website (www.emsd.gov.hk). Trade members are welcome to download it or browse it online. The special publication aims to share with you the highlights of our joint efforts with the gas trade during the past three decades in making Hong Kong one of the world's top cities in gas safety performance. 🇦



Natural Gas Development in Hong Kong

Natural gas is clean and environment-friendly with low emissions, and is closely related to our daily lives. Natural gas is used to produce some of the electricity and town gas in Hong Kong by our three public utilities, namely CLP Power Hong Kong Limited (CLP), Hongkong Electric Company Limited (HK Electric) and The Hong Kong and China Gas Company Limited (Towngas).

CLP began introducing natural gas to generate electricity as early as 1996, with natural gas supplied via a 780-kilometre submarine pipeline from the Yacheng gas field off Hainan Island to the Black Point Power Station. HK Electric began using natural gas to generate electricity in mid-2006. Natural gas is supplied through a 93-kilometre submarine pipeline from the Liquefied Natural Gas (LNG) Receiving Terminal in Guangdong to its Lamma Power Station. Compared to coal, using natural gas to generate electricity reduces significantly the emissions of nitrogen oxides, carbon dioxide, sulphur dioxide and particulates. It is certainly conducive to improving air quality.

The Hong Kong and China Gas Company also began to import natural gas in mid-2006 through a 34-kilometre twin submarine pipeline from the above-mentioned LNG terminal in Guangdong to its Tai Po Gas Production Plant. Natural gas is used to partially replace naphtha as feedstock for town gas production. The use of natural gas not only helps to reduce the emissions of carbon dioxide, sulphur dioxide and nitrogen oxides, but also enables a more stable supply of town gas.



Natural Gas Pipelines in Hong Kong



Gas Receiving Station in Lamma Power Station

The Chief Executive stated in the Policy Address 2008-09 that the Government would "actively explore ways to gradually increase the use of clean energy by, for example, increasing the proportion of natural gas for local electricity generation to 50%" in order to improve air quality. In August 2008, the Hong Kong SAR Government and the Mainland's National Energy Administration signed a Memorandum of Understanding on energy cooperation. It was agreed to conduct a feasibility study on the supply of natural gas to Hong Kong via the Second West-East Natural Gas Pipeline. By now, construction of the eastern section of the Second West-East Natural Gas Pipeline has officially commenced. Relevant enterprises in Hong Kong have been planning for construction of gas pipelines connecting to Hong Kong, with the project expected to be completed by 2013.

As the territory's gas safety regulator in Hong Kong, EMSD keeps a close eye on the natural gas facilities and pipelines. Apart from approving the design and construction of new natural gas facilities, EMSD also monitors the operation and maintenance of existing facilities to ensure compliance with gas safety requirements. 🇦



Regular Safety Checks of LPG Cylinder Installations

Introduction

LPG cylinder installations for general domestic use consist of LPG cylinders, pressure regulators, flexible gas tubing and gas appliances. These are usually supplied to domestic households by registered gas supply companies via gas distributors. Gas distributors are required to arrange safety checks of LPG cylinder installations for their residential customers at least once every 18 months. A residential customer refers to a person who has purchased LPG for domestic use from a gas distributor in the past 12 months. Gas distributors are required to check the gas installations in domestic premises according to the instructions of the respective registered gas supply companies. A sample safety check record of a cylinder gas installation is given in the Code of Practice GU09: Low Pressure Regulators for Supplying Gas from LPG Cylinders Having Less Than 40 Litres Water Capacity. For information, visit http://www.emsd.gov.hk/emsd/e_download/pps/gas/gu09.pdf

Regular Safety Checks to be Conducted by Registered Gas Installers

According to regulation 3 of the Gas Safety (Registration of Gas Installers and Gas Contractors) Regulations (Cap. 51), regular safety checks shall be carried out by registered gas installers employed by registered gas contractors. Registered gas contractors shall keep relevant records of inspection for at least two years.

Storage of LPG Cylinders

Registered gas installers should pay attention to the quantity of LPG cylinders stored when conducting safety checks. According to the Gas Safety Ordinance, unless specific approval is given, storing LPG cylinders (including empty cylinders) with a total nominal water capacity of over 130 litres (approximately 50 kg nominal weight) is prohibited at any time. The following table lists the maximum numbers of cylinders permitted for storage for common models of LPG cylinders for reference.

Nominal LPG Weight (kg)	Permitted No. of Cylinders
2	27
8	6
10.5	5
12 - 13.5	4
15 - 16	3
21 - 22	2
45 - 50	1

To ensure gas safety, LPG cylinders should be stored upright in a well-ventilated and readily accessible location and be kept away from flames. LPG cylinders should not be kept adjacent to or together with flammable materials. Nor should they be used or kept below ground level, adjacent to drains or in basements. Ideally they should be kept distant from trees or plants.

Safety Checks of Pressure Regulators

During a regular safety inspection of a domestic cylinder gas installation, a registered gas installer should carry out the following checks on a pressure regulator:

- (1) Check for any visual signs of impact damage or deterioration;
- (2) Check for soundness using soapy water;
- (3) Check the outlet pressure (by observing whether the flames are normal or by using a pressure gauge); and
- (4) Check if the replacement date (as shown on the pressure regulator) is valid. [Figure 1]



Figure 1

Safety Checks of Flexible Gas Tubing and Gas Appliances

Registered gas installers should check whether the flexible gas tubing is still in good condition and whether it has reached the end of its service life. The flexible gas tubing should be replaced immediately if it has come to the end of its service life or if the expiry date is not clear. [Figure 2]

It should be noted that a flexible gas tubing is potentially hazardous when its service life has expired. If a customer refuses to replace such flexible gas tubing, the gas distributor should stop the supply of LPG to him/her immediately.

In addition, a registered gas installer should, during the safety inspection, check whether a gas appliance is operating properly and whether the flexible gas tubing is too long. Pursuant to regulation 4 of the Gas Safety (Installation and Use) Regulations (Cap. 51), a flexible gas tubing should not be longer than 2 metres.



Figure 2

EMSD APPROVAL 機電工程署批准 GTxxxx EXPIRY 期限 MM/YYYY

Using the Cargo Compartment of a Cylinder Wagon



Pursuant to regulation 41(3) of the Gas Safety (Gas Supply) Regulations, no person shall place any goods in the cargo compartment of a cylinder wagon at any time when there is any cylinder in that compartment. Any person who contravenes the regulation commits an offence.

In the first quarter of this year, the EMSD instituted prosecutions in two reported cases concerning cylinder wagons. In both cases, cylinder wagons were found to be conveying several LPG cylinders and cans

of kerosene in the cargo compartment. A similar case is being listed for hearing.

The cylinder wagon owners in the above two cases were prosecuted for a breach of the above regulation and were fined on conviction. In relation to the above cases, we would like to take this opportunity to urge all cylinder wagon owners, drivers and operators not to place other goods, especially substances capable of causing a fire or explosion, in the cylinder wagon while it is carrying LPG cylinders, as this will cause danger and breach the Gas Safety Ordinance. ⚠

Issuing Permit for Conveyance of LPG Cylinders on Gas Vehicle

Pursuant to regulation 25 (2) of the Gas Safety (Gas Supply) Regulations (Cap. 51), no person shall use a motor vehicle to carry on a road any cylinders which has a water capacity of not less than 130 litres unless there is a valid permit issued in respect of the wagon. In addition, the user of the vehicle must comply with all related gas safety regulations and permit conditions.

To apply for the permit, applicants should submit all necessary documents to the EMSD for verification. The cylinder wagon must also pass an examination. Lastly, the applicant should pay the permit application fee so that the EMSD will issue the permit and label to the applicant (i.e. the owner of the cylinder wagon) according to the Gas Safety (Gas Supply) Regulations.

We would like to take this opportunity to remind all applicants (i.e. owners of cylinder wagons) that the application will be treated as a new application under the following circumstances:

1. The vehicle has never had a cylinder wagon permit before.
2. Change of ownership – The owner of a gas vehicle in respect of which a permit has been issued shall within 7 days thereafter inform the Gas Authority if he/she ceases to be the owner, or the vehicle is abandoned or destroyed. A new application should be made if the vehicle is to be used to carry LPG cylinders at a later stage.
3. Change of Vehicle Registration Licence Number.
4. The owner submits the permit renewal application and arranges for vehicle examination after the permit expiry date.

Finally, if the owner of the vehicle does not hold a valid cylinder wagon permit, he or she should not use the vehicle to carry any LPG cylinders which have a water capacity of not less than 130 litres, otherwise he or she will contravene the Gas Safety (Gas Supply) Regulations. ⚠



Use and Maintain Gas Appliances in Commercial Kitchens Safely

Persons in charge of a commercial kitchen must employ a registered gas contractor to carry out regular maintenance and safety inspections for their gas appliances according to the usage conditions of the appliances or manufacturers' instructions, to ensure that the appliances are in good condition and are safe to operate. As incidents occurred in the past where people were injured as a result of improper operation or lack of maintenance of gas appliances, gas contractors should pay attention to the following while carrying out safety inspections:

1. **Safety Labels**
The gas contractor should check if all gas installations in the kitchen have been affixed with detailed and clear instructions on safe use of gas installations.
2. **Assist in Drawing Up a Maintenance Plan**
Upon completion of work, the gas contractors may consider providing the user with a gas appliance inspection report, so that the user could draw up a systematic maintenance plan based on the information. The gas contractor should also keep the work records for at least two years for future inspection.



While carrying out regular safety inspection of gas appliances, gas contractors should remind gas users to pay attention to the following points on the use of gas appliances:

1. **Main Gas Control Valve**
Before commencement of work, make sure that the gas control valve of the gas appliance has been turned off before turning on the main gas control valve. After completion of work, turn off the gas control valve of the gas appliance before switching off the main gas control valve. The gas user must be clear about the location of the "Emergency Control" to make sure that the gas supply will be cut off at once in the event of an accident.
2. **Ventilation System**
Actuate the supply air and exhaust air systems in the kitchen before using the gas appliance. Make sure that the systems are operating properly and effectively.
3. **Use Gas Appliances Safely**
Use a proper tool to ignite the gas appliance. Light the fire immediately after turning on the main gas control valve of the gas appliance to avoid accumulation of too much gas in the burner. If the flames of the gas appliance are stalled regularly, stop using the appliance immediately. Call the registered contractor concerned for follow up action.
4. **Daily Cleaning**
Clean and maintain the gas appliances regularly so as to prevent the accumulation of excessive stains and food waste on the appliances, which may affect their safe operation. ⚠



Case Study

Why the Glass on Domestic Gas Cooking Appliances Cracks

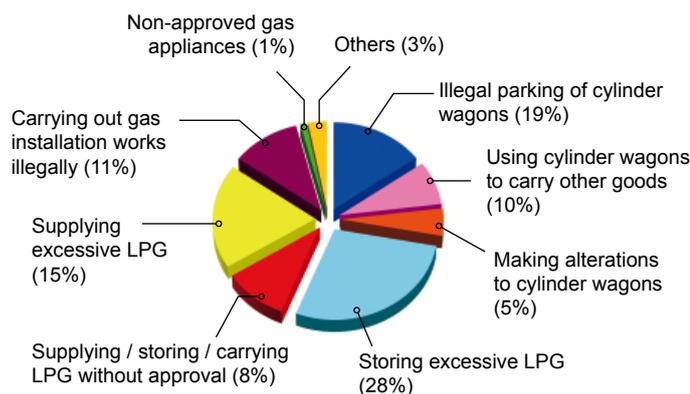
Glass built-in gas cooking appliances have taken a significant share in the market in recent years, with increasing popularity among consumers because they are stylish and easy to clean. However, there have been several recent incidents where the glass-top built-in gas hobs in use suddenly cracked, due to the fact that the daily cleaning and maintenance requirements of a built-in glass hob are higher than those of a metal built-in hob. According to our record, about 40% of gas cooking appliances with GU marks in Hong Kong are glass-top built-in gas hobs. The design of glass-top built-in gas hobs is safe. If used properly according to the manufacturers' manuals, accidents can be avoided.

We have identified four major causes of glass cracking in glass-top built-in gas hobs, listed in the table below, from such incidents we have handled. To prevent cracking of the glass surfaces, registered gas contractors should, during regular safety inspections, remind users to pay attention to the following and take improvement measures accordingly.

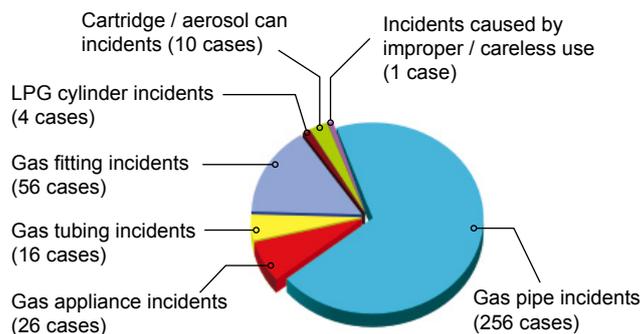


1. Lack of maintenance: The burner holes were severely blocked due to lack of cleaning, thus affecting the normal supply of gas and causing the flames to burn inside the burner. The glass surfaces cracked due to abnormal heating.	1. Clean the burner frequently and remove any stains from the burner according to the instructions in the user manual to keep the burner holes clear. Prevent food from boiling over. In case of a boil over, clean the burner as soon as possible.
2. Using oversized cooking utensils: An oversized utensil was used, so the heat of the flames was reflected to the glass surfaces, causing the glass to crack due to overheating.	2. Do not use oversized utensils for cooking. The appropriate sizes of cooking utensils are specified in most cooking appliance manuals. Contact your agency for enquiries. Do not place any tinfoil cover on the burner, as it will block the gas supply. In addition, do not place too many miscellaneous objects underneath the hob, as they may obstruct heat dissipation.
3. Improper installation: The appliance was not installed according to the instructions in the user manual, causing malfunction of the hob. The glass surfaces cracked because of heating.	3. All gas appliances (including gas cooking appliances) must be installed by registered gas contractors. Read the instructions in the user manual carefully before installation and pay attention to the required distance between the hob and the wall or any surrounding object. Arrange for a registered gas contractor to carry out safety inspection of the gas appliance at least once every 18 months.
4. Hit by hard objects: The glass surfaces were hit by hard objects and cracked.	4. Do not place any heavy objects on the glass surface, or hit it with hard objects.

Prosecutions by Type for LPG-related Cases in 2008



Reportable Gas Incidents by Type in 2008



Clarification

With regard to the section on "Responsibilities of a Registered Gas Contractor" in the article "Requirements for Gas Installations for Catering Purposes in Commercial Premises" in Issue 7 of the *Gas Safety Bulletin*, we would like to make the following supplementary explanation:

"Upon completion of work on gas installations or the mechanical exhaust system of gas appliances, a registered gas contractor should give the manual and user guide of the gas appliances or related installations to the concerned catering establishment or its representative. The registered gas contractor should also keep the work records for at least two years for inspection. To ensure safety, all gas installations, cooking appliances and mechanical exhaust systems of gas appliances should be maintained and inspected at least once a year by registered gas installers of the appropriate classes." 