

Safety Bulletin



On June 4, 2006, the following report appeared on the CBC News webpage¹:

“Two Florida students were found dead inside a large, deflated helium balloon that they apparently pulled down to earth and crawled inside, Tampa police said.

The bodies... were found Saturday partially inside a deflated helium balloon at the entrance of a condominium complex near Tampa.

The 2.4-metre balloon was being used to advertise the complex.”

The mother of one of the students reportedly said they were just having fun and trying to make their voices go higher by breathing helium from the balloon.

This accident is another tragic reminder of the dangerous consequences that can result from breathing helium. Sadly this was not a unique case, as many people are simply unaware that not only will breathing helium make a person sound like a duck, but it can also kill without warning, and very rapidly.

Helium Basics

Helium is a colourless, odourless and tasteless gas, which means there is no way for humans to detect its presence. Although it is non-flammable and non-toxic, it is also an inert gas and can cause asphyxiation in confined spaces by displacing the oxygen in the atmosphere.

Helium is used in many applications: as a shielding gas for arc welding, in medical applications, in cooling, fiber optics and semi-conductor manufacturing, and in aircraft tires, to name a few. Perhaps the most well known application is for the inflation of balloons and dirigibles. Helium used in balloons also presents a special range of problems, due to the ready availability of commercial balloon-filling systems. It is vitally important that all customers that use helium or these systems understand the hazards associated with breathing this gas and the preventive measures that can be taken to avoid injury.

What Happens if you Breathe Helium

Inhaling helium from a balloon, a gas cylinder or filling equipment, even for a short period, can cause death or severe injury. Breathing helium into the lungs is not the same thing as holding your breath. When you hold your breath, oxygen is absorbed more slowly into the blood stream, but you have some time before you will begin to feel the effects. However, if you breathe helium into the lungs, oxygen is actually removed from the blood stream. This means you can lose consciousness very quickly and without any warning, even while you are still standing. An uncontrolled fall can cause serious injury, while a severe lack of oxygen can result in brain damage or death.

A further hazard exists if helium is inhaled from a commercial balloon-filling system. In this case, the pressure of the gas has been shown to rupture lungs, causing immediate death. With this type of accident, artificial respiration will not save the victim.

Safety Precautions when Handling Helium

- Never intentionally try to breathe helium.
- Do not allow children or unqualified people to operate balloon-filling equipment.
- If you are using high pressure rechargeable cylinders or cylinders without gas regulating apparatus in the valve, do not open the cylinder valve before attaching the balloon-filling helium regulator to it.
- Do not use leaking equipment. Contact your supplier if the cylinder or any connections appear to be leaking.
- Do not enter any area where helium has been accidentally released without wearing self-contained breathing apparatus.
- Do not store helium in a closed room.

In addition, always do the following:

- Read and understand the helium Material Safety Data Sheet provided to you. This gives a detailed description of the product hazards, handling and storage information, and first aid measures that should be followed in case of overexposure to this gas.
- Read and understand the safety measures provided on the cylinder label.
- Make sure that anyone who is using helium filling equipment is properly trained.
- Always make sure that helium cylinders are stored and used in a well ventilated area.
- Only transport helium cylinders in a ventilated vehicle.
- Store and use cylinders in a secured position.
- Close cylinder valves after each use, even when empty.
- When filling helium balloons, always use a regulator device that has been designed for this purpose.
- When filling helium balloons, use a compatible leak detection solution, and check connections for leaks after the balloon filling device has been connected to the cylinders and tightened with a wrench.
- Fill balloons in a well-ventilated area or room.
- If using high pressure, rechargeable cylinders and cylinders without gas regulating apparatus in the valve, close the cylinder valve, remove the detachable regulator and replace the valve protection cap before transporting the cylinder.
- Remove any victim of helium exposure to fresh air, perform artificial respiration if they have stopped breathing, and seek medical assistance as soon as possible.



1. www.cbc.ca/world/story/2006/06/04/helium-sun.html

Further information can be found in the following publications of the Compressed Gas Association.

Compressed Gas Association

CGA P-9 The Inert Gases: Argon, Nitrogen and Helium

SB-2 Oxygen-Deficient Atmospheres

SB-14 Helium Gas for Filling Balloons

CGAnet.com article

Wickes, Jr., Henry G. "Inhaling Helium: Party Fun or Deadly Menace?"

