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Liquefied Petroleum Gas Initial Changeover Assessment NG-LPG (CoNGLP1)

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T: 01332 376000
F: 0845 121 1931
E: info@bpec.org.uk
W: www.bpec.org.uk
BPEC, 1-2 Mallard Way, Pride Park, Derby, DE24 8GX

Characteristics of Liquefied Petroleum Gas (LPG)

Liquefied Petroleum Gas as its name suggests is a by-product of the petroleum industry that is supplied in a liquid form. LPG is obtained during the refining process of crude oil. LPG is unique among the commonly used fuels in that it can be stored in a liquid form under moderate pressure and at normal ambient temperatures.

Types of commercial LPG (propane and butane)

There are two types of LPG:

Propane generally coloured red, stored in purpose designed cylinders or in larger bulk storage vessels

Butane coloured blue, sold in cylinders only, rarely sold as a bulk

Supply, stored in purpose designed cylinders or in larger bulk storage vessels

Storage pressures for both gas types in cylinders and vessels

LPG is always stored in a liquid form,

Vessels are filled to only 85% of their liquid capacity, this allows for expansion of the liquefied gas due to the ranges of ambient temperature (weather changes).

The range of expansion pressures are:

Propane minimum pressure 2.7bar approx maximum pressure 10bar

Butane minimum pressure 0bar approx maximum pressure 3 to 4bar

Storage pressures for both gas types in cylinders and vessels cont…

As gas is removed from the vessel, the liquid remaining boils, replacing the gas removed, and thereby maintaining a continuous gas flow.

The normal storage pressures for LPG vessels at an ambient temperature of 15°C are:

Propane cylinders and bulk storage vessels 100psi (6.9bar)

Butane cylinders 28psi (1.93bar)

Specific gravity of LPG vapour and its effect in relation to air and natural gas

Specific gravity (SG) is made between the density of a gas and that of air and can also be referred to as the relative density (RD).

The specific gravity of air is 1

The specific gravity of LPG is 1.5

Therefore LPG is 1.5 times heavier than air

Specific gravity for **Propane** is 1.5

Specific gravity for **Butane** is 2

Therefore both of these gases if released into the atmosphere would fall to the ground – again this is an important point to remember.