

# GAS SAFETY Bulletin

## Message from the Editor

incidents and prosecutions by type from January to October 2009.

To further enhance service quality, we began from 21 September 2009 to acknowledge receipt of applications for registration as a gas installer or applications for change of class of registration by sending SMS messages to those applicants who had given their prior consent, for their immediate notification. At the same time, acknowledgement receipts will no longer be sent to the applicants by post. Moreover, our web page "Safety Tips to Gas Users" has also been updated and enriched on a continuous basis since August 2009. Members of the trade are welcome to browse it online. The leaflet "Use the Approved Low Pressure Flexible Gas Tubing for Connection to Gas Cooking Appliances" was also revised in October 2009 and uploaded to the EMSD website for public access.

Last but not least, we would like to remind all registered gas installers and registered gas contractors that pursuant to regulations 11 and 24 of the Gas Safety (Registration of Gas Installers and Gas Contractors) Regulations (Cap. 51), where any registered gas installer/registered gas contractor changes his name, or address for service by post specified in his application, subsequent to his registration as a gas installer/gas contractor, he shall give written notification to the Gas Authority of such change not later than 21 days after such change takes place. Any registered gas installer/registered gas contractor who fails to do so commits an offence. 🔥

## The Fuel System of LPG Vehicles

In the 1999 Policy Address, the Government announced the implementation of a Liquefied Petroleum Gas (LPG) Vehicle Scheme to assist, in the form of grants, diesel taxi owners to switch to LPG vehicles, in order to reduce emissions from local vehicles and to alleviate the air pollution problem in Hong Kong. The Government subsequently introduced a similar incentive scheme to encourage public and private light bus owners to replace their vehicles with ones that run on LPG. At present, about 18,000 taxis and 3,000 light buses are LPG-fuelled.

### New Fuel Injection System

A new model of LPG taxis was officially introduced to Hong Kong this year. It features a newly designed LPG engine, LPG fuel tank and fuel injection system. Currently, the fuel system of ordinary LPG engines consists of a carburettor and a vapouriser (please refer to Figure 1). The new LPG engine applies multi-port fuel injection technology, computerised fuel management and an electronic closed loop feedback control system (please refer to Figure 2). The injection of LPG into the inlet manifold is adjusted by the electronic closed loop feedback control system based on the instant signal generated by the air/fuel ratio sensor, thus enabling the engine to operate at the optimal air/fuel ratio. When LPG is vaporised in the inlet manifold, the surrounding air is drastically cooled down. The density of air entering the engine increases as a result of the cool down, which in turn increases the output power of the engine. This engine control technology can keep the emission levels to a minimum. Furthermore, the inherent clean burning characteristics of LPG makes it possible for the new model of LPG taxis to produce nearly zero particulate emissions and helps improve the air quality.

### Fuel Injection System Maintenance Courses

To enhance the skills of competent persons qualified to maintain LPG vehicles in the purging of LPG fuel injection system, the Department of Automotive Engineering of the Hong Kong Institute of Vocational Education (Lee Wai Lee) and the Automobile Industry Training Centre offered a course on LPG engine fuel injection system maintenance in September 2009. Moreover, those interested in pursuing a career in LPG vehicle servicing may enrol in a new course "LPG Vehicle Servicing" organised by the Automobile Industry

In this issue of the Gas Safety Bulletin, readers will find feature articles on "The Fuel System of LPG Vehicles" and "Lighter Safety Regulations and Proper Use". Other topics include "Gas Installations in Hot pot Restaurants" and "Use Gas Appliances Safely for a Safe Home". We have also continued to provide you with legal knowledge on gas safety, as well as statistics on gas

Training Centre in November 2009. The above-mentioned new fuel injection system will be covered in the course. Holders of the LPG Vehicle Servicing certificate who possess three years' work experience in vehicle servicing may apply to EMSD for registration as a competent person for the maintenance of LPG vehicles.

### Way Forward

The Government has identified in this year's Budget the promotion of electric vehicles (EVs) as one of the key measures to promote a green economy. With the maturity of electric vehicle technology, the Government will continue to promote the use of EVs and set up charging network. Wider use of EVs can help improve air quality, reduce greenhouse gas emissions and combat global climate change. 🌱

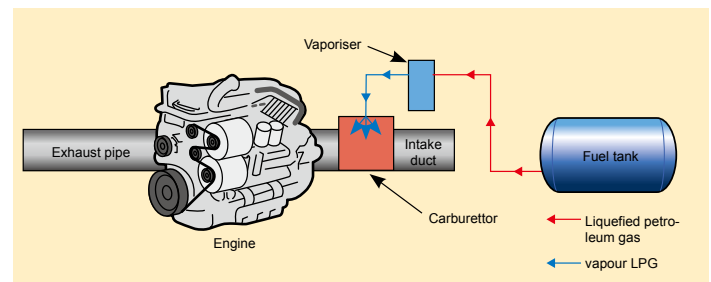


Figure 1 The carburettor and vaporiser system

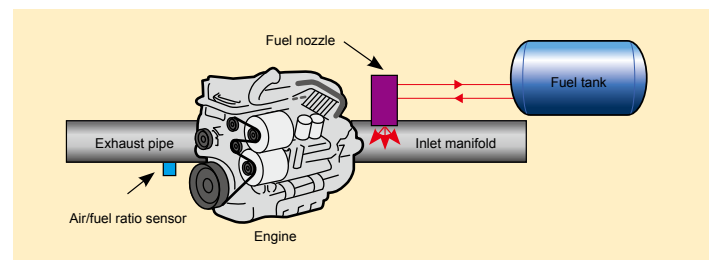


Figure 2 Fuel injection system

# Lighter Safety Regulations and Proper Use



**L**ighters are used from time to time as ignition tools in our daily lives, for lighting cigarettes or other purposes.


As the fuels for most lighters contain liquefied butane gas (LPG), lighters must be produced in accordance with national or international safety standards adopted in the relevant country of origin. Pursuant to the Gas Safety Ordinance (Cap. 51), EMSD is responsible for monitoring the gas safety of the products concerned. The Ordinance also regulates the importation, storage and transport of disposable cylinders containing LPG.

EMSD regulates safety matters of imported lighters. Any importer who contravenes regulation 3 of the Gas Safety (Registration of Gas Supply Companies) Regulations commits an offence and is liable to a maximum fine of \$25,000 and, in the case of a continuing offence, to a daily penalty of \$2,000.

When lighters with a total water capacity of over 130 litres are to be transported, a tractor and trailer with a valid permit approved by the Gas Authority must be used. Any person who fails to comply with this requirement contravenes regulation 25(2) of the Gas Safety (Gas Supply) Regulations and is liable on conviction to a maximum fine of \$25,000 and to imprisonment for 6 months and, in the case of a continuing offence, to a daily penalty of \$2,000.

When a large quantity of lighters, with a total water capacity of more than 130 litres, is to be stored in a retail shop, prior use and construction approval shall be obtained from the Gas Authority. Any person who fails to comply with this requirement contravenes regulation 3(1)

of the Gas Safety (Gas Supply) Regulations and is liable on conviction to a maximum fine of \$25,000 and to imprisonment for 6 months and, in the case of a continuing offence, to a daily penalty of \$2,000.

As the LPG in lighters is inflammable, members of the public should take extra care when using lighters to ensure gas safety. Improper use of lighters may lead to burning or explosion. For points to note when using lighters, please visit the EMSD web page at [http://www.emsd.gov.hk/emsd/chi/pps/gas\\_use\\_lghtr.shtml](http://www.emsd.gov.hk/emsd/chi/pps/gas_use_lghtr.shtml). 

## Gas Installations in Hot-pot Restaurants

**O**perators of hot-pot restaurants in Hong Kong that use gas for cooking should be aware of gas safety precautions and comply with the relevant legislation.

### Choosing Gas Appliances


From 1 January 2003, all domestic gas appliances supplied and sold in Hong Kong must be approved by EMSD, and all approved domestic gas appliances bear the GU mark. Restaurant operators should purchase hot-pot gas appliances with the GU mark to ensure safety. Appliances with the GU mark are equipped with flame failure devices. When flames are no longer detected in the gas appliance, the gas supply of the installation will be cut off to prevent gas leak.

### Use Gas Appliances Safely

Restaurant operators must follow instructions in the manuals of the hot-pot gas appliances. They should not use two cassette cookers in parallel or any non-approved accessories. When placing LPG cylinders in or removing them from the cassette cookers, keep the cylinders away from the flame. They should not leave cassette cookers switched on unattended. When inadequate ventilation, gas leak or equipment damage is suspected, operators should stop using

the gas appliance immediately and arrange for a registered gas contractor to conduct an inspection.

### Inspect and Maintain Gas Installations

To ensure safety, restaurant operators are advised to arrange for registered gas contractors to conduct gas safety checks / repairs at least once every 12 months. All installation and replacement works must be carried out by registered gas installers employed by registered gas contractors. All gas installation manuals, user guides and safety inspection records and records of works made in the past two years must be kept for future reference. 




## Gas Installation Work Must Be Carried Out By Gas Installers Employed By Registered Gas Contractors


Pursuant to regulation 3(1) of the Gas Safety (Registration of Gas Installers and Gas Contractors) Regulations, in general, only gas installers employed by registered gas contractors can personally carry out gas installation work. Moreover, no registered gas installer may personally carry out any gas installation work of a class in respect of which he is not registered. Any person who contravenes this regulation commits an offence and is liable on conviction to a fine of \$25,000 and to imprisonment for 6 months.

“Gas Installation Work” includes the fabrication, connection, disconnection, testing, commissioning, decommissioning, maintenance, repair or replacement of gas pipework, appliances and fitting. For example:

- installation of gas appliances (e.g. gas cookers and water heaters)
- replacement of flexible gas tubing
- repair of gas appliances

Since the beginning of this year, EMSD has instituted two prosecutions for the contravention of the above-mentioned Regulations. All offenders involved were convicted and fined by the court. One of the cases also involved the illegal modification of a gas appliance. Someone modified a gas appliance which was originally used with LPG so that it could be used with town gas. It should be noted that an illegally modified gas appliance may no longer meet its original specifications which have been approved by EMSD. The use of such a gas appliance may endanger lives or property. The user and the person who has illegally modified the gas appliance will be prosecuted for contravening the relevant gas safety legislation. 

### Case Sharing


Since the beginning of this year, EMSD has instituted two prosecutions for the contravention of the above-mentioned Regulations. All offenders involved were convicted and fined by the court. One of the cases also involved the illegal modification of a gas appliance. Someone modified a gas appliance which was originally used with LPG so that it could be used with town gas. It should be noted that an illegally modified gas appliance may no longer meet its original specifications which have been approved by EMSD. The use of such a gas appliance may endanger lives or property. The user and the person who has illegally modified the gas appliance will be prosecuted for contravening the relevant gas safety legislation. 

## Contravening Gas Vehicle Permit Conditions

A case was reported recently that involved a gas vehicle owner who contravened the Gas Safety Ordinance by failing to comply with the conditions of a gas vehicle permit. The owner was convicted and fined.

The cylinder wagon in the case was found to be carrying LPG cylinders with aggregated nominal water capacity of more than 130 litres and several barrels of kerosene at the same time. The wagon was also parked unattended at a location which was less than 15 metres away from domestic premises, which contravened the conditions of the gas vehicle permit.

Regulation 28(3) of the Gas Safety (Gas Supply) Regulations (Cap 51B) stipulates that “no person shall use a gas vehicle in contravention of any condition specified in the permit issued in respect of the vehicle”. The offender is liable on conviction to a fine of \$5,000.

To ensure gas safety, EMSD urges the owners or operators of gas vehicles to comply with the conditions specified in the permit when they use the gas vehicles. For example, they must make sure that the cylinder wagon is not used to convey LPG and other goods of any description at the same time. Moreover, when cylinder wagons laden with LPG cylinders and not engaged in delivery and collection work are in districts where designated parking sites for cylinder wagons are available, they shall only be parked in those sites. In districts where designated parking sites for cylinder wagons are not available, cylinder wagons may be parked outdoors and unattended in a location which is not densely populated or congested with traffic, and which is at least 15 metres away from any buildings used for assembly, institutional or multiple residential occupancy. 

## Flueless Gas Water Heaters / Open-Flued (Fanned Draught) Gas Water Heaters


Flueless gas water heaters that serve bathrooms or showers are dangerous installations. When the flueless gas water heater is in use, indoor air will be consumed for combustion and the combustion products which contain toxic carbon monoxide are discharged back indoors. They may build up to a dangerous level if ventilation is inadequate. Pursuant to regulation 35 of the Gas Safety (Installation and Use) Regulations (Cap. 51C), no person shall use a flueless gas water heater to serve a bathroom or shower. Offenders are liable on conviction to a fine of \$5,000.

Flueless (sink) gas water heaters installed before 1 April 2000 for kitchen sink use are allowed to be used provided that they are not used for more than 5 minutes and adequate ventilation is provided. The flueless gas water heaters shall not be replaced by flueless gas water heaters of other models.

Pursuant to regulation 27 of the Gas Safety (Installation and Use) Regulations (Cap. 51C), all newly-installed gas water heaters that serve a bathroom must be room-sealed gas water heaters, which do not consume indoor air for combustion and combustion products are discharged outside. Open-flued (fanned

draught) gas water heaters may only be installed to replace the same type of heaters which were installed before 1 January 1994. Offenders will be liable on conviction to a fine of \$10,000 and to imprisonment for 3 months.

In addition, pursuant to regulation 3B of the Gas Safety (Miscellaneous) Regulations (Cap. 51F), all domestic gas water heaters imported to supply for use in Hong Kong after 1 January 2003 must be approved by the Gas Authority of EMSD and bear the GU mark for identification. Such gas appliances are equipped with flame failure devices to ensure no leakage of unignited gas in the absence of flames.

For installation requirements of domestic gas water heaters in Hong Kong, please refer to Code of Practice GU 03 - Installation Requirements for Domestic Gas Water Heaters prepared by the Gas Authority. The Code of Practice provides guidelines for importers and suppliers of gas appliances, registered gas contractors and registered gas installers. 



### Legal Knowledge

Do You Know?

# Use Gas Appliances Safely

## for a Safe Home

**G**as cooking appliances are used as cookers by most families in Hong Kong. Proper use and maintenance of these gas appliances will enable us to have a safe home.

Last year, a newspaper advertisement promoted a new product "energy saving wire mesh" claiming that it could reduce the fuel consumption cost of a gas cooking appliance by 30%. Such energy saving wire mesh, when being placed underneath the stove trivet, could allegedly speed up the cooking and save fuel.


According to tests conducted by EMSD, the use of such energy saving wire meshes can make the burner flames turning yellow and increase the emission of carbon monoxide by more than 40 times in just a few minutes. This is like burning coal in our house and can be very dangerous. The public are appealed to stop using such energy saving wire meshes. The Customs and Excise Department has also taken action to prohibit the sale of such products in the market.

Please note that according to the Gas Safety (Installation and Use) Regulations, no person shall do anything which would affect a gas fitting in such a manner that the subsequent use of such fitting constitutes a danger to any person or property.

EMSD reminds gas users that if they intend to use domestic gas cooking appliances, they must buy those gas cooking appliances which are approved by EMSD and bear the "GU" mark. They must also read and understand the user manuals provided by the manufacturers of the cooking appliances and pay attention to the following salient points before installing and using domestic gas cooking appliances:

- Use of genuine parts supplied by the gas appliance manufacturers.
- Do not place objects such as an "energy saving wire mesh", tinfoil covering, trivet, etc. over the burner, as this may block the burning of gases.
- Make sure that there is adequate ventilation in the kitchen, e.g. open the window or turn on the exhaust fan.
- Follow the instructions given in the user manuals provided by the manufacturers of the cooking appliances and use cooking ware of a suitable diameter.
- Check if there is any smell of gas when lighting the flame and, if so, disperse the gas before lighting the flame again.
- Remove the grease from the burner and the trivet regularly so as to keep the burner holes unblocked, and in case of a boil over, clean the burner as soon as possible.

Lastly, domestic gas users should arrange for a Registered Gas Installer employed by a Registered Gas Contractor to conduct safety checks on all gas appliances at least once every 18 months. If it is found that a gas appliance does not operate normally, stop using it and arrange for repair immediately to ensure safety.

For enquiries, the public are welcome to visit the EMSD home page at <http://www.emsd.gov.hk> and call the Citizen's Easy Link 1823. 



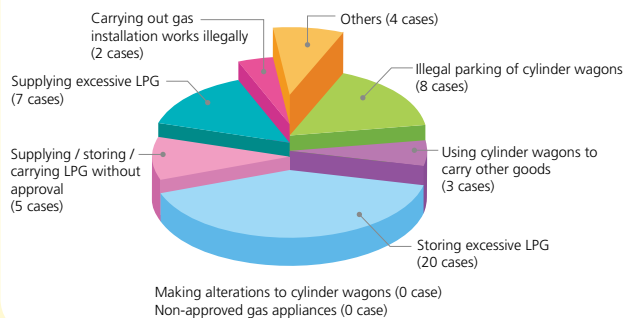
Using "energy saving wire mesh" will increase the emission of carbon monoxide.



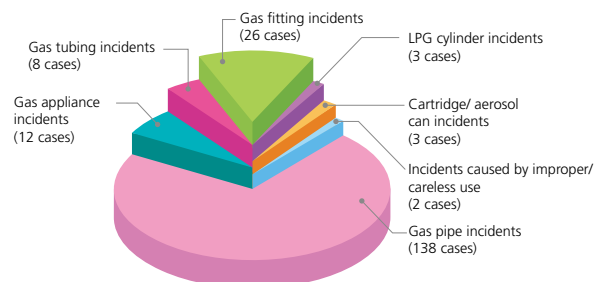
When "energy saving wire mesh" is used, the burner flames turn yellow.

### Gas Statistics

#### Prosecutions by Type for LPG-related Cases from January to October 2009



#### Reportable Gas Incidents by Type from January to October 2009



Gas Authority  EMSD

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