



LPGas

Decanting Instruction and Training Manual

ATTENTION TO THE CUSTOMER

Please ask your Elgas Customer Representative for advice on your State Licencing and data retention requirements. For Victoria, please also refer to the Industry Code of Practice.

PLEASE NOTE: The latest Material Safety Data Sheet for LPGas is available from Elgas upon request or from the Elgas website www.Elgas.com.au

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SECTION 1

1. INTRODUCTION

Elgas Policy

This manual has been prepared as a reference document and training aid to provide basic instruction on:

- The potential hazards involved in decanting LPGas;
- Preventative safety measures; and
- Emergency procedures.

Elgas operations are normally undertaken by agreement with the site management, as part of a complete operation, and it is essential that this safety manual is read in conjunction with the customer's other safety procedures specific to that site.

The employer is responsible for safety training and the formal recording of that training. Failure to provide adequate training of staff in the safety procedures associated with the conduct of their work is a contravention of Federal, State and/or local Authority Regulations. Management shall supervise personnel undertaking filling as appropriate, ie via the training of a “nominated site trainer”.

This manual is not intended for training personnel in the refilling of Forklift cylinders. For this particular training, please ensure that the Elgas manual "LPGas Fuelled Forklift Vehicle Filling" is utilised.

SECTION 2

2. IMPORTANT SAFETY INFORMATION

- Elgas Emergency Phone Number: (24 hours) 1800 819 783
- Decanting is covered in detail in AS/NZS 1596 and it is strongly recommended that the employer has available a copy of this Standard for reference by the employees.
- Decanting must never take place indoors, in depressions or areas with inadequate ventilation.
- Never fill a cylinder that has not been re-tested and stamped by an approved cylinder test station within the last ten (10) years.
- A cylinder may be within its 10 year test period, but might exhibit severe rust or corrosion or be dented. The person filling the cylinder has the right to refuse to fill if he / she is at all concerned about any aspect of the cylinder's condition.
- Never fill the decanting cylinder from an auto-gas dispenser.
- Never override the Deadmans Handle Safety Function.
- Be aware of the ALPGA Safety Alert detailed in Appendix VI.
- Be aware of QLD Safety Alert No 31 re Portable Gas Refrigerants
- Be aware of QLD Safety Alert No 33 re the need to fit a screw plug when supplying a cylinder to a customer
- Always turn off the main cylinder control valve after a fill.
- The cylinder to be filled must be effectively earthed to discharge static electricity. Earthing can be achieved by placing the cylinder on a steel stand or placing it on the ground. Do not use plastic milk crates or the rear tray of a ute.
- The operator must always touch the steel body of the main decanting cylinder with a bare hand at the start of the decanting procedure and before shutting the bleed (ullage valve). This will allow any static electricity present on the operators body to discharge via the decanting cylinder to earth preventing the possibility of sparks occurring.

- LPGas cylinders must never be 100% filled. The maximum filling percentage as specified in AS/NZS 1596 is 80% and is indicated by the correct operation of the bleeder valve.
- There are available rigid decanting connections, ie a metal tube fixed directly to the decant cylinder outlet valve that enables you to fill small companion type cylinders directly from the large decant cylinder. The rigid arms have caused problems in the past and Elgas does not condone their use.

Emergency Phone Numbers

Police	
Fire Brigade	
Elgas Emergency Response – 24 hour	1800 819 783
Equipment Failure (Non-Emergency)	131 161
Ambulance	
Doctor	
Licensed Gasfitter	
Electrician	
Prime Contractor	
Fire Fighting Equipment Maintenance	
State Statutory Authority	

Please ask your Elgas representative to confirm these numbers on a six monthly basis.

Date of last check

SECTION 3

3. LPGas HISTORICAL AND GENERAL INFORMATION

Liquefied Petroleum Gas (LPGas) has been available to the public for many years as a convenient and environmentally friendly fuel. It has many applications as an energy source for the leisure industry, camping and caravanning, commercial and industrial use and as an automotive fuel.

The Australian Dangerous Goods Code states that LPGas is composed predominantly of the following hydrocarbons or a mixture of all or any of them; - propane, propylene, butane or butylene. Elgas predominantly supplies Propane for decanting and domestic use, and its characteristics are as follows:-

Propane is produced from the refining of crude oil and also from natural gas separation plants. The boiling point of Propane is -42°C which is very cold and will cause Super Cold Contact Injuries (cold burns) if the skin comes in contact with liquid propane. Propane gas is readily compressible to produce a liquid and at a temperature of 15°C (59°F) has a pressure of approximately 626kPa. LPGas tanks and cylinders must never be completely filled (80% is the maximum for barbecue cylinders) so as to allow for thermal expansion of the liquid. One litre of liquid will expand to approximately 270 litres of vapour and therefore a liquid leak from decanting will expand 270 times to form a substantial cloud of LPGas vapour.

The LPGas is odourised to allow detection of gas leaks by smell. Propane is not toxic itself but if the vapour is confined and there is no ventilation, asphyxiation may occur due to lack of oxygen. Propane has a Specific Gravity of approximately 0.51 as a liquid and 1.53 as a vapour, which means that as a vapour it is heavier than air and the vapour will collect in hollows, drains or enclosed areas.

As the expansion of gas from liquid is 270:1, LPGas has a tremendous advantage in that a large quantity of gas may be transported in a small space.

Note: Queensland has issued specific instructions about the transport of LP Gas cylinders in enclosed vehicles and this has now been incorporated within the latest version of the applicable Queensland Regulations.

SECTION 4

4. DECANTING SYSTEM

LPGas Liquid Withdrawal Cylinders used for decanting purposes (see Appendix VIII) must be sited according to the requirements of Australian Standard AS/NZS 1596-(latest edition). A liquid withdrawal cylinder is different to a typical cylinder alongside a house, in that the main valve discharges LPGas as a liquid, NOT as a vapour. Decanting should not take place unless the installation is in accordance with the applicable Regulations and Standards. It is important not to move the cylinder(s) from the original location as sited by Elgas or other approved personnel.

LPGas is classified as a “Dangerous Good” and where a site is required to be licensed to store Dangerous Goods, then the Site Owner/Licensee must ensure that he/she completes the correct application form and submits this to the appropriate State Competent Authority.

4.1 Cylinder Size Criteria

- Any cylinder intended to be filled by a decanting method that is monitored by means of a fixed liquid level gauge shall not exceed 25 L capacity, or 50 L capacity if used as a fuel container for a vehicle engine.
- Cylinders larger than 25 L capacity shall not be filled by decanting, except that for cylinders used as fuel containers for vehicle engines this limit may be increased to 50 L. Larger vehicle engine fuel containers fitted with an automatic fill limiter (AFL) may be filled by decanting to permit testing and commissioning of the installation in accordance with AS 1425/NZS 5422.1.
- All cylinders of 5 L capacity and less shall only be filled by decanting.

.2 Location and Installation (see also Appendix VII)

- A decanting cylinder shall **NOT BE USED OR STORED INDOORS** and shall **NOT** be moved from its original installation point, unless with the specific approval of Elgas Ltd.
- The reason for this approval is that the location of the decant cylinder is governed by the distances detailed in AS/NZS 1596 and moving the cylinders may contravene the standard.

- AS/NZS 1596 refers to "the point of connection" when discussing separation distances. For further clarification of this, please consult AS/NZS 1596.
- Nearby constructions, fences, walls and vapour barriers shall permit free access to and cross-ventilation for the cylinders.
- Decant cylinders shall be installed on a firm, level, non-combustible base, and not resting on soil.
- A cylinder that is liable to accidental dislodgement shall be secured.
Note: Accidental dislodgement is deemed to include a cylinder located in an area which is likely to be subject to flooding or seismic activity.
- Any cylinder which is liable to damage from manoeuvring vehicles shall be protected by fenders or their equivalent.
- Cylinders shall not be installed below ground level unless the ventilation provisions are adequate to prevent the accumulation of any gas which may leak.
- A cylinder shall be installed so that the pressure-relief valve is in contact with the vapour space and, where practicable, any discharge from this valve shall be away from adjacent structures and be directed away from adjacent cylinders or combustible structures.

NOTES:

1. Separation distances may be measured horizontally around a vapour barrier or firewall provided that:
 - (a) the top of the vapour barrier or firewall is not less than 0.5 m above the level of the filling connection;
 - (b) a firewall is used when the separation distance involves a protected place.
2. Decanting on a property boundary is permissible provided that there exists a firewall sufficient to ensure that the separation distances can be realised.
3. Exclusion Zone - See AS/NZS 1596.

4. The AIP and the ALPGA require that decanting cylinders are **NOT** placed on or near petroleum fuel (see Appendix VII).

4.3 **Security and Protection**

When decanting in an area accessible to the public ceases to be under general supervision e.g. closing for the night, the decanting equipment shall be protected from tampering by one or more of the following:

- (a) The whole of the decanting equipment including the cylinder shall be securely stored.
- (b) Decanting pipes and hoses shall be disconnected and removed to a secure indoor storage and the operating valve of the supply cylinder shall be rendered inaccessible to the public, i.e. plugged.
- (c) Access to decanting hoses, pipes and valves shall be prevented by means of a lockable cover. (Available only on 190 / 210 kg cylinders).
- (d) Storage cylinders shall be located as to minimise potential vehicle impact and wherever practicable be protected by bollards or other means.

4.4 **Signage**

The following notices (or a combined notice) shall be displayed prominently as closely as possible to the decanting point; or on the decanting cylinder itself.

- (a) Standard symbols of at least 100mm diameter, or a warning notice in letters not less than 50mm high, reading.

"FLAMMABLE GAS, NO SMOKING"

- (b) Customers may well have their own storage guidelines and these shall always be displayed.
- (c) Instructions for the decanting procedures, including a warning to stop filling as soon as the fixed liquid level gauge indicates that the maximum permitted liquid level has been reached.
- (d) A warning (and instructions) regarding Static Electricity.

- (e) The liquid withdrawal cylinder shall be marked with the words 'LIQUID WITHDRAWAL ONLY' in letters not less than 30mm high.
- (f) Hazchem signage as per State Regulations.

4.5 ***Equipment***

4.5.1 Storage cylinders and/or vessels for decanting LPGas into cylinders shall meet the following requirements:

- The vessel shall be of steel, and shall comply with AS 3577 or an approved alternative standard.

4.5.2 ***Filling Connection***

The filling hose shall be suitable for liquid LPGas service, and shall be of not more than 10mm nominal bore and not more than 1.5 long. An excess-flow valve shall be provided before the upstream end of the hose.

4.5.3 ***Decanting Valve***

A lever operated decanting valve shall be fitted downstream of the filling hose and immediately before the filling connector. This valve shall be spring loaded and shall always be in the closed position unless the lever is activated by hand.

Caution: The valve is often referred to as the "dead-man's handle". It closes and stops the flow immediately when hand pressure is released. This is an important safety feature in the decanting system. Locking devices to hold the lever open, such as clamps, tape or wire are strictly forbidden to be used.

4.5.4 ***Fittings and Accessories***

Any fitting or component shall specifically be designed for LPGas service. In particular the following requirements shall apply:-

- (a) The design pressure shall be no less than the cylinder design pressure.
- (b) Cast iron shall not be used.

- (c) Adaptors shall have compatible thread sizes and forms.
- (d) For cylinders decant filled in QLD, the operator shall have available a supply of screw plugs as required by QLD Safety Alert No 33.

4.5.5 ***Fire Fighting Equipment***

The location at which cylinders are filled shall be provided with at least one fire hose reel or one fire extinguisher that comply with the following requirements.

- (a) The installation of hose reels shall comply with AS/NZS 1596.
- (b) Fire extinguishers shall be of the portable dry powder type having a rating of at least 60B. They should be located at easily accessible locations.

Fire extinguishers shall comply and be maintained in accordance with the relevant Australia Standards.

4.6 **Ignition Sources**

4.6.1 Ignition sources including all electrically operated equipment, e.g. ice and food vending machines, power points, switches, air compressors, etc, must be identified and care taken in ensuring the correct separation distances.

4.6.2 Potentially combustible products, i.e. oils, firewood and charcoal etc; must not be stored adjacent to the decanting cylinder.

4.7 **LPGas Tanker Access and Unloading**

4.7.1 Decanting cylinders shall be located on sites such that inconvenience to the site and the LPGas tanker is minimised and that the tanker can drive straight out in an emergency.

When the LPGas storage cylinder or vessel is being filled the following should be observed:

- (a) The LPGas tanker shall be parked in a position that does not restrict other vehicles from entering or leaving the site, and provide the tanker with a clear forward exit.

- (b) The tanker's LPGas filling hose shall not be positioned on the driveway where a vehicle may come in contact with it.

SECTION 5

5. DECANTING PROCEDURE

5.1 Minimum Site Staff Requirements

The decanting operation should only be carried out by a trained operator, who must remain in attendance during the entire decanting operation. Customers are not allowed to perform the decanting operation.

If only one staff member is present at a busy site when approached by a customer to fill a cylinder by decanting, the staff member should return the cylinder to the customer and advise the customer when two staff will be present or recommend an alternative location. The customer's cylinder should not be stored at the site if the cylinder cannot be filled immediately unless this practice is approved by the site management.

5.2 Decanting Process

5.2.1 *Inspection of Customer's Cylinder*

The cylinder shall not be filled if any of the following conditions are observed:

- (a) The test date stamp on the cylinder is more than ten (10) years old. **If unsure where the test date is located** request your local representative to show you where the month / year test date is located on the cylinder.

A CYLINDER WHICH DOES NOT HAVE A CURRENT INSPECTION DATE STAMP MUST NOT BE FILLED UNDER ANY CIRCUMSTANCES

If the cylinder is not in date the customer should be referred to the local Elgas Branch.

- (b) The cylinder has a test pressure less than 3.3MPa. Note: this figure is stamped on the cylinder: if unclear or painted over, do not fill.
- (c) Apparent damage, dents or corrosion on the cylinder.
- (d) There is no bleed valve, or the bleed valve cannot be operated.

- (e) Valves are not in good condition ie very corroded, broken handles etc.
- (f) There is a leakage from the cylinder fittings. Normally detected by a hissing sound, a strong smell or bubbling from a soapy water test. Note: the water must be “soapy”, plain water is unacceptable for test purposes.

5.2.2 *Safety Check*

Before the actual decanting can take place the operator should ensure that:

- (a) Adequate anti-static clothing with a very high cotton content and thermally insulated gloves are worn.
- (b) No naked flames or source of ignition are within five metres from the decanting cylinder.

Note: This is explained in pictorial form in AS/NZS 1596

- (c) Decanting is performed outdoors in a well ventilated area.
- (d) The hose and fittings on both storage cylinder(s) and customer cylinder(s) are not leaking and generally in good working order (leakage can be detected with soapy water) - never a naked flame.
* A typical soapy water tester could be a small lever operated plastic spray bottle. Simply add a small amount of detergent, fill with water and squirt around the valve and fittings. If there is a leak, then small bubbles will appear.
- (e) Customer cylinder is positioned upright.
- (f) Non-metallic bases such as milk crates and other plastic or wooden containers are not to be used.

5.2.3 *Filling Procedure*

The staff member who performs the filling operation will:

- (a) Wear the correct PPE, i.e. eye protection, safety boots and at stage (e) of the filling procedure, put on gloves.
- (b) Inspect the customer's cylinder for test date, corrosion and dents etc, paying particular attention to the underside of the cylinder. If significant corrosion is present do not fill the cylinder and refer the customer to a registered cylinder test station.
- (c) Unlock the decant vessel cover/valve. Ensure that the dead-man's valve on the filling assembly is closed and the assembly is tightly connected to the storage vessel.
- (d) Touch the main decanting cylinder with bare hands to discharge static electricity.
- (e) Put on correct gloves, connect filling (hose) to customer cylinder.
- (f) Open the valve on the customer's cylinder by turning the valve handle in an anti-clockwise direction.
- (g) Check that the bleed valve on the customer's cylinder is directed away from the operator and towards a well-ventilated area before opening the bleed valve one half turn using the correct tool. This will reduce the pressure in the customer's cylinder to be filled. The bleed valve is normally located under the cylinder's on-off valve and is operated by inserting a suitable tool and turning in an anti-clockwise direction.
- (h) Open the main valve on the decant vessel by turning in an anti-clockwise direction.
- (i) Release the safety catch and activate dead-man's valve on the filling assembly, to start the filling process. Appendix VIII item 4 shows the handle.
- (j) Stay in attendance during the entire process of filling. **Do not use any device (e.g. clamps, rubber bands) to hold the dead-man's valve open.** Check all connections during filling for possible leaks.

- (k) Allow the filling to continue until a steady white cloud/mist emerges from the customer cylinder bleed valve, which indicates that the cylinder is full (the maximum fill level has been reached). **Note: If surging is occurring within the cylinder being filled, there may be sporadic bursts of the cloud/mist emerging prior to the cylinder being filled to its maximum level. Note: Surging occurs when mini waves/depressions are formed inside the cylinder whilst filling and filling should be stopped for a few seconds to allow the true level to be established.**
- (l) Immediately release the dead-man's valve to stop filling.
Caution: It is extremely important that cylinders are not left or returned to the customer overfilled. This decreases the space into which the liquid may expand should the temperature increase, and could cause the cylinder to vent. This is why it is so important to stop filling the second a white liquid cloud emerges from the bleed valve.
- (m) Remove a glove and touch the main decant vessel with bare hands (to discharge any static electricity that may have built up during the decant operation from the body of the person decanting). Replace the glove and continue.
- (n) Close the main valve on the customer's cylinder.
- (o) Wait until the white cloud / mist stops emerging before closing the bleed valve.
- (p) Close the main valve on the decant vessel, close the bleed valve.
- (q) Carefully disconnect the filling assembly hose from the customer's cylinder. When breaking the connection, a small amount of vapour trapped between the two valves will escape.
- (r) Confirm the customer's cylinder is leak free by applying soapy water with a spray bottle to the following:
- a. Outlet of the main valve.
 - b. Thread where the main valve is attached to the customer's cylinder.
 - c. Bleed valve opening.
- (s) For cylinders decant filled in QLD, ensure that Safety Alert No 33 is complied with.

- (t) If a cylinder is leaking and the leak cannot be stopped, recommend that the customer does not remove the cylinder. (Note: they have a legal right to demand the return of the cylinder. If they don't take the cylinder, remove to a remote part of the site and call Elgas.
- (u) Secure or remove the decant hose when the site is unattended and ensure that the cover of the supply cylinder is locked at all times when not in use.
- (v) If LPGas in liquid form comes in contact with bare skin or eyes, immediately wash the affected areas with cold or warm water (never hot) for at least ten (10) minutes and then proceed to your nearest Medical Centre: **WARNING!** Water hoses or taps on a site and when exposed to the sun can contain extremely hot water. Always let the water run and cool down before application.

5.2.4 *Forklift Cylinders*

This manual does **NOT** include instructions on refilling forklift cylinders. Refer to the Elgas LPGas Fuelled Forklift Vehicle Filling Safety Manual.

SECTION 6

6. MAINTENANCE AND HOUSEKEEPING

Good preventative maintenance and housekeeping go hand in hand with safety and helps to avoid breakdowns and incidents including vandalism with malicious intent.

Maintenance is often seen as breakdown repairs to be taken care of by qualified persons only, but in its broader sense, it is an on-going activity and an integral part of the daily operation.

It requires devoted efforts in maintaining standards, planning the activities and keeping proper records, as outlined below.

6.1 Inspecting Schedule

6.1.1 *Decanting Equipment*

Decanting equipment and the site should be inspected daily by a delegated person to ensure that the system is in safe and working condition. Refer to Appendix II for those items that need to be inspected.

A record of the daily inspections should be made and kept for at least 12 months. Appendix II shows a form of inspection record to be used.

6.1.2 *Fire Fighting Equipment*

Hose reels and fire extinguishers shall be properly maintained by the operator at six monthly intervals according to manufacturers recommendations and statutory requirements.

On a typical service station for example, there would normally be two portable powder fire extinguishers with a rating of at least 2A 60B (E) with at least one close to the decant point, and a fire water hose reel.

6.2 Site Upkeep

The area around the decant area should be maintained in a safe condition in particular:-

- (a) The area shall be kept clean of all extraneous material and rubbish.
- (b) Vegetation and overhanging trees which might become a fire hazard shall be kept under control. Other extraneous combustible materials shall be kept clear within 1m of LPGas storage.
- (c) Signs and notices shall be kept in a clearly legible condition.
- (d) The surface of all storage cylinders shall be kept clear of dirt and debris and the surface coating shall be maintained in good condition to prevent corrosion.

SECTION 7

7. **FIRST AID**

7.1 **Super Cold Contact Injuries**

Should LPGas in the liquid phase come in contact with the skin, then a Super Cold Contact Injury could occur, which is very similar to Frostbite.

This type of accident should not occur if protective gloves suitable for liquid LPGas operations are worn during possible contact periods.

The following two sheets detail the recommended procedures to be followed for the treatment of injuries, should a Super Cold Contact Injury occur.

7.2 **Burns**

Should the LPGas ignite and burn an operator and/or customer then the staff shall follow their standard site procedures.

Instruction to Drivers and Customers

First-Aid Procedures for Dealing with Super Cold Contact Injuries

Contact temperatures are usually below -30°C and tissue contact at this temperature results in snap freezing of the affected area causing damage similar to heat burn. Also, unprotected parts of the skin which come in contact with equipment at below zero temperatures may stick fast and the flesh may be torn on removal.

As LPGas has a boiling point of -42°C , direct bodily contact with LPGas in its liquid state must be avoided, as the above type of injury could occur. Other examples of liquefied gases are liquid nitrogen, oxygen and argon which have boiling points below -183°C .

IMMEDIATE TREATMENT

1. Remove any clothing splashed by LPGas and place injured person (or self) in a warm area as soon as possible.
2. Cold injuries must be **rapidly** rewarmed to body heat. **Do not** allow to thaw slowly as thawing of the frozen tissue can cause intense pain and shock may occur.

3. Exposure Area

Small exposure: Foot, leg, hand

Bathe affected part with warm water (NOT HOT) preferably $33-35^{\circ}\text{C}$, immersing if possible.

Larger areas: Trunk or multiple areas

Immerse in bath of warm water preferably $33-35^{\circ}\text{C}$. (If tepid water unavailable, tap water will do, but take care as prolonged immersing may cause a cooling hypothermia.)

Eyes:

Immediately hold eyes open and wash continuously with water for 15 minutes. Seek medical attention.

4. Loosen any article of clothing that is not frozen but may restrict blood circulation or respiration.
5. Gently cover or drape injured area with dry, sterile dressings or sheet. Do not restrict blood circulation.
6. Give warm **non-alcoholic** liquids.
7. Seek medical attention for all but the most superficial "frostbite" injuries.

DO NOT apply direct heat or cold such as heat lamps, hot water, snow or ice to the affected parts.

Hospital Information Sheet

Recommended Procedure for Treatment of Super Cold Contact Injuries

NOTE: This is **NOT** a heat burn and the patient has been splashed by LPGas in its liquid state, at a probable temperature of -42°C . Super cold temperatures causing this injury are usually below -30°C and tissue contact at this or lower temperature results in snap freezing of the affected area without intra-cellular fluid crystallisation occurring.

Local pain usually gives warning of freezing but sometimes no pain is felt, or is short-lived. Frozen tissues are painless and appear waxy, with a pale yellowish colour. Thawing of the frozen tissue can cause intense pain and shock may also occur.

- **Do not delay the warming process - such injuries must be RAPIDLY returned to body heat.**
- Treat for hypothermia if present.
- Immerse the affected area in a bath of $33-35^{\circ}\text{C}$. (Do not exceed 35°C .) Maintain at this temperature.
- Use a blanket or mattress if available.
- Administer adequate analgesic cover.
- If serious, commence warm IV therapy to assist thawing process.
- Once rewarmed, treat as for thermal burn.

Use non-adherent dressings, e.g. Bactigras wrapping, Vascogauze or other dry non-adherent dressing.

Full extent of damage may be delayed up to 48 hours (skin may look normal after thawing).

It is recommended that admission for observation be undertaken if there is any difficulty in assessing the extent of tissue damage.

For further information, please contact your State Burns Unit:

NSW	Phone: 02 9767 5000	Concord Hospital
VIC	Phone: 03 9267 2000	Alfred Hospital
QLD	Phone: 07 3636 8111	Royal Brisbane
SA	Phone: 08 8222 4000	Royal Adelaide
WA	Phone: 08 9224 2244	Royal Perth
NT	Phone: 08 8922 8888	Royal Darwin
TAS	Phone: 03 6222 8308	Royal Hobart

SECTION 8

8. PROCEDURES FOR HANDLING INCIDENTS

Incidents associated with LPGas decanting can be minimised if the recommendations in this document are followed properly. However, it should be emphasised that the Site Emergency Plan which is specific to the site shall be adhered to in case of an incident or accident. All incidents shall be reported as specified in the Emergency Plan and fully investigated. Where the site has a full and detailed Safety Management and/or Loss Prevention System then this shall be complied with.

Should your site not have an Emergency Plan however, please still ensure that all decanting incidents are reported to Elgas.

The following items outline the procedures for the most likely incidents:-

8.1 Gas Leaks

8.1.1 *Gas Leaks without Fire*

The immediate priority is to stop or minimise the leak.

Follow the Site Emergency Plan which should include the following:-

- Approach the leaking cylinder from an UPWIND direction wearing all the correct PPE.
- Close all valves on the leaking cylinder. Always keep cylinders upright.
- Keep bystanders well away. Note: a safe distance is difficult to detail as very dependent upon wind and site conditions. The site should cover this issue as part of a safety toolbox meeting.
- Ensure that there are no sources of ignition within the affected area such as Hot Water Systems, cars with running engines, people smoking etc.
- Disperse gas with water spray by directing the spray at the valve and the leak.

If leak is uncontrolled, follow the instructions in the Site Emergency Plan.

8.1.2 Gas Leak with a Fire

The immediate priority is to stop or minimise the leak, and to prevent fire from impinging on other cylinders or buildings etc.

Follow the Site Emergency Plan which, besides the instruction to contact the emergency services, should include the following:-

- Approach only from an UPWIND direction wearing the correct PPE.
- Close all valves on the cylinder (if possible).
- If fire continues but the flame does not impinge on any adjacent cylinder, **DO NOT** extinguish but control the fire taking these precautions.
- Keep cylinders upright.
- Keep the tops of decant and customer cylinders cool with water spray, i.e. put water **ONLY** on the vapour space (the top) of the cylinders.
- Keep bystanders well away.
- Remove other cylinders and flammable materials from the area.

If flame impinges on any cylinder:-

- Attempt to extinguish fire with a dry powder extinguisher.
- If fire is extinguished apply water spray to disperse leaking gas and attempt to close valves.
- If the fire remains uncontrolled then the site emergency plan for evacuation should be followed.
- **NOTE: DO NOT** re-use cylinders and equipment involved in a fire. These must be checked by Elgas or a cylinder test station as soon as possible.

8.2 **Overfilling**

8.2.1 ***Overfilling a Cylinder***

If the decanting procedures are not properly followed it is possible to overfill the cylinder being filled. In this case the white cloud/mist will continuously emerge from the open bleed valve. When overfilling occurs, remove the cylinder to a location as far from people and property as possible. Then the bleed valve must be kept slightly open until the white cloud/mist ceases to emerge. Then close the bleed valve and apply soapy water to check for possible leaks.

If you cannot find a suitably remote location and are unsure about having the bleed valve open, then it may be preferable to keep the bleed valve closed and call Elgas for advice.

- Ensure that you are wearing all the required PPE
- Keep all ignition sources (smoking, vehicles etc) away
- Leave the bleed valve open to bleed off excess liquid (appears as white cloud/mist).
- Stay in attendance during the entire process but at a safe distance.
- After the white cloud/mist disappears close the bleed valve.
- Apply soapy water all over the valve to check for leaks.

SECTION 9

TRAINING AND CERTIFICATION

9.1 Disclaimer

It is not intended nor implied that this document has legal authority, or that information therein may take place of, or otherwise be adopted to the exclusion of statutory requirements.

Elgas cannot accept responsibility for any incident or consequence thereof, whether or not in violation of any law or regulation, which arises or is alleged to have arisen from the application of this document or from the handling of LPGas.

However, it is intended that this document sets forth general safety procedures that reflect good industry practices. It is imperative that if a person(s) involved in the handling of LPGas is uncertain as to the safe operating practices after reading this manual, that they seek professional advice before proceeding.

9.2 Training

9.2.1 This document contains detailed information for the use of the decanting site owner and/or operator and under State and Federal Occupational Health and Safety Legislation the responsibility for ongoing training must rest firmly with the site operator.

The site operator, franchisee, dealer or nominated manager must ensure that their site personnel are trained to a level of proficiency to confidently carry out decanting a safe manner without risks to their health and safety and to that of customer and/or other parties on site.

Ongoing training due to staff turnover etc will be the responsibility of the site management.

9.2.2 Operators

9.2.2.1 The minimum requirements for operator training should cover the following:-

- Operator's legal responsibilities for maintaining safe working practices
- Cylinder inspection
- Protective clothing and other Personnel Protective Equipment (PPE)
- Decanting equipment
- Maintenance of equipment
- Static electricity
- Practical training in decanting
- Trouble shooting
- Emergency response
- First aid

9.2.2.2 A register should be maintained by the site operators or other nominated management documentation as follows:

- Name of site person nominated to undertake LPGas decanting training
- Name of trained operator(s)
- Completion date of successful training

9.2.2.3 The register should be available for inspection at the site.

9.2.2.4 Elgas will undertake initial training on the site when requested by the site operator and has included a theory test for the use of the site (see Appendix III).

APPENDIX I

LPGas

Material Safety

Data Sheet

PLEASE NOTE: The latest Material Safety Data Sheet for LPGas is available upon request or from the Elgas website www.Elgas.com.au

APPENDIX II

Site Inspection Record for use of Site Operator

Note: The following page is the Master Copy.

The Decant Outlet should take multiple copies of this page and keep as a separate record, should the site be inspected and/or audited by a third party, e.g. the relevant State Authorities.

Site Inspection Record (Note: the list below is a simple checksheet for use by decant sites that do not have their own in-house procedures)

DATE:

	STATUS	ATTENTION REQUIRED	Date Reported and to whom	Date Action Completed and by whom
	Place ✓ if OK	Place ✓ if attention required		
<p><u>Storage Cylinder or Vessel:-</u> External Condition (rust, corrosion, damage, etc) Signs (in place, legible) Location (has it been moved) Cover and lock for 190/210kg cylinders Impact protection from traffic etc</p> <p><u>Fire Fighting Equipment and PPE:-</u> Hose Fire Extinguishers Safety glasses and gloves</p> <p><u>Fittings:-</u> Adaptors Pressure Relief Valve (capped and not leaking) Other valves Hose Dead man's handle (decanting valve)</p> <p><u>Housekeeping:-</u> Rubbish Vegetation Sources of Ignition Access</p>				

If there is any concern over the LPGas Storage Cylinder and/or Fittings contact Elgas at your local branch.

APPENDIX III

Theory Test

THEORY TEST FOR LPGas DECANTING OPERATORS

1. Q. What to the initials LPGas mean - Liquid Petroleum Gas, Liquefied Petrol Gas or Liquefied Petroleum Gas

A. **Liquefied Petroleum Gas**

2. Q. What type of Liquefield Petroleum Gas is used for decanting?

A. **Propane**

3. Q. Can you fill cylinders direct from the Auto-Gas Dispenser?

A. **Never; because of the LPGas blends used for Auto-Gas and possible over filling.**

4. Q. What are three hazards of LPGas?

A. (a) **It is highly flammable.**
(b) **It could asphyxiate in an enclosed area.**
(c) **It can cause super cold contact injuries.**

5. Q. Would you fill LPGas Cylinders in a confined area?

A. **No. LPGas must only be decanted in a well ventilated area. As the gas is heavier than air any leakage will collect in low lying areas and present a hazard.**

6. Q. What is the time period between cylinder tests?

A. **Ten years**

7. Q. When would you fill a cylinder that was out of test period?

A. **Never**

8. Q. Name six (7) important points to check before filling cylinders?
- A. (a) **Is the cylinder being filled overdue for retest.**
(b) **No damage to cylinder.**
(c) **No sign of rust.**
(d) **All valves in working order.**
(e) **Test for leakage.**
(f) **The cylinder has a “Test Station” stamp.**
(g) **All the required PPE is on site and being worn.**
9. Q. In the event of a liquid spill what is the first thing to do?
- A. **Turn off the valve at the source of the spill.**
10. Q. In the event of an LPGas escape, where is the bulk of escaping gas likely to flow and collect?
- A. **Downhill or collect in gullies, trenches and drains, remaining there until ventilated.**
11. Q. What checks must be carried out when filling a cylinder?
- A. **A leak test to be applied to the hose connection to the cylinder, around the valve thread, valve spindle and gland nut and any other fitting on the cylinder.**
12. Q. What solution would you use for leak detection?
- A. **A solution of soap and water, or a detergent solution.**
13. Q. What must be done if a fault is found with a cylinder being filled?
- A. **Cease filling. Place in an open area, away from sources of ignition, vent gas in small quantities, and refer immediately to nearest testing station.**
14. Q. When do you know that the cylinder has been overfilled?
- A. **When liquid appears at the bleed valve as a continuous white cloud.**

15. Q. What is the first action you would take in an emergency involving a LPGas escape where –
(a) it catches alight; and (b) it does not catch alight?
- A. **(a) and (b) close a valve upstream of the escape.**
16. Q. Why is a liquid LPGas leak more dangerous than a vapour LPGas leak?
- A. **Any given volume of liquid LPGas will produce 270 volumes of vapour, so that even a small liquid leak will release a large volume of vapour.**
17. Q. What are LPGas Super Cold Contact Injuries?
- A. **Cold burns are caused by extremely cold propane (in the liquid phase) vapourising on the skin and causing the injuries as detailed on the Super Cold Contact Injuries Sheet.**
18. Q. When decanting cylinders and the filling process is commenced, can the operator attend to other matters?
- A. **No. It is required that the operator be in attendance until the completion of the filling procedure. He or she must NOT leave the filling location.**
19. Q. Can the main storage decanting cylinder be filled from the Auto-Gas outlet?
- A. **No. Again, because the decanting storage cylinder must only contain propane whereas, Auto-Gas can be a propane-butane blend.**
20. Q. Initially and before turning the bleed-screw when the customer's cylinder is full should you touch the main decanting cylinder with your bare hands and why?
- A. **Yes. It is very important to remove static electricity from the operator's body, so the main decanting cylinder must always be touched by the operator with a bare hand, before turning the bleed screw.**

APPENDIX IV

Certificates

Notes:

Where the certificate states “Description of Decanting Equipment on site”, simply enter the following:

- Cylinder size and cylinder serial number (s) and test date (s)
- Approx length of decanting hose
- Confirm deadman’s handle fitted
- General note on condition of equipment on site, i.e. good, clamp observed on deadman’s handle, site clean, rubbish around cylinder, milk crate being used etc.

- 1) Decanters Certificate to Operate (Operator's Copy)
- 2) Decanters Certificate to Operate (Elgas Copy)
- 3) Site Staff: Names of Staff Training and Date(s) of Training



Decanters Certificate to Operate

Customer Details

Customer Name: _____(Customer)

Address: _____(the Premises)

Ph: _____ Account Number: _____ Date of Training: _____

Installation Details

LPG Vessel(s)/Cylinder(s) on site: Size _____ No. of Vessels/Cylinders _____

Description of Decanting Equipment on site: _____

I, the Customer, acknowledge having been trained in the safe handling and filling of LPG cylinders by the Decant method. I also understand my obligation to **instruct all employees or other personnel**, who may fill cylinders at the Premises, in the correct procedures to be followed.

The following have been supplied:

1. Decanting Instructions
2. Instructions for Cylinder Filling as per AS/NZS 1596
3. Copy of Cylinder Filling Check List
4. Emergency Procedure Guide

I have read and understood the relevant section of the Regulations and undertake to comply with all requirements.

Particular attention has been drawn to the location of the decanting cylinder(s) with reference to distances from public areas, buildings on adjoining property, naked flames, flammable material and any other sources of ignition including all electrically operated equipment (e.g. compressors and food vending machines).

**SIGNED for and on behalf of the Customer
by a duly authorised officer in the presence of:**

.....
Witness

.....
Authorised Officer Signature

.....
Name

.....
Position

SIGNED for ELGAS LIMITED in the presence of :

.....
Witness

.....
Authorised Officer Signature

.....
Name

.....
Position



Decanters Certificate to Operate

Customer Details

Customer Name: _____(Customer)

Address: _____(the Premises)

Ph: _____ Account Number: _____ Date of Training: _____

Installation Details

LPG Vessel(s)/Cylinder(s) on site: Size _____ No. of Vessels/Cylinders _____

Description of Decanting Equipment on site: _____

I, the Customer, acknowledge having been trained in the safe handling and filling of LPG cylinders by the Decant method. I also understand my obligation to **instruct all employees or other personnel**, who may fill cylinders at the Premises, in the correct procedures to be followed.

The following have been supplied:

- 5. Decanting Instructions
6. Instructions for Cylinder Filling as per AS/NZS 1596
7. Copy of Cylinder Filling Check List
8. Emergency Procedure Guide

I have read and understood the relevant section of the Regulations and undertake to comply with all requirements.

Particular attention has been drawn to the location of the decanting cylinder(s) with reference to distances from public areas, buildings on adjoining property, naked flames, flammable material and any other sources of ignition including all electrically operated equipment (e.g. compressors and food vending machines).

SIGNED for and on behalf of the Customer by a duly authorised officer in the presence of:

.....
Authorised Officer Signature

.....

Witness

.....
Name

.....
Position

SIGNED for ELGAS LIMITED in the presence of :

.....
Authorised Officer Signature

.....
Witness

.....
Name

.....
Position

CUSTOMER COPY

Forklift Cylinders

Restricted dispensing - the filling of cylinders and automotive fuel containers shall be subject to the following restrictions:-

- (a) Cylinders or fuel containers **other than those** that are mounted on a vehicle, and installed to supply fuel to an engine only, shall **not be filled** from the automotive fuel-dispensing unit of a service station.
- (b) A tank that supplies propane/butane blends for engine fuel **shall not be used** to fill cylinders for applications other than for engine fuel.
- (c) Subject to Item (b), cylinders may be filled from dispensers other than at a service station provided that the cylinder fittings and the site equipment and procedures are appropriate to the prevention of overfilling. Where any such cylinder is less than 25L capacity, and the filling is by methods other than decanting, filling shall be controlled by weight.

APPENDIX VI

ALPGA Safety Alert

The Two Separate Fuels

A Safety Alert

At service stations two grades of LIQUEFIED PETROLEUM GAS are stored.

These grades are not interchangeable.

One is for automotive use only and could be a **PROPANE - BUTANE** mix. Refueling is by means of driveway dispenser.

The other is **PROPANE** which is used exclusively for decanting into small cylinders for caravans, barbecues and camping.

The Australian Standard Code AS/NZS 1596 LP GAS STORAGE AND HANDLING does not allow the filling of non-automotive cylinders from automotive dispensing units. AS/NZS 1596 is endorsed by Regulations in most States and therefore has the full force of law. The observance of this requirement is essential to ensure safety.

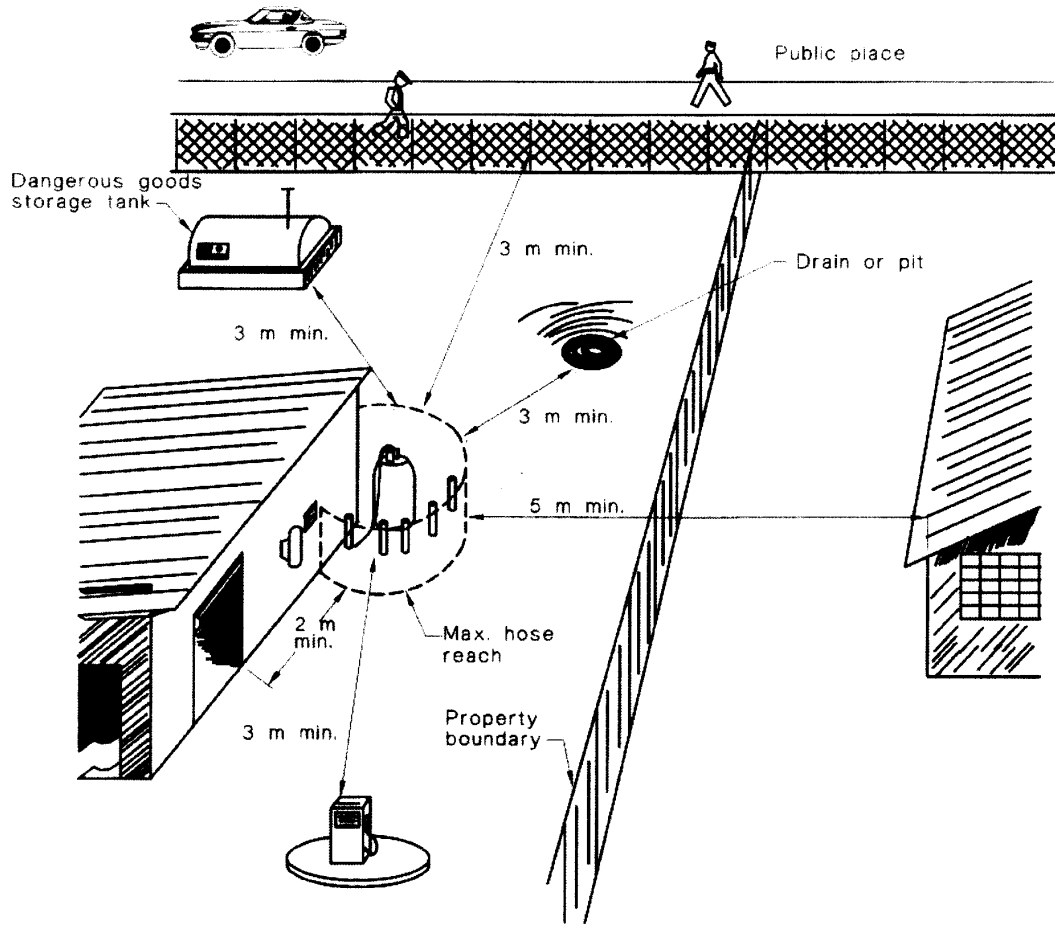
The Manager of an LP Gas installation is legally responsible for the competence of any supervisory staff or dispenser attendant. It is also the Manager's responsibility to prevent the filling of non-automotive (domestic or leisure) LP Gas cylinders with any automotive LP Gas blend.

Appliances in Australia have been manufactured to operate with PROPANE ONLY. A Propane/Butane blend will not burn correctly in some appliances. Products of incomplete combustion such as carbon monoxide may cause serious injuries and can even be fatal.

A DANGEROUS SITUATION COULD DEVELOP IF A PROPANE/BUTANE BLEND IS USED FOR NON-AUTOMOTIVE PURPOSES, INCLUDING DOMESTIC AND LEISURE APPLIANCES.

APPENDIX VII

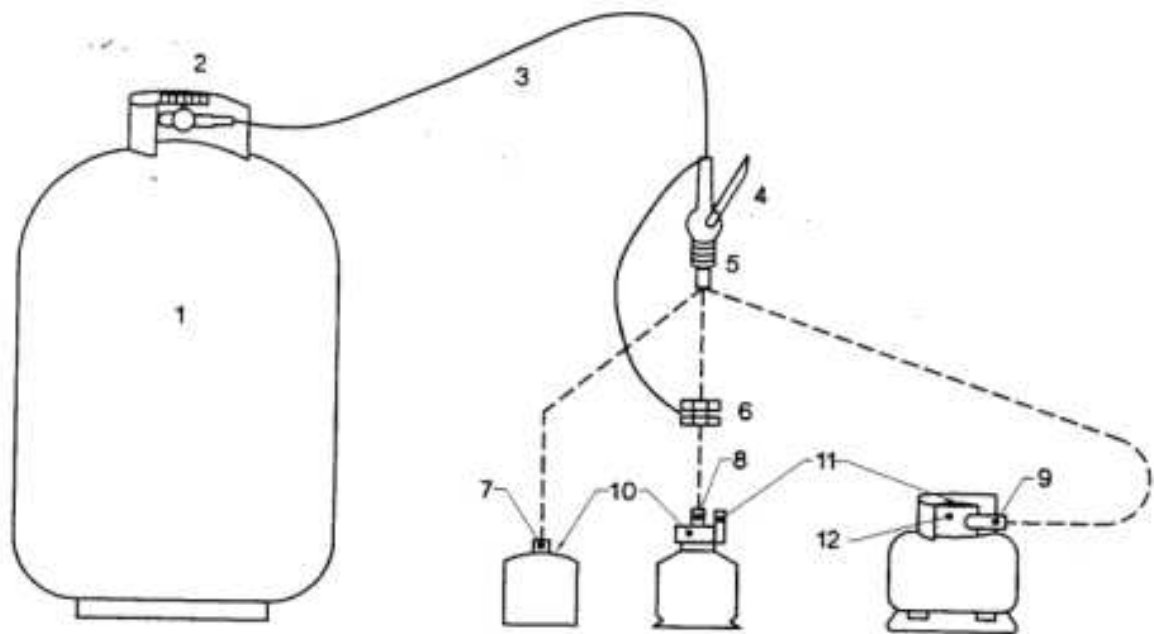
Decanting Cylinder Location



AS1596 – 2002. Figure 7.1 Decanting Cylinder Location

APPENDIX VIII

Details of Decanting Equipment



LEGEND:

- 1 = Decant vessel
- 2 = Decant vessel main valve
- 3 = Decanting hose
- 4 = Spring-loaded dead-man's nozzle valve
- 5 = Nozzle
- 6 = Adaptor for external threads

- 7 = Fitting—Internally threaded outlet.
The plunger valve inside the cylinder opens or closes as the nozzle is connected or disconnected
- 8 = Fitting—Externally threaded outlet
- 9 = Standard fitting—POL outlet
- 10 = Bleed valve—opened with a spanner
- 11 = Cylinder main valve—controlled by hand
- 12 = Bleed valve—adjusted with an Allen key or screwdriver

FIGURE L1 DECANTING EQUIPMENT

APPENDIX IX

Queensland Safety Alert No 31

Queensland Safety Alert No 33

Notes:

- 1) Full details of the above alerts are available at <www.dme.qld.gov.au> petroleum and gas safety.**
- 2) Contact your local Elgas branch for details of suppliers of suitable plugs.**

Legislation changes now in force

Amendments have been made to the *Petroleum and Gas (Production and Safety) Act 2004* (P&G Act) and *Petroleum and Gas (Production and Safety) Regulation 2004* (the Regulation) in relation to several petroleum and gas safety and health issues. The changes took effect from 1 January 2008 and address a number of important issues that affect both the upstream petroleum and downstream gas industry sectors.

A summary of these changes can be found on the department's website www.dme.qld.gov.au in the petroleum and gas safety section, along with links to amendment Bills and the revised legislation.

For further information, contact Stephen Matheson, Deputy Chief Inspector, Petroleum and Gas, stephen.matheson@dme.qld.gov.au on 07 3237 1389.

Competency standard for drilling industry finalised

A coronial inquest into a fatality at a drilling rig provided the impetus to enact changes to the *Petroleum and Gas (Production and Safety) Regulation 2004* (new section 54AA) and introduce competencies for the drilling industries.

An operator of a drilling rig is now required under the Regulation to ensure that rig workers have obtained particular safety related national competencies before working on a rig.

The competency requirements form part of a standard for the petroleum and gas drilling industry, developed after extensive consultation with industry. The final version of the drilling competency standard (December 2007) is available from the petroleum and gas safety pages on the department's website www.dme.qld.gov.au.

A 12-month transitional period has been provided to allow time for existing drilling organisations and their drill rig workers to achieve the competency requirements.

Workshops code: working areas for gas-fuelled vehicles

Petroleum and Gas Inspectors have been conducting compliance inspections of existing LP Gas automotive workshops. Many businesses were issued with an authorisation based on their written submission statement that their existing workshop/s complied fully with the workshops code.

These businesses may not have been subject to an inspection, as is now the current requirement. As a result of this change in assessment procedures, many of these existing workshops are now failing site inspections as the equipment and workshop requirements of AS 2746 Appendix B have not been complied with in full.

When an inspector visits your workshop and it is found to be non-compliant with the above standard, your authorisation could be suspended until the issues are rectified.

Common areas of non-compliance include:

- missing or no flammable gas warning signage at or near the workshop entry
- used tanks not stored in accordance with cl.4.12 of AS 2746 (not purged, capped, stacked and racked)
- no inert gas pressure testing and purging system suitable for 2.3 MPA
- no LP gas fuel recovery system for emptying faulty tanks
- cheap non-rolling action flaring tools (inappropriate)
- no four gas exhaust analyser
- no current Australian standards available or accessible in the workshop.

If your workshop is missing any of the above items or others listed in AS 2746 Appendix B, it may be non-compliant, and you should remedy this situation immediately.

The checklist used by our Inspectors is available at the DME website www.dme.qld.gov.au as part of the application for gas work authorisation (motor fuel).

For more information, contact your local Petroleum and Gas Inspectorate office.

Latest safety alerts

Safety Alert 31 Portable gas refrigerators

Portable gas refrigerators must not be used in unventilated enclosed spaces. A recent fatality involving the use of one of these devices in a vehicle has prompted this safety alert. In unventilated spaces, such as an enclosed vehicle, the oxygen in the air is rapidly used up and the burner produces significant quantities of carbon monoxide, which can reach lethal concentrations.



Safety Alert 32 Air conditioner locations

This safety alert was primarily targeted at the air conditioning industry, after incidences of split system compressors being located beside gas cylinders. Gas installers should be aware that these devices are sources of ignition and cylinders need to be installed at the required distance away from them. This equally applies to power points, lights, motors of any kind and naked flames such as a gas hot water system (HWS).



Safety Alert 33 Screw Plugs

From 1 April 2008 LPG suppliers must ensure that all cylinders supplied with gas have screw plugs fitted. The use of plugs will substantially reduce the risk of gas leaking from the cylinders, reducing the risk of incidents when transporting cylinders in vehicles. Note that the term 'plug' covers caps used with male threaded outlets.



Read the Safety Alerts at www.dme.qld.gov.au, petroleum and gas safety.