
Safety Advice No. 22

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The Dangers of Industrial Gas Abuse

Safety Concern

ANZIGA is concerned by the continued use of the 'squeaky voice' helium balloon gas trick and would like the general public and, in particular, the media to be better aware of the dangers of fooling around with gases.

There has recently been some particularly irresponsible broadcasting, depicting such activities as 'harmless fun'. ANZIGA deplors such activities and such broadcasting.

Gas suppliers within ANZIGA take great care to advise customers on the safe use of their products and to ensure that users are aware of the hazards they are encountering. Many gases can be legally obtained and the variety of use for gases continues to grow.

Helium / Balloon Gas

Helium is a very light and inert, non-toxic gas, but if it displaces oxygen it can cause brain damage and in extreme cases can be fatal. The 'fun' to be found in the squeaky voice helium trick is far from funny when people, often youngsters, die trying this. *It does not take many breaths of helium to fall unconscious and die in this way.*

Youngsters in particular should be made aware of the danger and ANZIGA advocates a warning hazard being attached to or given with any cylinder of helium balloon gas supplied to members of the general public who are unlikely to read the full detail contained in safety data sheets.

Sulphur Hexafluoride (SF₆)

This gas is also inert and non-toxic, but is much heavier than air and does the opposite of the helium trick, producing a very deep voice effect. *But it is even more dangerous than the helium trick.* There is a chance that helium, being so light, will naturally come up out of the lungs, assuming a victim is upright and breathing clean air. By contrast, *SF₆ being so heavy is much harder to expel from the lungs and, like helium, a few breaths can be instantly fatal.*

Nitrous Oxide, Laughing Gas, N₂O

Sniffing nitrous oxide for its narcotic effect as a 'recreational drug' is certainly no laughing matter.

Like many other forms of substance abuse, it is addictive, risks death through asphyxiation and leads to crime to feed the habit. Think of nitrous oxide abuse in the same vein as glue sniffing. Even at first exposure, a user's awareness and judgement will be seriously impaired, with all manner of dangers attached to being in that state, as with substance abuse.

Be aware - breathing the gas can cause immediate asphyxiation

As an anaesthetic gas, N₂O is a medicinal product, and its supply to other than a qualified medical practitioner is illegal.

Bona fide users of nitrous oxide in the industrial, food and medical sectors alike should be extra vigilant in monitoring stocks of nitrous oxide and be wary of staff and others misappropriating it for their own use or for monetary gain.

Rendering flexible items brittle with liquid Nitrogen or other cryogenic products

It may be interesting to see a fresh flower shatter after immersion in liquid nitrogen but it's not so interesting if it's your hand. *The risks of severe cryogenic burns in 'playing' with liquid nitrogen or other cryogenic products are significant.*

Hospitality Use of Liquid Nitrogen and other cryogenic products

ANZIGA is aware of cocktail drinks being made with liquid nitrogen and of a recent incident in the UK where a woman has unfortunately sustained internal injuries from drinking such a cocktail.

ANZIGA member companies are providers of high-quality, food-grade liquid nitrogen to the hospitality and food sectors.

Liquid nitrogen is commonly used in the hospitality industry for its rapid freezing qualities. It also produces a visual effect due to the dense fog which is created when it is exposed to air. As a result, it is sometimes used for special effects in food presentation.

Liquid nitrogen is not, however, intended to be directly ingested as appears to have occurred in the UK incident recently reported. This incident serves as a stern reminder of the need to ensure gases are used safely and only for the purposes for which they have been designed.

ANZIGA and its member companies is committed to imparting safe working methodologies to customers - as safety is its number one priority. Training on the correct and safe use of liquid nitrogen is provide to hospitality clients, including how it should be handled, stored and what personal protective equipment (PPE) is required.

The hospitality industry operates under its own guidelines for the responsible service of food and alcohol.

Whilst putting pellets of dry ice (solid CO₂) into someone's drink may look impressive there is the risk of the pellet of *dry ice being swallowed and causing severe, potentially fatal cryogenic burns.*

Similarly the uncontrolled use of dry ice can cause problems of *asphyxiation if used in a semi-confined space or burns if in direct contact with the skin.*

Fogging effects

Systems designed to flood nightclub dance floors with dense fog effects by release of liquid nitrogen or liquid carbon dioxide is also of grave concern. Again there is significant risk of asphyxiation and of cryogenic burns and use of such systems may well breach the Confined Space Regulations.

Inert gases in confined spaces and non naturally ventilated spaces

With the exception of oxygen and air, any gas which is deliberately breathed, or inadvertently released into a confined space (such as a pub cellar), can lead to death by asphyxiation.

Compressed or liquefied gas cylinders hold a vast amount of gas once released, plenty enough to displace the oxygen in even very large rooms.

Most inert gases have no odour or taste and victims will simply fall unconscious without warning. There have been numerous sad examples of colleagues entering confined spaces to try to rescue victims of such asphyxiation, only to also fall victim themselves.

Publicans should be aware of the dangers of inert gases used for beverage dispensing and the potential for a buildup of inert gases in cellars and low level areas which presents hazards for personnel working in those areas. An Australian Standard (AS 5034 – 2005) sets out the requirements for the use of inert gases for beverage dispensing including atmospheric monitoring, and looks at all areas associated with the hazards of compressed and refrigerated gases such as carbon dioxide.

Using gas pressure to propel things

There have been a number of examples of the contained pressure in industrial gas cylinders being misused and depicted as such on TV in very dangerous ways – e.g. smashing, with such as a lump hammer, the valves off cylinders of compressed CO₂ or nitrogen and letting the cylinders themselves be propelled through the air, or doing the same with cylinders strapped to improvised ‘vehicles’ (Shopping trolleys, go-carts etc), has been depicted as great fun!

People have little understanding of the hazards of releasing contained gas pressure suddenly in this way. The pressure in a car tyre can be sufficient to cause death - industrial gas cylinders contain typically a hundred times this pressure.

If the pressure release causes 80 kg plus of gas cylinder to fly about, the consequences can be dire!

In summary

Industrial gases have wide use in a number of industry sectors and are invaluable in their correct use. But untrained persons, particularly youngsters, should not mess with gas cylinders. Personal insurance will not pay in cases of recklessness such as those highlighted in this leaflet.

The media should adhere to their own codes of practice and stop depicting industrial gas cylinders in irresponsible ways.

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ANZIGA

ANZIGA is the peak industry group for the manufacture and distribution of gases in Australia and New Zealand. As a leading industry association, ANZIGA promotes the highest standards of safety, quality and reliability.

ANZIGA aims to:

- consult with government authorities and organisations that make policy or prepare regulations and standards which govern the production, transportation, storage, handling and use of gases.
- collaborate with other industry and trade organisations on safety and technical matters, including public programs that relate to the gases industry.
- produce information that promotes the safe storage, handling and use of gases.

The members of ANZIGA produce and distribute gases for the health and medical, manufacturing, food, scientific and hospitality industries.

Notice of Safety Advice

In general a notice of Safety Advice is intended to provide information and relevant recommendations on a safety concern relating to the production, transportation, storage, handling and use of gases.

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