

**MAKEEN**  
ENERGY



# SAFETY GUIDELINES

The steady sense of safety  
on LPG and LNG sites

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***You are always responsible for your own safety on LPG and LNG sites. If you experience or notice something that seems irregular or dangerous, you must report it to the local staff. In case you do not get an adequate explanation, you shall report it to the plant manager and leave the site.***

*Safety always comes first. That is our philosophy at MAKEEN Energy. However, we cannot turn it into reality on our own. When you stay on an LPG or LNG site, you play a vital part in ensuring a high level of safety. It is therefore important that everyone reads through this safety folder before entering a site and its Ex classified area\*.*

This folder highlights the precautions you need to take when you are on an LPG or LNG site – more specifically, when you step into the Ex classified area on a site. In this area, certain precautions must be taken to prevent fires and explosions, and we are all responsible for following the safety rules.

It is important to state that when LPG and LNG are handled carefully and correctly, they are as safe as any other fuel. However, if they are handled without care, they are very dangerous. In such situations, even the smallest spark – from electrical devices, tools or static electricity – will ignite the gas. Naturally, this poses a significant risk for everyone around.

To prevent such dangerous situations, this safety folder points out important safety measures to remember when you enter Ex classified areas on LPG and LNG sites. If just one rule is ignored, people on the site – and nearby – are exposed to the risk of serious accidents.

To ensure a steady sense of safety, everyone must follow the safety rules at all times.

*\* An Ex classified area: A hazardous area with an explosive gas atmosphere*



Be cautious at all times  
– act responsibly

## 8 guidelines for LPG and LNG sites

When you stay on an LPG or LNG site, you play a vital part in ensuring a high level of safety. It is therefore important that everyone follows these 8 guidelines when stepping into the Ex classified area on a site.

In addition to the guidelines in this chapter, people working on an LPG or LNG site need to follow specific rules regarding tools, clothes, work procedures, etc. Personnel should ask the site owner or the plant manager for more information.



*An Ex classified area: A hazardous area  
with an explosive gas atmosphere*



## 1. USE YOUR COMMON SENSE AND LOGICAL REASONING

When staying on an LPG or LNG site, you should always use your common sense and logical reasoning. If you experience or notice something that seems irregular or dangerous, you must report it to the local staff immediately.



## 2. KNOW - AND FOLLOW - THE LOCAL INSTRUCTIONS

It is your responsibility to know - and follow - the local instructions on the LPG or LNG site. Importantly, this also includes precautions in the event of a fire or an explosion. Everyone must help ensure that the local instructions are strictly observed at all times.



### **3. KNOW THE LOCAL SAFETY EQUIPMENT AND EMERGENCY PROCEDURES**

Make yourself familiar with the safety equipment on the LPG or LNG site - both its location and its use - as well as the local emergency procedures and evacuation plans. As a part of the site's safety measures, you must always wear antistatic clothes, antistatic safety footwear, safety glasses and hearing protection when entering the Ex classified area on a site.



### **4. NEVER STAY ALONE**

When staying in an Ex classified area on an LPG or LNG site, you should never be alone.



## 5. DO NOT BRING FORBIDDEN ELECTRICAL ITEMS

In an Ex classified area on an LPG or LNG site, it is only allowed to bring along Ex approved electrical equipment. If you need to take any electrical items into the area, you must first get a local approval.

Examples of items that are not allowed include:

- Flash photography and electrical portable lamps in non-explosion proof designs
- Electrical equipment such as mobile phones, electrical watches, computers, calculators, shavers, transistor radios, electrical hand tools, etc.



## 6. NEVER USE AN OPEN FIRE

All kinds of open fire are strictly forbidden in the Ex classified area on an LPG or LNG site – including smoking, matches, lighters and any form of welding, grinding, etc. Normally, you can leave forbidden items at the site entrance.



## 7. DO NOT CONSUME ALCOHOL OR DRUGS

Intoxication or consumption of spirits or drugs is not allowed on an LPG or LNG site and will in no way be tolerated.



## 8. TREAT AND REPORT ACCIDENTS AND NEAR MISSES

Any accident or near miss on an LPG or LNG site must be reported to the local staff. In the event of minor accidents, you should always clean and treat cuts, grazes, dust in the eyes, etc. immediately to prevent possible complications or infections.



Be conscious of safety  
– prevent accidents

## Special precautions on LNG sites

LNG differs from LPG in ways that make it necessary to take special precautions when being on an LNG site. This is mainly due to that fact that natural gas needs to be cooled down to  $-162^{\circ}\text{C}$  ( $-259^{\circ}\text{F}$ ) to make it liquid/LNG. The petroleum gas for LPG becomes liquid when it is put under pressure, and it is therefore not as cold as LNG.

### Risk of frostbites

As the temperature of LNG is  $-162^{\circ}\text{C}$  ( $-259^{\circ}\text{F}$ ), the surface of pipes and hose components may go below the freezing point. Consequently, touching these surfaces is very dangerous and may cause severe frostbites. In case of a leak, the cold vapour can also cause frostbites.

### The danger of heating up

The cold LNG is stored under pressure, but if it is heated up, it will change from a liquid to a gas. During this process, it expands massively and the pressure rises. In case of a leak, it will expand even more because the surrounding temperature will contribute with further heating.

## Clothes for LPG and LNG sites

To minimise the risk of personal injuries in the event of an accident, everyone who enters the Ex classified area on an LPG or LNG site must always wear:

- Antistatic clothes (must comply with EN 1149-3)
- Antistatic safety footwear (must comply with EN 20345)
- Safety glasses
- Hearing protection

Depending on what you are doing on the site, it can also be recommended, or demanded by the site owner, to wear gloves, a face mask and/or a safety helmet.

To avoid static electricity, you must never use clothes, tools, etc. made of synthetic materials, incl. rubber footwear, in the Ex classified area on an LPG or LNG site.



## Special clothes for LNG sites

When walking into the Ex classified area on an LNG site, your clothes need to meet the requirements mentioned to the left.

Moreover, they must also fulfil the following criteria:

- Clothes need to be:
  - chemically resistant (must comply with EN 13034)
  - flame retardant (must comply with EN 11612)
- Safety footwear needs to be high-legged and fully closed

These precautions must be followed at all times to minimise the risk of severe frostbites and burns in the event of an accident.



## In the event of an accident

1. Stay calm and in control – even in an emergency situation
2. Call for help immediately – more people ensure faster action
3. Raise the alarm – warn others on the site
4. Press the emergency stop
5. Think and react quickly – time is a limited factor
6. Help others – together you can correct the situation



Never compromise  
– follow the regulations

## 8 guidelines for LPG and LNG sites

From MAKEEN Energy's brochure  
'Safety guidelines – The steady sense of safety  
on LPG and LNG sites'



1. Use your  
common sense  
and logical  
reasoning



2. Know – and  
follow – the local  
instructions



3. Know the local  
safety equipment  
and emergency  
procedures



4. Never  
stay alone



5. Do not  
bring forbidden  
electrical items



6. Never use an  
open fire



7. Do not  
consume alcohol  
or drugs



8. Treat and  
report accidents  
and near misses

*You are always responsible for your own safety on LPG and LNG sites.  
If you experience or notice something that seems irregular or dangerous, you  
must report it to the local staff. In case you do not get an adequate explanation,  
you shall report it to the plant manager and leave the site.*

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