

GAS SAFETY

Bulletin ISSUE 39

June 2025



Extracting Hydrogen
from Town Gas

01.
Feature

02.
Case
Study

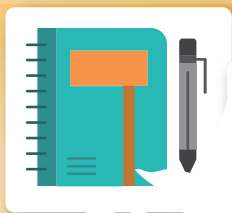
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機電工程署
EMSD





Message from the Editor



Hello everyone! As the Government actively promotes the application of hydrogen energy, this issue of Gas Safety Bulletin features the relationship between town gas and hydrogen, providing an overview of the technology used to extract hydrogen from town gas in Hong Kong. In addition, we will explain the statutory duties of registered gas supply companies (RGSCs), and highlight key considerations for the proper disposal of unwanted liquefied petroleum gas (LPG) vehicle fuel tanks.

To enhance public awareness of gas safety, the Electrical and Mechanical Services Department (EMSD) is committed to promoting the GU mark through various channels, reminding citizens to purchase EMSD-approved gas cooking appliances. We will share the highlights of the publicity activities in this issue.

Furthermore, this issue covers legal knowledge related to the Gas Safety (Gas Supply) Regulations and provides guidelines on seeking construction and use approvals of notifiable gas installations (NGIs) for reference by the trade. Last but not least, we will introduce the properties of highly flammable refrigerants and related safety precautions to help readers stay informed about gas safety.

Message from
the Editor



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Feature

Statutory Duties of RGSCs

According to the Gas Safety (Registration of Gas Supply Companies) Regulations (Cap. 51E of the Laws of Hong Kong), any company which wishes to carry on the business of a gas supply company, including importing, manufacturing or supplying town gas, liquefied petroleum gas, natural gas or any mixture of such gases, whether in the form of a liquid or vapour, shall be registered with the Gas Authority.



Towngas / Synthetic
Natural Gas
Production Plant



LPG Terminal



Subsea Natural Gas
Pipeline and
Receive Station



LPG Filling Station



LPG Storage



LPG Wagon



LPG Road Tanker

★ The photos show examples of business related to Registered Gas Supply Companies

When applying for becoming a registered gas supply company, the company must prove that it has sufficient material and human resources to carry on its business plans and the business of a gas supply company, and has the ability to comply with the relevant legal requirements before it can be granted registration by the Gas Authority.



Feature

Statutory Duties of RGSCs

General Self-regulating Duty of Registered Gas Supply Company

Regulation 9 of the Gas Safety (Registration of Gas Supply Companies) Regulations stipulates that it shall be the duty of every registered gas supply company to ensure, in carrying 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 risks from gas. The duties include: (i) provision of a working environment for its employees that is safe and without risks to health; (ii) ensuring the safe operation of its plant and systems of work; and (iii) provision of such information, instruction, training and supervision to ensure the health and safety at work of its employees.

Other Main Duties

Besides, registered gas supply company must discharge other duties required under the Gas Safety (Registration of Gas Supply Companies) Regulations in accordance with its scope of business. These duties may include to:

- ★ provide the Gas Authority with a written statement of its health and safety arrangements, stating its general policy with respect to the health and safety at work of its employees and the organisation and arrangements for the time being in force for carrying out that policy;
- ★ notify the Gas Authority of its gas distributors and monitor the safe operation of its gas distributors;
- ★ report major gas emergencies to the Gas Authority and furnish him with written reports; and
- ★ have arrangements in force for dealing with reports of escaping gas.



As at May 2025, there are 24 RGSCs in Hong Kong. For details of the gas business operated by these companies, please visit the EMSD's webpage below:

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





Feature

Town Gas and Hydrogen (1): The Relationship between Them

In face of the challenges brought about by climate change, the world is striving to achieve carbon neutrality by making efforts to phase out fossil fuels and expedite green transformation. Among various solutions, hydrogen stands out as a clean energy carrier. Using hydrogen as fuel for machinery or electricity generation does not emit greenhouse gases or other air pollutants. If hydrogen is produced from renewable energy sources, zero carbon emissions can be achieved throughout the entire process from production to application. To encourage local application of hydrogen energy, the Government set up the Inter-departmental Working Group on Using Hydrogen as Fuel (the Working Group) in 2022, with EMSD as one of the members.

Hong Kong has a unique advantage in developing hydrogen energy. The Hong Kong and China Gas Company Limited (Towngas) supplies town gas to over two million accounts through its underground gas network, which spans over 3,700 km across the territory. As hydrogen constitutes nearly half of the town gas composition, “pressure swing adsorption technology” can be employed to extract hydrogen from town gas, which can then be used in fuel cells for electricity generation. Hong Kong can utilize the existing town gas infrastructure to minimize the potential risks associated with road transport of hydrogen.

Towngas has already submitted several trial applications to the Working Group, all of which have received agreement-in-principle, including:

- Extracting hydrogen from the existing towngas network at a suitable site in Sai Kung to generate electricity for charging electric vehicles (*trial commenced*)
- Provision of electricity with hydrogen power generation equipment to support the operation of electrical equipment at a recreation facility of the Leisure and Cultural Services Department at Fan Kam Road, Fanling for the golf event of the 15th National Games (Hong Kong) (*in preparation*)

Hydrogen is currently classified as dangerous goods under the Dangerous Goods Ordinance (Cap. 295), but the ordinance does not govern the use of hydrogen as fuel. EMSD has introduced the Gas Safety (Amendment) Bill to the Legislative Council to amend the Gas Safety Ordinance (Cap. 51), which currently regulates town gas, natural gas, and liquefied petroleum gas (LPG). The amendment is targeted for completion in 2025, with new subsidiary legislation to be introduced in 2026. Following the enactment of the amended Gas Safety Ordinance, the use of hydrogen as fuel will also be regulated, and it will cover a range of safety aspects, including hydrogen quality, safety of installations and facilities, personnel, and emergency handling etc., aiming to enhance public confidence in hydrogen safety.



Extracting hydrogen from the existing towngas network at a suitable site in Sai Kung to generate electricity for charging electric vehicles.



Feature

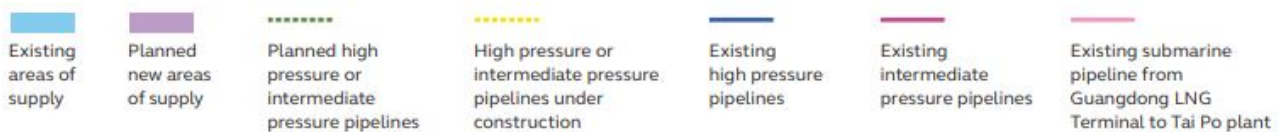
Town Gas and Hydrogen (1): The Relationship between Them

Towngas supplies town gas to over two million accounts across the territory through its existing gas network.



Feature

Towngas Network in Hong Kong





Feature

Proper Disposal of Unwanted LPG Vehicle Fuel Tanks

LPG vehicles are equipped with fuel tanks containing LPG. Owners of LPG fuel tanks (i.e. vehicle owners) should hold responsible for ensuring that unwanted LPG fuel tanks are properly disposed of in accordance with the Guideline for Disposal of LPG Vehicle Fuel Tanks so as to maintain gas safety.

Points to note when disposing of unwanted LPG fuel tanks:

- ★ Upon receiving unwanted LPG vehicles from owners, LPG vehicle maintenance workshops, motor agents or scrapping companies should complete Part A of the Certificate of Scrapping LPG Fuel Tank and submit a copy of the certificate to EMSD for record.
- ★ LPG vehicle maintenance workshops or scrapping companies should engage Competent Persons (Class 6) to remove the LPG fuel tanks from the LPG vehicles and complete Part B of the Certificate of Scrapping LPG Fuel Tank.
- ★ After the LPG fuel tanks have been removed, the vehicle maintenance workshops or scrapping companies should send them to LPG fuel tank workshops for purging and demolition.

The Guideline and references can be downloaded at the following URLs or by scanning the QR codes:

Guideline for Disposal of LPG Vehicle Fuel Tanks:

https://www.emsd.gov.hk/fileman-ager/tc/content_394/Gdln_Dspsl_LPG_Vhcl_Fuel_Tanks.pdf



Leaflet on Proper Disposal of Unwanted LPG Vehicle Fuel Tanks

https://www.emsd.gov.hk/filemanager/en/content_392/LPGtank_leaflet.pdf





Feature

Proper Disposal of Unwanted LPG Vehicle Fuel Tanks

處理棄置石油氣燃料缸證明書

甲部 (由接收車輛的公司、車輛維修工場或回收公司填寫)

致：登記車主

(副本交：氣體安全監督 (機電工程署 - 傳真號碼：25765945))

茲證明本公司在_____年_____月_____日接收了以下石油氣車輛的燃料缸 (車輛資料如下)。

石油氣燃料缸編號	車輛登記號碼

本人／本公司明白有責任維護氣體安全，並將按『棄置石油氣車輛燃料缸指引』處理上述石油氣車輛燃料缸。

公司名稱：_____公司簽署：_____
(請同時蓋上公司印鑑)

電話：_____地址：_____

日期：_____

乙部 (由拆除石油氣燃料缸的車輛維修工場或回收公司填寫)

上述石油氣燃料缸已由第 6 類勝任人士，(姓名) _____
(編號) _____於 _____年_____月_____日從石油氣車輛拆下。

公司簽署：_____

(請同時蓋上公司印鑑)

日期：_____公司名稱：_____

丙部 (由石油氣燃料缸工場填寫)

致：氣體安全監督 (機電工程署 - 傳真號碼：25765945)

茲證明本公司在_____年_____月_____日接收了石油氣燃料缸 (編號 _____) 以進行驅氣工作。

上述石油氣燃料缸已由第 1 類勝任人士 (姓名 _____) 於 _____年_____月_____日證明沒有盛載石油氣。

公司簽署：_____
(請同時蓋上公司印鑑)

日期：_____公司名稱：_____





Case Study

Gas Safety Publicity Highlights

The EMSD is committed to promoting the GU mark and publicising gas safety. In addition to sharing social media posts before winter approaches to remind the public to exercise caution when purchasing and using gas water heaters, the EMSD also promotes gas safety through informative TV programmes, such as HK2000, Hong Kong United, and Scoop, to educate the public on the proper use of gas water heaters in prevention of carbon monoxide poisoning.

In an interview on HK2000, Chief Engineer Mr. HUI Wing-Koon, Joe explained gas safety from the perspectives of regulation and safety. In addition, Hong Kong United and Scoop invited Ir. Jason FAN, Chairman of the Gas and Energy Division of the Hong Kong Institution of Engineers, to share his expertise with the public, explaining the causes of gas-related incidents and the importance of proper selection, installation, use and maintenance of gas appliances.

To further enhance public awareness of the safe use of domestic gas appliances, portable cassette cookers and disposable LPG cylinders, the EMSD displayed banners at prominent locations in the Shenzhen Bay, Lo Wu and Heung Yuen Wai Boundary Control Point and public housing estates, and made use of taxi body advertisements for publicity, so as to step up the promotion of gas safety to the public.



Banners are displayed at the prominent locations in the arrival hall of the Heung Yuen Wai Boundary Control Point and public housing estates to remind the public not to purchase or bring non-approved gas appliances into Hong Kong.



Taxi advertisements are used to educate the public on the importance of gas safety.



Case Study

Gas Safety Publicity Highlights



Case Study



✦ Promoting gas safety through social media: preventing carbon monoxide poisoning

✦ Interview on Scoop with Ir. Jason FAN, Chairman of the Gas and Energy Division of the Hong Kong Institution of Engineers



✦ Promoting the safety of gas appliances to the public through RTHK's programmes, HK2000 and Hong Kong United.



Legal Knowledge

Gas Safety (Gas Supply) Regulations

According to Regulation 3(1) of the Gas Safety (Gas Supply) Regulations, storage of LPG cylinders (including empty cylinders) of a total nominal water capacity exceeding 130 litres (approximately 50 kilograms in nominal weight) without the approval of the GA is an offence. Offenders are liable on conviction to a fine of up to HK\$25,000 and imprisonment for six months; and in the case of a continuing offence, to a daily fine of HK\$2,000.

According to Regulation 3(2) of the Gas Safety (Gas Supply) Regulations, any person who knows, or ought reasonably to know, that someone stores LPG cylinders (including empty cylinders) of a total nominal water capacity exceeding 130 litres without approval and still supplies gas to that person commits an offence. Offenders are liable on conviction to a fine of up to HK\$25,000 and imprisonment for six months; and in the case of a continuing offence, to a daily fine of HK\$2,000.

LPG cylinder(s) with aggregated nominal water capacity more than 130 litres shall be stored in LPG cylinder store. Prior to the construction and use of LPG cylinder store, construction approval and use approval shall be obtained respectively from the Gas Authority.

Between 2023 and 2024, there were a total of 31 prosecutions pertaining to storage of excessive LPG cylinders upon EMSD's investigation.



★ LPG Cylinder Store





Do You Know

How to Apply for Construction and Use Approvals of NGIs

Notifiable Gas Installations (應具報氣體裝置)



According to the Gas Safety Ordinance (Cap. 51, Laws of Hong Kong), an NGI means a gas installation (including those involving LPG, natural gas or town gas, etc) which is, or consists of, or uses:

1. terminals for the importation of gas;
2. works for the manufacture of town gas, substitute natural gas or synthetic natural gas;
3. gasholders, including the pressure-raising and control equipment used in connection therewith;
4. high pressure gas mains or service pipes;
5. pressure-regulating installations which are supplied with gas from an intermediate or high pressure gas main or service pipe, but excluding any installation the volumetric capacity of which is less than 30 standard cubic metres per hour;
6. stores containing LPG, including, where such gas is supplied to consumers by pipes from such stores, any outlet pipework, vaporisers and pressure-regulating installations used in connection therewith; or
7. any process which involves the transfer of LPG in liquid form from one container (other than a disposable cylinder) to another container, but excluding the transfer of such gas in such form from a ship or road tanker into a tank or road tanker.

Construction and Use Approvals

Any person who wishes to construct or subsequently use an NGI should obtain approval from the GA, i.e. Director of Electrical and Mechanical Services, prior to its construction (which covers modification works) or use. Please refer to Regulations 3 to 6 of the Gas Safety (Gas Supply) Regulations for the requirements.

How to Apply

Applications can be made via "iAM Smart" by submitting the completed e-form "Application for Construction Approval of Notifiable Gas Installation" (Form 104) or "Application for Approval of Use of Notifiable Gas Installation (Form 105), together with the relevant information and plans/ drawings of the installations (for construction approval only), and paying the specified application fee.



For enquiries, please contact the Gas Standards Office (Tel.: 2808 3683 and Fax: 2576 5945) or visit the EMSD website:

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





Do You Know

What are highly flammable refrigerants?

According to the International Organization for Standardization 817 (ISO 817), highly flammable refrigerants are classified under Class 3, the highest level in terms of flammability. If leaked highly flammable refrigerants come into contact with an ignition source, it may result in fire or even explosions.

In Hong Kong's commercial refrigerator market, the most commonly used highly flammable refrigerants are R290 and R600a. They have an extremely low Global Warming Potential (GWP) of only 3 to 4, which is just 0.3% of the traditional refrigerant R134a, helping to reduce the impact on greenhouse effect resulted from refrigerant leakage. In addition, with Ozone Depletion Potential (ODP) being zero, R290 and R600a pose no harm to the ozone layer in the event of leakage. With increased global awareness of environmental protection and deeper understanding of the fact that hydrofluorocarbons (HFCs) cause climate change, R290 and R600a have been widely used in commercial refrigerators in recent years, despite their highly flammable nature.



Do You Know

The Ozone Layer Protection (Amendment) Ordinance 2025 was gazetted to effect in April this year, introducing new control measures and guidelines on handling hazardous refrigerants. The Government is drafting the relevant subsidiary legislation and requirements to provide for the safe handling of hazardous refrigerants. As highly flammable refrigerants are categorised as hazardous refrigerants, the handling of such refrigerants will be subject to regulation when the new subsidiary legislation comes into effect. Owners of commercial refrigeration equipment using highly flammable refrigerants must pay attention to safety issues related to the handling of refrigerants and engage registered refrigerant handlers to handle the refrigerants. For refrigerant handlers who are required to handle flammable refrigerants, they must first register with the EMSD and arrange at least one certified technician to carry out the works. For more details on the statutory controls on hazardous refrigerants, please contact us on 3912 0625.

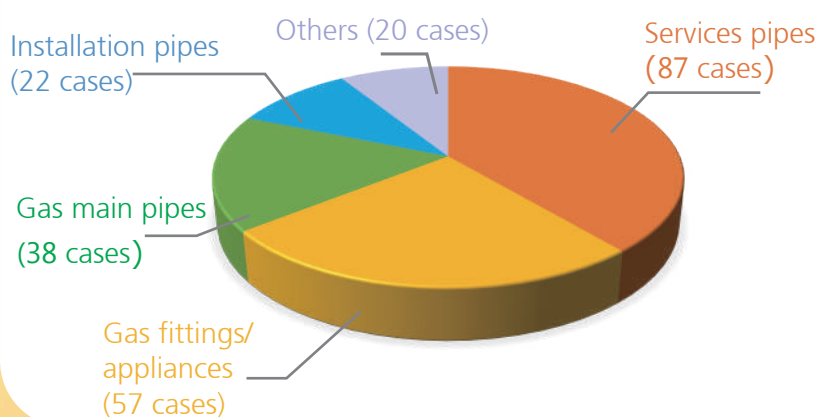




Statistics

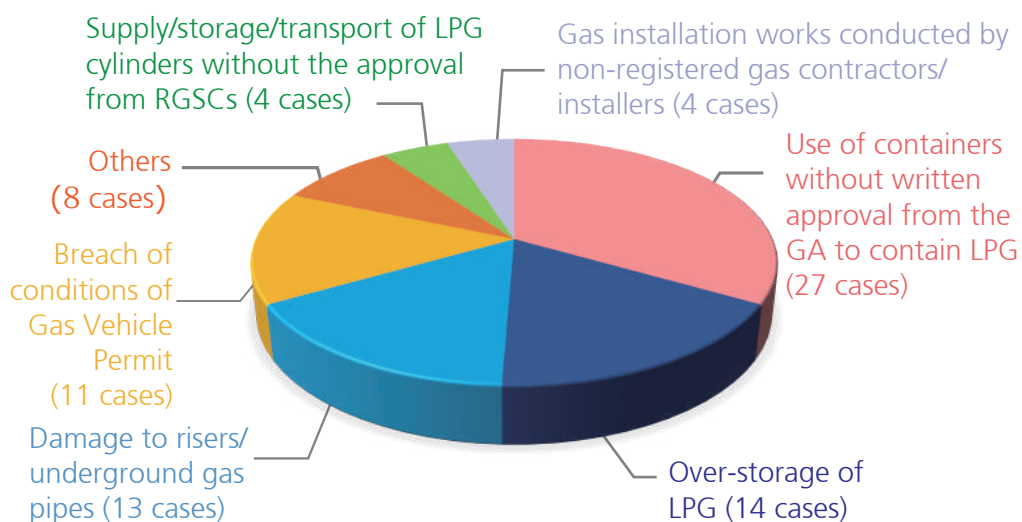
Gas-related Incident and Prosecution Statistics by Type (January to December 2024)

Number of Gas-related Incidents by Type
(January to December 2024)



Statistics

Number of Gas-related Prosecution Cases by Type
(January to December 2024)



氣體安全監督  機電工程署

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