

## CASE STUDY TECHNOLOGY

# CNG – the naturally safe fuel alternative

According to a survey by the UK's Health & Safety Executive, forklift truck drivers have the highest exposure to diesel engine exhaust emissions in the surface industry, equivalent to that of workers in coalmines.

With fleet and warehouse managers governed increasingly by strict occupational health and safety legislation, many are turning to CNG (Compressed Natural Gas)-fuelled forklift trucks as a cleaner and quieter source of power.

Here, compressor manufacturer, CompAir examines the growing interest in natural gas as an alternative, safer fuel source for intensive handling applications; a trend that is stimulating estimated worldwide growth in numbers of between 20-25%.

### Compressed Natural Gas – The Basic Ingredient for Safer Handling

The transition to using CNG to power fork lift trucks is straightforward as almost any facility located on or near a natural gas pipeline can make use of the fuel. Using a simple compression unit, operators can turn this raw gas into a suitable fuel source ready for rapid dispensation onto the forklift. Within just a few minutes, the driver can fuel the forklift truck, without lifting heavy LPG bottles or having to wait for batteries to charge and, without the risk of diesel or petrol spillage.

CompAir makes the process easy with a choice of several small footprint units that provide CNG safely, efficiently and at low cost. Built with the backing of over 100 years' experience, the Gazpack range is designed to provide fuel 24 hours per

day. A CompAir Gazpack takes up minimal space, is safe to use indoors and has been proven all over the world in situations where reliability is crucial for effective operations.

### Safety First

With today's strict health and safety legislation, operators need to consider the impact of the working environment on their drivers. CNG-fuelled trucks produce little smoke or odour, are virtually lead-free and can reduce noise levels considerably as Jacky Joas, global sales and marketing director for CompAir's high pressure division explains: "In an intensive handling application, CNG has a number of advantages over petrol, diesel and electric. Not only are the CO2 emissions levels lower than any other fuel, even LPG, but the particulate matter emitted by CNG vehicles is reduced by as much as 98%. This improves air quality greatly, reduces the need for

### Overview

#### ▶ Client

CNG

#### ▶ Products

D75H SR oil-free compressor

#### ▶ Customer Benefits

Designed to provide fuel 24 hours a day

## CASE STUDY TECHNOLOGY

substantial extraction systems and also helps to maintain the cleanliness of goods handled, as there is less atmospheric contamination.

“Another positive is that CNG forklift trucks are up to 50% quieter than diesel-powered trucks, a factor which is becoming increasingly prevalent in Health and Safety legislation,” continues Mr Joas. One such case is Qantas Air Freight in Melbourne, Australia, where CNG forklifts service over 100 truck movements per day. Qantas Freight’s 24/7 operations are unforgiving, with downtime having a crucial effect on its freight services. Qantas switched to CNG-powered forklifts in Melbourne following the successful use of CNG at its terminal in Sydney, replacing electric forklifts that had consistently underperformed.

Eight years on the switch has been a marked success with staff at the terminal noticing significant reductions in noise and exhaust levels relative to diesel forklifts, and increased reliability over electric equivalents. Qantas’s gas supplier, Tru Energy chose a CompAir Gazpack, which has now been providing fuel for more than 20 CNG forklifts on the site for the past 8 years. Taking up less space than the previous electric charging station, the Gazpack 9, with 20-bottle storage, has proved an unobtrusive piece of equipment with compressor noise almost non-existent.

### Naturally Safer

CNG also enjoys advantages over petrol or diesel in the area of fuel safety. In the event of a fuel leak, gas will dissipate upwards rapidly. At 580°C, it also has a much higher ignition temperature than petrol (at 220°C), and a narrow range of flammability. It is non-toxic, non-corrosive and will not contaminate ground water.

### Faster Refueling

In fast-moving warehouses, refueling must be completed as quickly as possible to limit downtime, without compromising operator safety. CNG refuelling takes only two to three minutes per truck, with no chance of leakage or spillage given the “sealed” nature of the gas refuelling system. The refuelling system is also extremely safe with breakaway valves between the dispenser and refuelling hoses, which means that no gas can leak out if an operator drives away without first disconnecting the hose from the vehicle. In addition, gas is normally supplied via the national pipeline, so the risks associated with hazardous tanker deliveries are removed. Combine all this with the absence of manhandling associated with LPG refuelling and the problems with battery charging on electric forklifts, and the benefits of CNG become even clearer.

John Colangeli of Qantas continues: “Before making the switch to CNG, most of our forklifts had been electric but they needed constant attention. Batteries had to be charged, we had to have spare batteries on stand by and a charge would never last a full shift. Drivers would swap dead batteries over only to discover that the fresh battery was just as flat as the old one! “The CNG forklifts are clean, they don’t smell and they’re the most reliable trucks I’ve used in my thirty years here. More importantly refueling is fast – in five minutes the tanks are full with enough fuel to last a complete shift. We’re very very pleased.”

Given that there are so many positives for the use of CNG to power forklift truck safety, it is not surprising that there is strong growth in the UK market: according to a recent article in the Times, 11% of all counterbalanced trucks sold during 2005 were CNG-powered. With more and more companies trying to find ways to cut costs and to lessen their burden on the environment, the compelling argument for CNG fuelled forklifts will be hard to ignore.

