British Compressed Gases Association

Who are we?

- Established 1901, BCGA since 1971
- £2.7Bn t/o, 19,000 employee sector
- 100+ Member companies:
  - Manufacturers and suppliers of bulk liquid and cylinder gases
  - Manufacturers of cylinders, vessels and tanks for their storage and distribution.
  - Manufacturers of equipment for controlling the application and use of gases.
  - Installers of distribution pipework and systems.
  - Providers of specialist safety, health, quality, inspection and training services.
- Membership is made up of multi-nationals, SMEs, based across the UK and Ireland
- 117 Publications- including several on CO2

What is carbon dioxide?

Carbon dioxide (CO_2) is a naturally occurring compound of carbon and oxygen. A gas at normal atmospheric temperatures and pressures, carbon dioxide is colourless, odourless and about 1.5 times as heavy as air.

Carbon dioxide can exist as a gas, solid, or liquid depending on pressure and temperature. It is supplied in bulk tankers, in cylinders or as packages of dry ice.

Sources of carbon dioxide for commercial use:

Large quantities of carbon dioxide for commercial use within the UK are primarily obtained from by-product gas streams from one of the following processes:

- Ammonia production
- Fermentation to produce ethanol
- Hydrogen production (when produced by steam methane reforming, but not electrolysis)
- Anaerobic digestion
- Extraction from flue gases

Elsewhere in the world the following processes are also utilised:

- Extraction from natural geological well sources
- Ethylene oxide production
- Synthetic natural gas production
- Acid neutralization
- Power plant combustion

As a by-product, the supply of carbon dioxide is dependent on the production of the primary product of the processes involved and the economics of the operation of those processes.

Carbon dioxide is contained, transported and stored in liquid, gas, or solid form.

Carbon dioxide is generally liquefied by compression and refrigeration. With a liquid to gas ratio of 1:535, liquefaction allows a much greater quantity of product to be stored or transported in specialised pressure vessels including road tankers, railcars or ships.

How is it used?

Typical applications for **gaseous carbon dioxide** include:

The carbonation of water, soft drinks and some alcoholic drinks, as well as being used for drinks dispense.

Encouraging the growth of plants ingreenhouses.

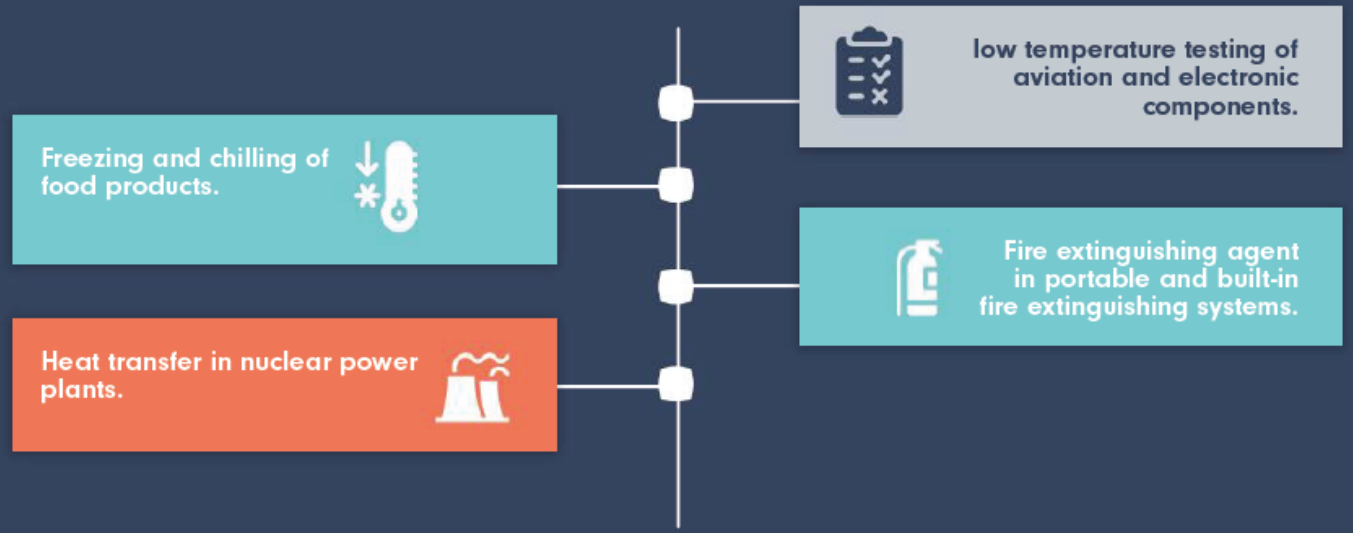
Welding gases.

Medical gas with other uses including the chemical treatment of water.

Food preservative in packaged fresh food.

An aid during the slaughter of some farm animals.

Typical applications for **liquid carbon dioxide** include:



Solid carbon dioxide, also known as **dry ice**, is extremely cold (−78 °C) and is typically used: