

GAS SAFETY Bulletin

Message from the Editor

We publish the Gas Safety Bulletin for the purpose of maintaining and strengthening communication with the registered gas contractors and installers and keeping them abreast of the latest technological developments and regulatory issues concerning the trade. Since its publication, the Bulletin has been well received by different sectors. Given this encouraging response, we work even harder to enrich the content of this issue.

In this issue, you will find two feature articles, three news items and some interesting information. We give a special report on the implementation of the mandatory approval scheme for domestic gas appliances with emphasis on

the approval of applications and law enforcement for the reference of trade members.

Thank you very much for your valuable opinion on the first issue of the Gas Safety Bulletin. We hope that you will continue to support this bulletin and offer us your opinion, so that we can maintain close ties with the trade. Let us join hands to attain the target of promoting gas safety in Hong Kong.



Gas Fantasy in Hong Kong Disneyland

The Role of Gaseous Fuels in Producing Special Pyrotechnics Effects

Liquefied petroleum gas (LPG) and town gas are the most common gaseous fuels used in Hong Kong. In our daily lives, cooking, bathing and even the generation of electricity depend on gaseous fuels. In fact, gaseous fuels also play an important role in the production of special effects in films and festivals. In Disneyland which opened in September last year, a mixture of LPG and town gas is used to produce dazzling special pyrotechnics effects.

Jungle River Cruise in Adventureland

On the Jungle River Cruise in Adventureland, the participants travel on a boat in an artificial lake. During the journey, various pyrotechnics effects such as fountains and smoke can be seen on both sides of the lake. When the boat arrives at a rockery resembling a face, the special effects reach a climax—fire columns and balls of several feet high erupt from both sides of the “human face”. Flames also spout out from the “eyes”. Finally, a strange fire basin appears on the water surface in front of the “human face”.



Heat flux measurement

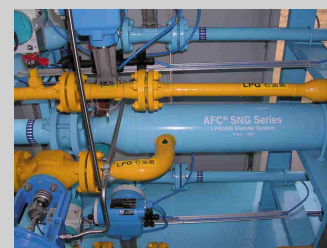
The production of special pyrotechnics effects starts at a gas-mixing station several kilometres from Disneyland. Since the carbon content of town gas is low and the flames are bluish, the visual effect is not satisfactory. Engineers of Disneyland mix town gas and LPG to increase the carbon content of the fuel gas, so that the flames become golden yellow. The gas-mixing station mainly comprises an LPG cylinder store (a notifiable gas installation) and a gas-mixing room. The LPG content of the mixture is monitored by sensors strictly and is controlled by gas valves, so that it is maintained at around 8%.

The mixture, whose pressure is 65 kPa, is transmitted to the gas control room at the Jungle River Cruise site via an underground pipeline. The gas control room has numerous sensors to detect the gas combustion threshold in the atmosphere. If the concentration of gas exceeds the safe level (i.e. a gas leak occurs), the gas supply will be cut off immediately. Metal boxes enclosing all regulators and related installations offer certain mechanical protection.

The gas mixture, whose pressure is reduced by regulators to various extents, is then transmitted to the main burners specially made for special pyrotechnics effects. All main burners for special pyrotechnics effects are ignited by pilot burners which burn continuously to ensure that the mixture is successfully ignited but will not disperse to the boats nearby and endanger the participants. All pilot burners are protected properly, so that they can operate safely even in harsh conditions.

Other Safety Considerations

Every boat is equipped with a remote control. In emergency situations, the controller of a boat can



Gas-mixing Station



Main burner specially made for special pyrotechnics effects

stop all special pyrotechnics effects with the remote control to protect the passengers. In addition to the effective prevention of a gas leak, the thermal flux produced by pyrotechnics to which passengers are exposed is tested repeatedly and conforms to relevant international safety standards. Moreover, boats are at a safe distance from pyrotechnics to prevent the passengers from suffering from the flames.

Conclusion

These amazing pyrotechnics effects owe much to the cooperation between law enforcement agencies, gas suppliers and installation owners who provide professional services and design and construct various safety installations for the protection of passengers.

Safe Use of Enclosed Type of Gas-fired Meat Roaster

Two recent explosions of gas-fired meat roasters resulted in loss of property and bodily injuries. According to our investigation, a lack of gas safety awareness and the improper maintenance of the meat roasters are the causes of both accidents. In order to protect users, there are certain aspects we have to note regarding the installation and maintenance of gas-fired meat roasters.


According to the Gas Safety Ordinance (Cap. 51), gas-fired meat roasters must be installed by registered gas installers employed by registered gas contractors. The places of installation must be well-ventilated.

The gas supply system of a meat roaster should interlock with a mechanical ventilation system. This ensures that the mechanical ventilation system of a workshop is always switched on when gas is supplied to the meat roaster. Each meat roaster must be equipped with a separate emergency valve, so that gas supply can be cut off in emergency situations.

Meat roasters must be maintained, cleaned and tested by registered gas contractors at least once a year. They must:

1. be equipped with flame failure devices, which can cut off the gas supply to the main burners within 75 seconds after the pilot flames have been extinguished, to avoid the accumulation of gas in case of a gas leak;
2. have movable top opening vents with minimum air gaps of 25 mm to maintain sufficient ventilation during roasting;
3. have holders at the bottom for brick stones to prevent oil / fat from choking the burners;
4. have oil drain pans full of water and keep the drain pipes and overflow pipes free from blockage;
5. have electronic ignition devices or ignition rods and must not use other ignition means (such as ignition by lighters or burning paper);
6. not have ignition rods whose flexible tubing exceeds 1 m in length;
7. have burners and flame failure devices which are cleaned regularly to ensure that all gas supply holes are not blocked by dirt.

For detailed technical requirements, please refer to the Provisional Safety Guideline on Enclosed Type of Gas-fired Meat Roaster prepared by the EMSD. It can be downloaded at our web site.

In view of the risks involved in the operation of gas-fired meat roasters, registered gas contractors and gas suppliers should provide clients with professional advice as early as possible, arrange for inspections and maintenance, and give users appropriate operation and cleaning guidelines to prevent accidents. 



Gas Fire Meat Roaster

Approval Scheme for Domestic Gas Appliances

Since 2000, we have implemented the Approval Scheme for Domestic Gas Appliances ("The Scheme" under the Code of Practice GU05 in two phases: the voluntary approval phase between 2000 and 2002 and the mandatory approval phase from 2003. Up to the end of 2005, 925 models were approved, and 166 of them were those for which no applications for renewal of approval were submitted after the lapse of the five-year type approval.


Moreover, the following irregularities were sometimes found in the applications submitted by importers of gas appliances, which would result in a delay in the processing of applications:

1. Certificates expired (including certificates for product safety standard and production process quality system issued by Recognized Certification Authorities);
2. Information in installation manuals or operational manuals was unclear or incomplete;
3. Importers' manuals of remedial measures did not give clear information on contact methods;
4. Information on certain components of gas appliances (e.g. toughened glass top panels of built-in cooking appliances, town gas pressure regulators, etc.) was insufficient

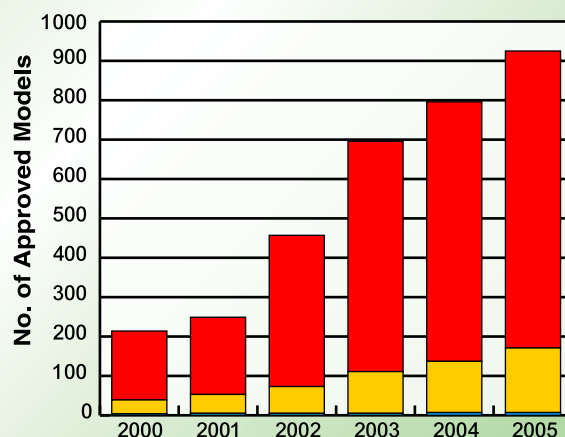
We have formed a liaison group with the representatives of the major importers of gas appliances. Meetings are held at a half-yearly interval to discuss the coordination of the implementation of the Code of Practice GU05 and the streamlining of the approval procedures. Summing up the experience in implementing the Scheme over the past six years, we consider that the Scheme has played an important role in enhancing the quality of gas appliances and raising the professional standard of the gas industry.



Domestic Gas Appliance

We are glad to learn that since the implementation of the Scheme, the number of accidents involving domestic gas appliances has dropped significantly, indicating that the Scheme has greatly helped raise the level of gas safety. Such success can be, of course, attributed to the efforts and support of the gas industry. We have uploaded a list of approved domestic gas appliances on our home page. Members of the industry are welcome to browse the list, which is updated on a monthly basis, to ascertain if the products on the market have been approved and to report to us any irregularities identified so that we can take follow-up action accordingly. 

Approval of Domestic Gas Appliances (from 2000 to 2005)



Year	2000	2001	2002	2003	2004	2005
Cooking Appliances	175	196	384	585	659	754
Water Heaters	35	48	63	105	130	164
Miscellaneous	4	5	5	5	7	7

Case Sharing

“GU” means Gas Utilisation. The GU Mark not only helps the public and gas installers to identify approved gas models of domestic gas appliances but also, more importantly, signifies that such models have been produced in accordance with recognised international safety standards and local requirements e.g. provision of flame failure device, etc., and are subject to local quality assurance checks in Hong Kong laboratories. The Mandatory Approval Scheme for Domestic Gas Appliances was formally launched on 1 January 2003. You may wish to know how we have enforced the new regulation. According to our case record, early last year, we uncovered three cases involving domestic gas appliances which have not been approved by the Gas Authority for importation. Let's share with you these cases.

(1) The first case was reported by a member of the public in January 2005. We found that a number of non-approved LPG cassette cookers were being used in a restaurant in Ngau Tau Kok. After further investigation and tracing of the product source, it was found that hundreds of LPG cassette cookers of the same model were imported in the second half of 2004.

(2) The second case relating to a model of LPG cassette cooker was uncovered in February 2005. During a routine inspection in Sai Kung, we found that a non-approved model of LPG cassette cooker was being sold in a shop. After further investigation and tracing of the product source, it was found that about 2,000 LPG cassette cookers of the same model were imported in the second half of 2004.

(3) The third case was reported by a member of the public in December 2005. During a routine inspection, we found that a number of non-approved model of Towngas hotplates were installed in a building under renovation. After further investigation and tracing of the product source, it was found that hundreds of Towngas hotplates of the same model were imported in the mid of 2004.

The importers concerned were prosecuted for contravening regulation 3B(1)(a) of the Gas Safety (Miscellaneous) Regulations, Cap. 51 and were fined on conviction from \$5,000 to \$10,000. The importers had arranged to recall the LPG cassette cookers involved. During our subsequent routine inspections of the shops, no cassette cookers

mentioned above have been found for sale in Hong Kong.

If you have doubts as to whether certain domestic gas appliances have been approved, please visit our home page at [http://www.gas.gov.hk](#) to check the list of approved gas appliances which is updated regularly or call us at 1823. Furthermore, if you suspect that someone sells or uses non-approved domestic gas appliances, please report to us immediately. Any person who contravenes regulation 3B(1)(a) of the Gas Safety (Miscellaneous) Regulations, Cap. 51 (i.e. the importation of non-approved domestic gas appliances for use in Hong Kong after 1 January 2003) will be liable on conviction to a fine at level 6 (\$100,000) and imprisonment for 12 months. ⚠



Gas safety inspector inspected gas appliances at various retail outlets.

Legal Knowledge

According to section 14 of the Gas Safety Ordinance concerning the requirement for “obtaining of information by the Authority”, the Authority may serve on any registered person, owner of a gas installation or owner of a gas vehicle a notice requiring such person or owner to furnish such information about such matters as are specified in the notice (refer to the last issue of the Gas Safety Bulletin for the requirement for “service of notices”) to facilitate our investigation. Any person who, without reasonable excuse, fails to provide any information specified in a notice issued under section 14 is liable on conviction to a fine of \$10,000 and, in the case of a continuing offence, to a daily penalty of \$1,000.

In fact, you can rest assured that in accordance with section 15 of the Gas Safety Ordinance, except in the exercise of a function under this Ordinance or in carrying a provision of this Ordinance into effect, we shall preserve secrecy with regard to any information coming to our knowledge and shall not communicate any such information to any other person. Therefore, please cooperate with us in the provision of such information. ⚠

Training News

The Gas Industry Training Centre under the Vocational Training Council is at present the major training provider for the trade. Each year, the centre organizes many part-time evening courses to assist trade members to obtain licences. These courses cover the installation and maintenance of industrial, commercial and domestic gas appliances. Places of the courses are available on a first come first served basis. Please call the centre for more information on these courses.

The centre also organises basic craft courses for young people who have completed secondary 3 or secondary 5 education. After receiving practical training for one year, these young people could become apprentices and join the trade! If you are interested in employing them, please call Miss Wong of the Gas Industry Training Centre on 2449 1334 in June every year. ⚠



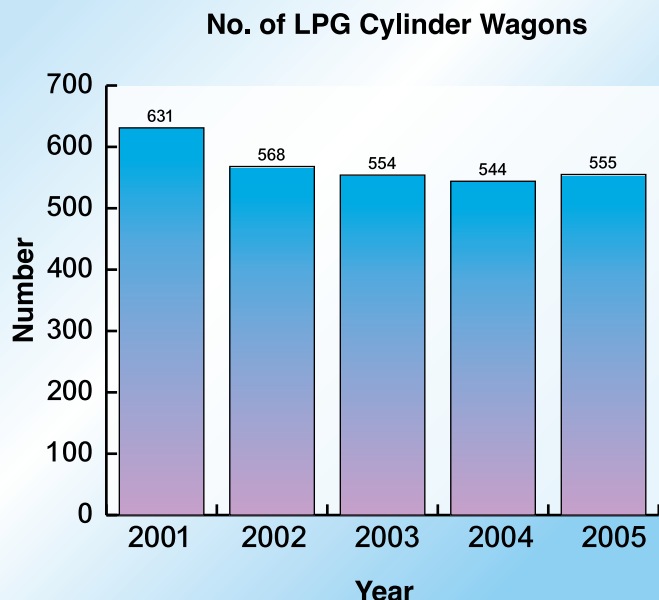
Gas Statistics LPG Cylinder Wagons

Many of our readers are registered gas contractors who transport LPG cylinders with LPG cylinder wagons. But do you know how many LPG cylinder wagons are there in Hong Kong? ⚠



Cylinder wagon

Up to the end of 2005, there are more than 550 LPG cylinder wagons in Hong Kong. The number of LPG cylinder wagons in recent years is as follows:



Gas Safety Quiz

Please answer the following questions and send your answers together with your contact information (either telephone number, address, fax number and e-mail address) to us by fax or by e-mail (Please state "Gas Safety Bulletin - Gas Safety Quiz"). A souvenir will be given to the first 50 respondents* who submit correct answers to all questions.

- Which of the following mixture of gas is utilised in producing special pyrotechnics effects for the Jungle River Cruise of Hong Kong Disneyland?
 - Carbon dioxide and LPG
 - LPG and town gas
 - Town gas and carbon monoxide
 - Carbon dioxide and carbon monoxide
- What is the maximum length of the flexible tubing of the ignition rod of an enclosed type of gas-fired meat roaster?
 - Not exceeding 1 m
 - 2 m
 - 5 m
 - 10 m
- When did the voluntary approval phase of the "Approval Scheme for Domestic Gas Appliances" mentioned in Code of Practice GU 05 start?
 - 2002
 - 2005
 - 2000
 - 2004
- Where can the English version of the Gas Safety Bulletin be found?
 - The web site of the EMSD
 - No English version
 - The Customer Services Office of the EMSD
 - The Gas Industry Training Centre of the Vocational Training Council

* Only the first 50 respondents answering all questions correctly will be notified.

How to Contact Us

Many readers sent us letters in response to this "How to Contact Us" column. Most of them wanted to update their personal particulars. Some sought advice on technical issues. A few of them gave us valuable opinions. Some of the questions asked by the readers and our responses are published below for your information.

- What is the service life of the stainless steel braided flexible gas tubing manufactured before 2005?

For the service life of flexible gas tubing made of rubber (including stainless steel braided flexible gas tubing) manufactured before 2005, one may refer to the recommendation of the importer based on the design service life of the tubing as proposed by the manufacturer. Before 2005, approval was given for the sale or supply of three models of stainless steel braided flexible gas tubing for use in Hong Kong. For two of the models, their production lines have been shifted from Australia to France. The third one is produced in Taiwan. As far as we know, the former are designed to have a service life of 10 years, while the latter is designed to have a service life of 3 years. There has been no change in this regard before and after 2005. When we approved these three models in accordance with GU01 in late 2004, their

design service lives as mentioned above were accepted. For details, please contact the importers direct.

- Does the Gas Safety Bulletin have an English version?

Yes. The English version of the Gas Safety Bulletin can be downloaded from the homepage of this department.

If you have any enquiries or comments, please forward them to us by fax or e-mail (Please state "Gas Safety Bulletin - enquiries or comments" with your contact information (either telephone no., address, fax no. or e-mail address)). We will follow them up and give you a reply.

Fax no.: 2576 5945

E-mail address: ecard@emsd.gov.hk



Contact Information

Name: _____ RGI No.: _____

Employer (RGC): _____ Contact Tel. No.: _____

Address: _____

Gas Safety Quiz 1) a b c d 2) a b c d 3) a b c d 4) a b c d (circle the correct answer)

Gas Authority  EMSD

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