Australia New Zealand Industrial Gas Association

HELIUM – SAFETY INFORMATION

General

Helium is a safe, inert, non-combustible, non-toxic gas that is lighter than air.

Health Effects

Being odourless, colourless, tasteless and non-irritating, helium has no warning properties. Although helium is nontoxic and inert, it can act as a simple asphyxiant by displacing oxygen in the air to levels below that required to support life.

Inhalation of helium in excessive amounts can cause dizziness, nausea, vomiting, loss of consciousness and death.

Uses

Helium is an inert gas that is used extensively in industrial, medical and scientific applications. Some common uses include:

- In the welding industry as an inert shielding gas;
- In heat treatment applications requiring a protective atmosphere;
- In gas lasers as a buffer or carrier gas;
- As a calibration gas;
- As a carrier gas in gas chromatography
- As a carrier gas for semiconductor processes
- To fill large balloons for upper atmosphere studies
- To fill small balloons to carry meteorological instruments
- As breathing gases for divers in combination with oxygen
- To cool the superconductive magnets in Nuclear Magnetic Resonance (NMR) for analytical or medical purposes;
- In medical gas mixtures for respiratory assistance, to gain access to obstructed airways to ensure oxygen flow, lung function test, pulmonary physiology investigations.

Dangers of Asphyxiation

Inhaling helium can quickly make you lose consciousness due to asphyxia (oxygen deprivation). During the exchange of gases in the normal breathing process, the blood stream absorbs oxygen from air in the lungs, while carbon dioxide passes from the blood to the air. When you hold your breath, the exchange of gases slows, as "stale" air in the lungs is no longer replaced by "fresh" air.

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However, when the lungs are filled with helium, a different process takes over. Oxygen is actually removed from the blood stream during the exchange of gases. Depending on how completely oxygen is replaced by helium, you may lose consciousness quickly and without warning—you may literally pass out while still standing. The usual result is an uncontrolled fall that can cause serious injury, even if normal breathing resumes.

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 deplores 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 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.

In particular children 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.

Be Gas Wise – Community Service Announcement

To alert the public to the dangers of inhaling helium the following community service announcement and safety advice has been developed by BOC and ELGAS and supported by ANZIGA and BASA
http://begaswise.com/

*(There is also a useful video developed by CGA for helium that could also be used - https://youtu.be/V79PG-fUxvc)

Controls

Our products are used safely every day in thousands of applications, but they can pose serious hazards when misused or abused.

Products such as helium are supplied with safety data sheets, appropriate labelling detailing hazards and other safe use information applicable to the application.
Several additional controls have discussed over the recent times to tighten the access to the product or to discourage misuse. ANZIGA's position on those discussions is outlined below:

Addition of Oxygen to Balloon gas

ANZIGA is aware of various trials looking at the additional of oxygen to helium balloon gas at differing levels to ensure that asphyxiation cannot occur. These trails showed that for the various types of balloons that are available the addition of oxygen did not result in a buoyancy level that was acceptable to the balloon suppliers or their customers.

Use of an Aversive

There has been proposal that helium gas in pressurised gas cylinders or canisters when being sold to, or hired by, consumers intended for household or domestic use must contain an aversive. The potential use of an aversive in helium cylinders to discourage the inhalation of the product had been discussed by international authorities and organisations at some length but has never been implemented

ANZIGA believes that the types of aversive that have been discussed include mercaptan and 'Bitrex'. Mercaptan is a pungent smelling gas which is detectable at very low levels. It is also flammable. Mercaptan would be considered an inappropriate product for use in an industrial gas facility. Balloons filled with mercaptan would be unacceptable to the public. The gas would escape from the balloon resulting in a foul odour at the point of filling the balloon and through diffusion whilst filled.

Restrictions on supply

Proposals to control the access to or the supply of helium through means of licensing or poisons scheduling have also been considered.

The controlling of substances that are potentially dangerous is not addressing the root cause. Many of these products are vital to manufacturing, health care and safe food production and transport. Imposing strict control will only impair these legitimate uses, especially in these challenging times, and may not control or ease the problem that is trying to be addressed. The intentional misuse of the helium will not be controlled by these legislative proposals.

ANZIGA members are concerned about the growing inappropriate use of some their products, but all these products have legitimate uses. Many of these products are vital to manufacturing, health care and safe food production and transport. Imposing strict control will only impair these legitimate uses, especially in these challenging times, and may not control or ease the problem that is trying to be addressed.

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