



Liquefied Petroleum Gas (LPG)

General Information

Key Points

- liquefied petroleum gas (LPG) primarily consists of propane, butane or a mixture of the two
- it is a colourless highly flammable gas which may have a strong odour if added
- it is used as a fuel for heating, cooking and for vehicles; it is also used as propellant and refrigerant
- exposure to very small amounts could occur following use of LPG as a fuel for household appliances such as heaters and portable stoves
- inhalation can cause agitation, nausea, vomiting, flushing, headache and lack of balance
- exposure to high concentrations may cause asphyxiation, fitting, coma, heart problems and death
- skin contact with LPG released under pressure can cause frostbite

Public Health Questions

What is LPG?

LPG or liquefied petroleum gas is a colourless and highly flammable gas. It is a component of natural gas and consists primarily of propane, butane or a mixture of both. The gas can be stored, compressed as a liquid in cylinders for later use. In the UK it is supplied to standard BS 4250.

To help detect leaks of the odourless gas, compounds such as ethanethiol (ethyl mercaptan) are added to give a distinct odour detectable by most people at low concentrations.

What is LPG used for?

LPG has a variety of uses. It is widely used as a fuel for domestic or camping heating and cooking appliances. It is also used as a lighter fuel, as a refrigerant, as a propellant in aerosols, as a fuel in some vehicles and for the production of other chemicals and materials.

How does LPG get into the environment?

LPG may be released into the environment during its use, storage, handling or disposal; it may also be released following an accident at any of these stages. LPG is rapidly broken down in the environment following its release to air.

How might I be exposed to LPG?

The general population could be exposed to LPG when using equipment, appliances or products that use LPG as a fuel e.g. camping stoves. However when using products as recommended by the manufacturer, any exposures to LPG are likely to be small.

Exposure to LPG may also occur in the workplace, where it is stored, used, transported, produced or disposed of. Safe levels are enforced to protect employees who may be exposed to LPG at work. Such levels are below those that are thought to cause harmful effects.

If I am exposed to LPG how might it affect my health?

The presence of LPG in the environment does not always lead to exposure. In order for it to cause any adverse health effects you must come into contact with it. You may be exposed by breathing in the substance, or by skin contact. Following exposure to any chemical, the adverse health effects you may encounter depend on several factors, including the amount to which you are exposed (dose), the way you are exposed, the duration of exposure, the form of the chemical and if you were exposed to any other chemicals.

Inhalation of the gas may cause agitation, slurred speech, nausea, vomiting, flushing, headache and lack of coordination and balance. Exposure to high concentrations (following

misuse) may cause breathing and heart problems, fitting, coma and death. Asphyxiation may also occur from exposure to high levels.

Skin contact with the liquefied gas as it escapes a container can cause frostbite. LPG is highly flammable.

Can LPG cause cancer?

LPG specifically has not been assessed by the International Agency for Research on Cancer (IARC). It is not considered to cause an increased cancer risk.

1,3 butadiene is a chemical which may be found in LPG as an impurity from its production. IARC has assessed 1,3-butadiene and considers that it causes cancer in humans. Under EU Classification, Labelling and Packaging (CLP) Regulations LPG that contains over 0,1% 1,3-butadiene must be labelled as having the potential to cause cancer and mutations. Where the supplier has assured that this chemical is not present above 0.1% in their LPG, the container does not have to carry these or any other health warnings.

Does LPG affect pregnancy or the unborn child?

There are no relevant studies available to assess the reproductive and developmental effects of LPG in humans. Following normal use of LPG products, as recommended by the manufacturer, any exposure should be very small and would not be expected to harm the unborn child.

Serious harm to the unborn child has been reported following use of butane as a recreational drug by pregnant women.

Information on exposure to butane during pregnancy can be found at the following website:
<http://www.medicinesinpregnancy.org/Medicine--pregnancy/Butane/>

How might LPG affect children?

There is no evidence that children would be affected differently to adults following exposure to LPG. LPG products should be kept out of the reach of children and stored appropriately.

What should I do if I am exposed to LPG?

Low level exposure as may occur from the correct use of LPG products would not be expected to cause any adverse health effects. However, if you have any health concerns regarding exposure to LPG seek guidance from your GP or contact NHS 111.

Additional sources of information

UKLPG: <http://www.uklpg.org/>

HSE - Liquefied Petroleum Gas: <http://www.hse.gov.uk/gas/lpg/index.htm>

NHS Choices – Poisoning: <http://www.nhs.uk/Conditions/Poisoning/Pages/Introduction.aspx>

This information contained in this document from the PHE Centre for Radiation, Chemical and Environmental Hazards is correct at the time of its publication.

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For queries relating to this document, please contact: generaltox@phe.gov.uk

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