



OnGas

BOTTLE SWAP

Safety manual



Whether it's for the bach, the barbeque or the outdoor heater, New Zealanders love the convenience and responsiveness of gas.

OnGas Bottle Swap provides a quick, quality and safe product without the traditional handling and filling procedures.

And it's easy... consumers simply exchange their empty 9kg cylinder for a full one that's been inspected and leak tested.

As with many fuels, gas must be treated with respect. Therefore this manual provides information on best practice for on-site and customer handling.

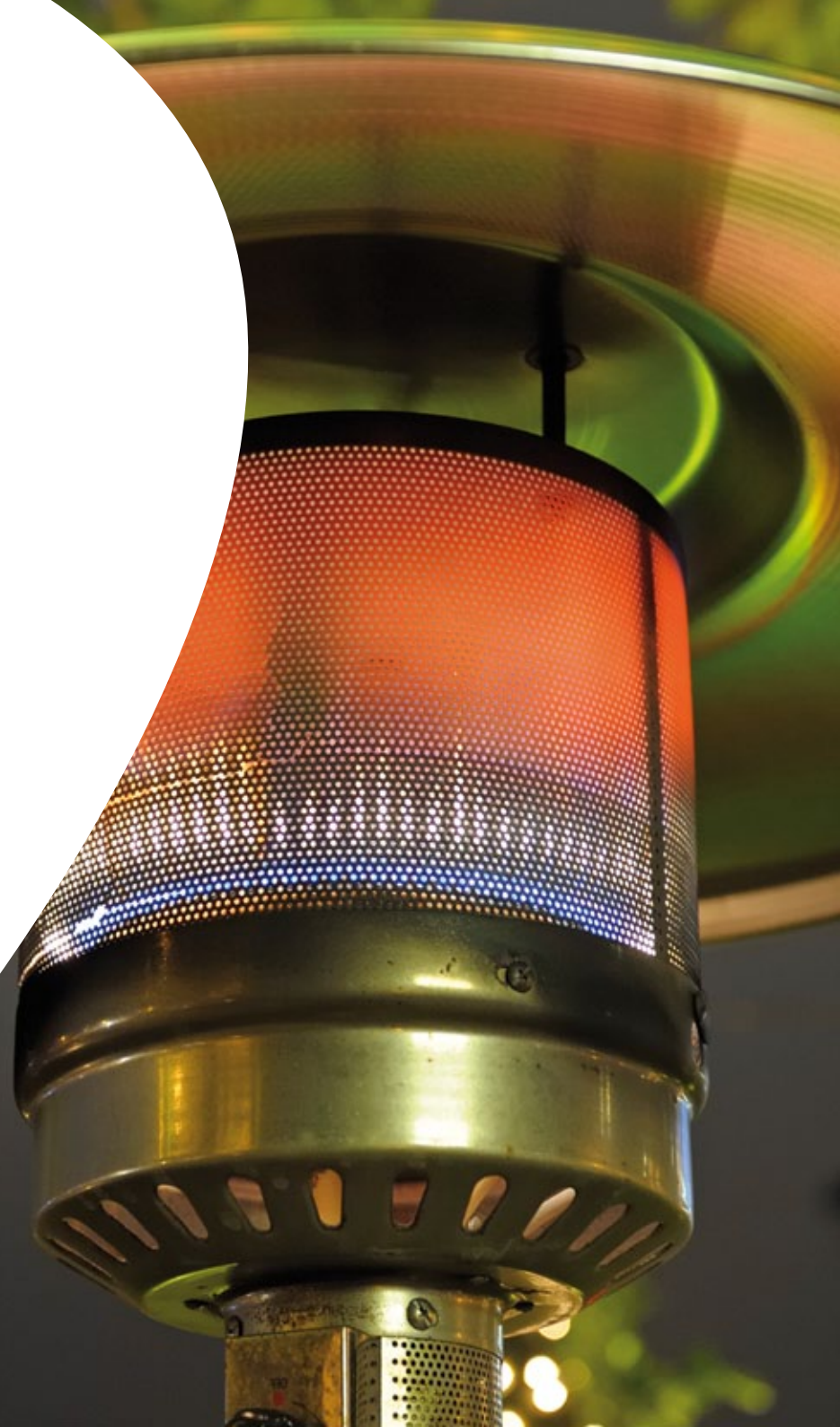
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What is LPG?

- ❑ Liquefied Petroleum Gas (LPG) is a blend of two gases – butane and propane
- ❑ LPG vapour is about 1½ times heavier than air. This means that leaking LPG will fall to the ground and gravitate to low areas
- ❑ A smell is added to LPG to help leak detection (gas is normally odourless)
- ❑ LPG is colourless
- ❑ One litre of liquid is approximately 250 litres of vapour
- ❑ When LPG evaporates it becomes very cold
- ❑ LPG exists in liquid form when under pressure



Emergency procedures and first aid

What to do if there's a leak

Gas leak

- ❑ Close the valve on the leaking cylinder (if safe to do so).
- ❑ Personnel must be fully equipped with protective clothing, gloves and safety glasses.
- ❑ If the leak continues, keep your hands and face away from the escaping LPG and try to move the cylinder to an open space away from buildings, people, drains and sources of ignition.
- ❑ Stand the cylinder upright with the valve at the top.
- ❑ Disperse the leaking LPG by spraying with water.
- ❑ Once empty, mark the cylinder as faulty and isolate it from other empty cylinders.
- ❑ Advise your manager of the incident, who will arrange for the safe disposal of the cylinder by calling OnGas: **0800 123 427**.
- ❑ If required, call the Fire Service: **Dial 111**.

Gas leak with a fire

- ❑ Close the valve on the leaking cylinder (if safe to do so).
- ❑ Do not attempt to extinguish the fire if the flame is not in contact with the cylinder or does not threaten the immediate environment.
Instead, ensure the following control measures are followed:
 - Keep the cylinder and fittings cool with a water spray.
 - Keep the cylinder upright with the valve at the top.
 - Keep people away from the area.
 - Remove any other cylinders and/or flammable material from the area.
 - Call the Fire Service: **Dial 111**.
- ❑ If the flame touches the cylinder, spray with a dry powder extinguisher. These extinguishers are red and contain a white band.
- ❑ Cool cylinder with a water spray.
- ❑ Once the fire is extinguished, mark the cylinder as faulty and isolate it from other empty cylinders.
- ❑ Advise your manager of the incident.

First aid for LPG cold burns

LPG will produce visible effects on the skin similar to frostbite. Frozen tissue is painless and appears waxy with a pallid, yellowish colour. Treatment should be as follows:

1. Remove any clothing splashed by LPG and, if appropriate, move the patient to a warm area as soon as possible.
2. Bathe the affected area(s), preferably with warm water (35°C maximum), to thaw the frozen tissue. Immersion of the affected area is preferred, if possible.
Never use dry heat to thaw the tissue.
The thawing process is painful and may induce shock; the skin will turn to a pinky-red colour when thawing is complete.
3. Loosely cover the affected area with dry, sterile dressings.
4. If necessary, call a doctor.
5. Advise the doctor that the burn was caused by liquefied petroleum gas.
6. Follow any further instructions from the doctor.



Fire Service:
Dial 111

Customer information and gas use safety

OnGas

Safety with gas

Transport

- ❑ Do not transport cylinders loose or lying down.
- ❑ Avoid transporting inside a passenger compartment of a vehicle. Maximum two 9kg cylinders inside a vehicle at any time.
- ❑ Do not leave cylinders stored in an enclosed vehicle.

Leak test your connections

- ❑ Securely connect the cylinder to your appliance.
- ❑ Spread plenty of soapy water around the cylinder valve and regulator connections with a sponge. If bubbles appear, you have a leak, do not use the appliance.
- ❑ Never use a match or flame to leak test.

Fresh air

- ❑ Keep a window open when you use an LPG heater to help keep air fresh and reduce emissions.
- ❑ Never use LPG heaters in bedrooms and/or bathrooms.

Gas appliance use

- ❑ Check connection for gas cylinder is correct for your gas appliance and that connections are gas tight.
- ❑ Always ensure control knobs on the gas appliance are turned off when not being used.
- ❑ Check your gas appliance before each use for wear and tear. Do not use appliance if parts are damaged or missing.
- ❑ Never move a gas appliance when in use.
- ❑ **IN EMERGENCY DIAL 111**

Why can I sometimes hear a sloshing sound when I move the cylinder?

- ❑ LPG is stored as a liquid, but when released it vaporises into a flammable gas.
- ❑ Vapour space is allowed for in cylinders to allow for thermal expansion if the temperature of the container should increase.
- ❑ LPG is very sensitive to temperature and will expand substantially when subjected to an external heat source.
- ❑ When released, one volume of liquid will expand 250 times when reverting to gas.

- ❑ *Keep away from heat, sparks and open flame*
- ❑ *Close cylinder valve off firmly when not in use*



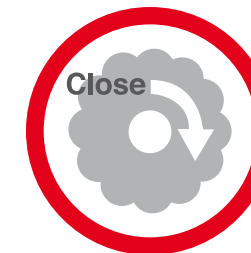
Maximum of two 9kg bottles in an enclosed vehicle



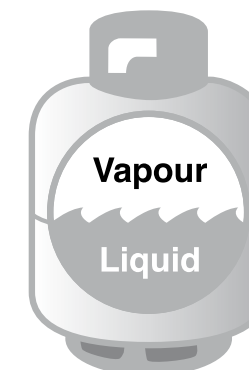
Do NOT leave cylinders lying down



Keep away from heat, flames and sparks



Turn valve off firmly when not in use



Do not transport in passenger compartment or leave in vehicle unnecessarily

On-site cylinder management



Exchangeable cylinder criteria

Cylinders acceptable for exchange

- ❑ Any brand of 9kg LPG cylinder with a protective collar and a foot ring that is not severely rusted or damaged.
- ❑ Bottles showing a test date older than 10 years are also accepted.

Cylinders not acceptable

Due to safety concerns, cylinders will not be accepted for exchange if they have:

- ❑ No foot ring.
- ❑ No valve protection ring.
- ❑ A damaged gas valve.
- ❑ Dents, rust or holes.

Note: Reimbursement will not be issued if you accept these cylinders. Your site will be charged the full price of a replacement cylinder. On request from the site operator, OnGas will remove all 'out of test' abandoned cylinders.

See next page for 'cylinders not accepted for Swap' descriptions.

Faulty cylinders customer returns

- ❑ Replace the suspected faulty cylinder.
- ❑ Determine if fault relates to a cylinder leak.
- ❑ If a smell of gas is detected, then check if the valve is tightly closed and carry out a leak test with soapy water to determine location of leak.
- ❑ If you can still smell gas, refer to emergency procedures and first aid.
- ❑ Tag the faulty cylinder and isolate.
- ❑ If you are unable to stop the leak, place the cylinder in an open area away from any sources of ignition to allow the cylinder to depressurise.

Storage on-site

Cages must be located outdoors and as a guide:

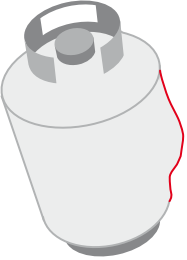
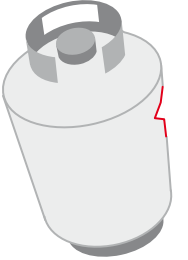
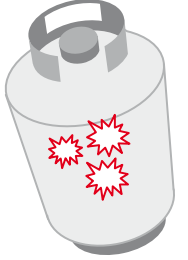
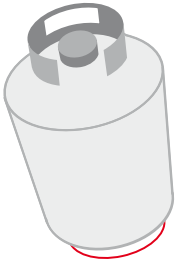
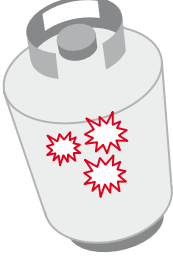
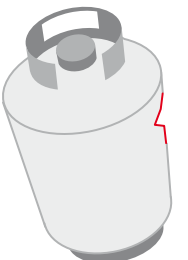
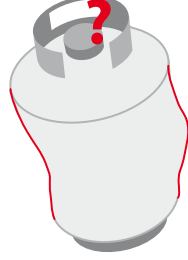
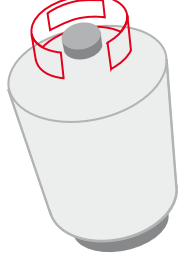


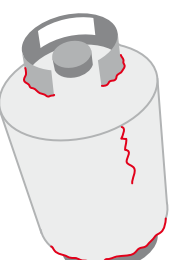
- ❑ At least 2 metres from any opening into a building.
- ❑ At least 1 metre from the hose reach of an LPG automotive or cylinder filling dispenser.
- ❑ At least 1.5 metres (horizontally) and/or 0.5 metre (vertically) from any ignition source.
- ❑ At least 2 metres from drains, pits, basements or fuel dispensers.
- ❑ At least 3 metres from any tank containing LPG.
- ❑ At least 3 metres from LPG tanks remote fill point.
- ❑ At least 3 metres from above ground tanks containing dangerous goods other than LPG.
- ❑ A minimum 0.5 metre controlled zone from combustible materials.
- ❑ Clear on at least two sides from walls, solid displays or obstacles that may restrict airflow.
- ❑ Protective bollards may be installed around a cage if located in a trafficable area.
- ❑ Must not hinder or endanger the means of escape from the premises or adjoining premises.

For safety reasons, cylinders must not be stored upside down or on their side in cages.

- ❑ Once the storage cage(s) has been installed on-site, it must not be relocated without the permission of OnGas.



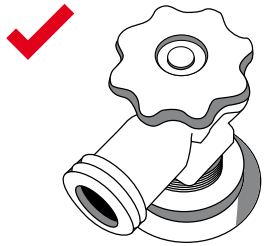
Cylinders not accepted for Swap

Defect Bulge 	Any swelling of the cylinder wall.	Defect Dig 	A sharp impression where the surface material has not been penetrated.	Defect Corrosion 	Corrosion, or pitting of a cylinder, involves the loss of wall thickness. If rust/steel can be chipped from the surface, reject the cylinder.	Defect Foot ring 	Cylinders with a foot ring missing, or one that is damaged or bent out of shape.
Dent 	A blunt impression where the surface material has not been penetrated. Dents in the cylinder wall are serious.	Cut (gouge) 	A sharp impression where the surface material has been penetrated.	General distortion 	Reject on the basis of bulging or dents or if valve is noticeably tilted.	Valve protection ring 	Cylinders with a valve protection collar missing, or one that is damaged or bent out of shape.
Fire damage 	Check for charring or burning of coating, metal discolouration, distortion, burned or melted valve.	Leaks 	Any cylinders displaying a leak.	General defects 	Check for weld failure or distortion; looseness of the valve collar and foot ring; cracks in the cylinder body.		

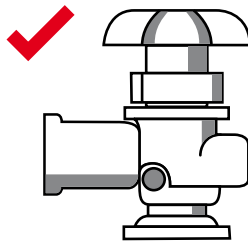
Acceptable valve types



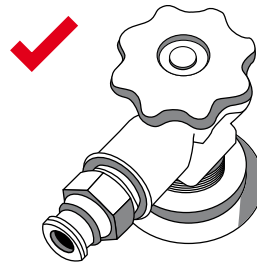
We accept 9kg bottles with the following valve types:



9kg QCC valve

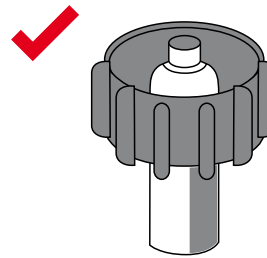


9kg POL valve

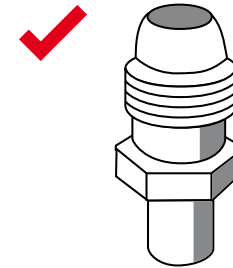


9kg KOSAN
(clip-on) valve

OnGas Bottle Swap connects to:



QCC connector



POL connector

Check if the valve on the customer's cylinder is the same valve type as the bottle swap cylinder. OnGas supplies 9kg QCC valves only. If the customer's valve type is not the same, the customer will need to check if our valve will connect to their appliance.

What to do in the event of a leaking bottle

- Keep away from all sources of ignition.
- Check valve is turned off. Hose with water.
- If leaking does not stop within a minute, isolate to a well ventilated location.
- Continue hosing with water.
- Call OnGas for further advice on **0800 123 427**.
- **In an emergency dial 111** for police or fire service.



Material safety data sheet

The OnGas logo features the brand name in a bold, white, sans-serif font. It is positioned to the left of a stylized graphic consisting of two overlapping circles, one green and one red, which are partially cut off by the right edge of the header.

1. Identification of the material and supplier

Product name	Liquid Petroleum Gas (LPG)
Product use	Residential and commercial fuel
Supplier	OnGas Limited 101 Carlton Gore Road Newmarket Auckland 1023 Phone 0800 84 12 12
EMERGENCY NUMBER	0800 84 12 12 0800 123 427

2. Hazards identification

UN number	LPG 1075 Propane 1978 Butane 1011
HSNO class	2.1.1
Hazchem number	2YE
IMO/MDG class	2.1 Chemical family hydrocarbon
IATA class	2(d)
Health hazards	LPG acts as a simple asphyxiant and a central nervous system depressant. It can affect the body if it is inhaled or if it comes into contact with the eyes or skin. Over exposure to LPG can cause lightheadedness and drowsiness. Greater exposure may also cause unconsciousness. Contact with liquid may also cause frostbite as well as skin irritation.
Effects and symptoms	
• Liquid in eyes	Tissue damage due to low temperature, redness, pain, blurred vision.
• Liquid on skin	Frostbite, tissue damage due to low temperature, redness, pain, blisters, wounds.
• Vapour	Possible tissue damage due to low temperature, asphyxiation, headaches, dizziness, drowsiness.
• Toxicity	LPG is not toxic but is unpleasant and may cause nausea if ingested in large quantities.



Material safety data sheet



3. Composition/information on ingredients

Chemical formula	Propane C3H8 Butane C4H10
Information	LPG is supplied in various grades to suit the application. The most common grade is 'LPG Mix' being a mixture of normally 60% propane and 40% butane. LPG may also be supplied as straight propane or butane. LPG contains traces of other hydrocarbons and substances that naturally occur in the LPG. The specification including full composition is available in NZS 5435: 1996 'Liquefied Petroleum Gas'.

4. First aid measures

Liquid in eyes	Do not delay. Flush eye gently with fresh water. Continue washing for at least 15 minutes. Obtain medical aid as soon as possible.
Liquid on skin	Do not delay. Handle patient gently. Remove contaminated clothing. Immerse affected area in cold water. Obtain medical aid as soon as possible.
Vapour	Remove victim to fresh air. If breathing has stopped or irregular apply artificial respiration.
Toxicity	Remove victim to fresh air.

5. Fire fighting measures

Flammability	High flammable gas that collects at floor level and readily forms an explosive mixture with air. Concentration of 2–10% approximately in air can be ignited and the flame will readily spread back to the source of the leak. For handling of LPG, a closed transfer system is required with ventilation at high and low level, explosive or flameproof electrical equipment and lighting, earth connections and no open flames, sparks and no smoking.
Fire explosion/hazard	Evacuate area. Remove ignition sources. Cut off gas supply if safe to do so – Do NOT endanger life. Do NOT extinguish fire – allow gas to burn out. Use water to cool cylinders and vessels exposed to fire. Spray onto upper surface.
Extinguishing	If safe, stop the flow of gas by closing valves or by activating Emergency Shutdown Systems. If the gas source cannot be isolated, do not extinguish the flame as re-ignition and explosion could occur. Await arrival of emergency services. Cool cylinders or vessels with water. If it is absolutely necessary to extinguish the flame, use only a dry chemical powder extinguisher. Do not move cylinders for at least 24 hours. Avoid shock and bumps to cylinders. Evacuate the area of persons not fighting the fire. Carbon oxides (CO, CO ₂) fumes may be produced should burning occur especially within an enclosed space (i.e. causing a deficiency of oxygen).
Fire fighter protection	Fire fighters should wear full protective clothing and may need self contained breathing apparatus. Be aware of the risk of possible explosion (especially in a confined space).

Material safety data sheet



6. Accidental release measures

Spills	Fire explosion hazard.
For all emergencies	No smoking or naked lights within 50 metres. Move people from immediate area, keep upwind. Contact fire service.
Spill or leaks, no fire	Carry out action "for all emergencies". Stop flow of gas/liquid if possible. Spray water to disperse gas cloud but avoid spraying water directly on leaking container.
Fire	Carry out action "for all emergencies". Shut off supply of gas rather than put out fire. If available, spray water on containers to keep cool. Dry chemical or BCF extinguishers can be used.

7. Handling and storage

Ignition sources	Use only intrinsically safe equipment and non sparking tools. Usage: All cylinders should be used in the upright position (with the exception of forklift cylinders) and are approved for use in New Zealand. Installations must be in accordance with HSNO, AS/NZS 1596 2008 and any relevant LPG Codes of Practice.
Handling	Details contained in the 2.1.1 Controls under Hazardous Substances and New Organisms Act 1996, NZS 5433 1999. Code of Practice for the Transport of Hazardous Substances on Land, and AS/NZS 1596 2008 Storage and Handling of LPG. Keep containers in an upright position, keep away from heat sources, and keep valves closed when not in use.
Storage	Store in well ventilated areas away from heat and sources of ignition. Cylinders and vessels must be correctly labeled. Do not remove warning labels. LPG cylinders shall be stored in accordance with the requirements of HSNO Regulations 2008 and AS/NZS1596 2008 and any relevant LPG Codes of Practice. Do not store in basements where vapour may collect. Store cylinders securely in an upright position and keep valves closed.
Disposal	Do not move damaged cylinders until made safe. Empty contents by decant into alternative cylinder or tank. Vapour may be vented under controlled conditions, or disposed by controlled burning.

8. Exposure controls/personal protection

Exposure limits	Workplace Exposure Standard, HS&E Act 1992 Simple asphyxiant TWA 800ppm, 1900mg/m3
Personal protective equipment	Wear thermal insulated gloves and full body cover to prevent cold burns and frostbite. In filling operations wear protective clothing including gloves, safety goggles or face shield. All clothing should be anti-static, low flame type. When handling cylinders wear protective footwear.

9. Physical and chemical properties

		Propane (C3H8)	Butane (C4H10)	Mix (60/40)
Appearance	Colourless gas with an unpleasant odour			
Boiling point (atmospheric pressure)		-42°C	0°C	N/A
Vapour pressure at	0°C	388 kPa	40 kPa	292 kPa
	10°C	552 kPa	95 kPa	424 kPa
	30°C	1004 kPa	266 kPa	796 kPa
Specific gravity		0.507	0.580	0.532
Flash point		-105°C	-60°C	
Flammability limits		2.2–9.5%	1.5–9.0%	2.0–10.0%
Auto ignition temperature		468°C	430°C	450°C
Vapour density (air=1)		1.58	2.06	1.73

10. Stability and reactivity

Stability	The product is stable.
Reactivity	Incompatible with strong oxidizing agents like nitric acid.

Material safety data sheet



11. Toxicological information

Eye	Liquid in eyes will cause tissue damage. Vapour may cause irritation.
Inhalation	May cause headaches, drowsiness and dizziness. Excessive exposure may cause unconsciousness or even death, due to asphyxiation (refers to vapour not liquid).
Skin	Liquid may cause frostbite, tissue damage, blisters and wounds.
Ingestion	Due to product form, ingestion is considered highly unlikely.

12. Ecological information

LPG will vaporise rapidly when released to atmosphere. There are no known adverse ecological effects.

13. Disposal considerations

Waste disposal	Cylinders should be returned to the LPG supplier for disposal. Hazard warning labels should not be removed.
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14. Transport information

Transport	Transport of LPG is controlled in accordance with the requirements of NZS 5433 2007 and the HSNO Regs 2008.
UN number	LPG 1075, Propane 1978, Butane 1011
HSNO class	2.1.1
Hazchem number	2YE
IMO/MDG class	2.1 Chemical family hydrocarbon
IATA class	2(d)

15. Regulatory information

LPG is classified as a hazardous substance under current New Zealand regulations. Its storage and handling is covered by various pieces of legislation.

16. Other information

HSNO	The Hazardous Substances and New Organisms Act and Regulations 2008.
EPA approval numbers	Butane – HSR000989 Propane – HSR001010 and LPG – HSR001009



OnGas site training register



The employees listed below are trained site operators to train other employees in OnGas Bottle Swap cylinder management.

Notes

Employee name	Training date	Employee signature	Site manager signature

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SITE COPY

FOR EMERGENCIES DIAL 111
OnGas service information dial
0800 123 427



0800 123 427

www.ongas.co.nz/bottleswap