

## Carbon monoxide... what's that?

Carbon monoxide is an odourless, colourless, tasteless and highly poisonous gas, which if allowed to build up in a cabin space, will have disastrous consequences for any human or animal in there.



Carbon monoxide (or CO) is a product of the incomplete combustion of fossil fuels such as LPG, coal, wood, paraffin, oil, petrol and diesel. This occurs on faulty appliances or if ventilation is inadequate.

### Why boats?

Boats make great containers for gases and you can easily find several carbon burning appliances packed into a relatively 'small' space. Carbon monoxide can leak from cooking, refrigeration and heating appliances, especially if they have been poorly maintained. Gas cookers, water heaters, solid fuel stoves - whatever the combination - have the potential to be a threat to your health or a danger to your life.

AND there are further threats to boat crews from any engine exhaust gases, especially petrol, which contain high levels of carbon monoxide.

### How the silent killer works!

Carbon monoxide is absorbed into your bloodstream through your lungs. A chemical action then takes place in your blood that deprives your body of vital oxygen.

The effect on you depends on the level and duration of exposure. Some research indicates that low levels of exposure to carbon monoxide over a long period can be just as drastic as high doses over a short time. CO poisoning can lead to a dulling of the senses, permanent brain damage and very easily, death.

## You may not notice the symptoms of carbon monoxide poisoning...

...especially if you are asleep or you may think you've got the flu. They increase in severity as CO levels increase.

It can begin with watery or itchy eyes and a flushed appearance. As exposure increases more symptoms show - tightness across the forehead, headache, drowsiness, weakness, dizziness, nausea, vomiting, collapse, increased pulse rate, coma, intermittent convulsions, heart difficulties, weak pulse and slowed respiration.

### How to stay safe

#### Beware of wrongly installed, poorly maintained or faulty appliances!

- Ensure that all appliances you purchase comply with the latest standards and are sold suitable for use in boats.
- Ensure the appliances are properly installed and maintained by competent fitters - ask your local boatyard or contact CORGI for details (see back page).
- Check for signs of faults on your LPG appliances including yellow-tipped flames; excessive deposits of soot around the burners; pilot lights that often go out; or even increased condensation inside windows.

#### Beware of poor ventilation and blocked or damaged flues and flue terminals!

- Provide adequate ventilation to all fuel burning appliances in accordance with the appropriate British Standard (e.g. BS 5482-3 for LPG) and BSS Standards.
- Regularly inspect all appliance flues for damage and blockage and for signs of leaks, such as the discoloration of nearby surfaces.
- Be alert - check that vents and flue terminals, especially on cabin tops, are not damaged, blocked or restricted by stowed equipment such as boarding planks, tenders, boat hooks, lifebuoys, decorative objects, etc.

### Beware of engine exhaust gases in the accommodation space!

- Regularly inspect the exhaust system of inboard engines and check it for leaks.
- Ensure generator exhaust fumes cannot drift back into the cabin.

Please also read the other "Go Boating, Stay Safe" leaflets in this companion series to help you and your crew stay safe and avoid harming others. Copies are available from the BSS Office and partner organisations



Boat Safety Scheme

## Go boating - Stay safe

## Avoiding the silent threat - Carbon Monoxide

Reading this leaflet will give you important information concerning the risks to you, your family and your friends of carbon monoxide poisoning - the 'silent killer'

## Staying safe is simple...



- **Never** block cabin ventilators.
- **Never** use LPG cooking appliances for space heating.
- **Never** leave LPG appliances on overnight, unless they are designed to be left on and are of the room sealed type.
- **Never** use mobile (cabinet) gas heaters - they are not suitable for use in boats and introduce extra fire safety hazards.
- **Never** bring lit barbecues into the cabin - charcoal gives off CO gas.
- **Never** cover the air inlet or heat outlet of a cabin heater.
- **Never** use an appliance you think may be faulty or unsafe.
- **Never** operate petrol powered generators inside an enclosed space, or close to any opening or ventilator which leads into the cabin space.
- **Never** run a boat's petrol engine with the craft moored against another object such as a wharf, a lock wall or another boat - the exhaust gases could easily deflect back into the boat. Avoid running your engine when moored in a crowded marina, particularly when the air is still.

## What to do if carbon monoxide poisoning is suspected...

- ... turn off appliances and engines.
- ... open doors, windows and awnings to ventilate throughout the cabin, then get outside.
- ... try to keep anyone that may have been exposed as still as possible somewhere with lots of fresh air.
- ... they should visit a doctor urgently. Inform the doctor the symptoms may be related to carbon monoxide poisoning. Anyone with severe symptoms should go straight to hospital as quickly as possible.
- ... find out if other crew members, or pets, are feeling ill as well.

Doctors can only confirm carbon monoxide poisoning by carrying out a blood test. If someone is identified as having CO poisoning - get a properly qualified person to identify the source and put right the problem before the appliances/engines are used again.

## Because CO affects blood/oxygen levels, you are more at risk if you are...

... pregnant; an unborn child; a young child; elderly; a smoker; have respiratory or heart problems. So too, are people who have been drinking heavily, or people who have been active and are breathing heavily.



## What to do if carbon monoxide poisoning is suspected

## And for additional peace of mind...

... consider fitting a carbon monoxide detector (or CO detector). Ask your supplier if it's suitable for marine use and is certified to British Standard, BS 7860. But remember ALARMS ONLY DETECT, they cannot prevent the dangerous build up of carbon monoxide. The Council of Gas Detection and Environmental Monitoring, CoGDEM offers advice. Tel: 01462 434322 or visit [www.cogdem.co.uk](http://www.cogdem.co.uk)

## Further to the advice in this leaflet, we recommend...

- ... reading more about keeping yourself safe and meeting the Boat Safety Scheme requirements in the BSS Guide or visiting [www.boatsafetyscheme.com](http://www.boatsafetyscheme.com)
  - ... contacting CORGI (Council of Registered Gas Installers) on tel: 0870 401 2300 or visit [www.corgi-gas-safety.com](http://www.corgi-gas-safety.com) to find their list of registered fitters for work on boats.
  - ... visiting the British Marine Federation website at [www.britishmarine.co.uk](http://www.britishmarine.co.uk) to find your local boatyard.
  - ... getting further advice from the Health and Safety Executive (HSE) Gas Safety Advice Line 0800 300 363 [www.hse.gov.uk/gas/](http://www.hse.gov.uk/gas/)
  - ... taking safety equipment advice from an RNLI Safety Equipment Adviser. Call 0800 328 0600 for further information or to arrange an appointment.
  - ... RYA training for good advice, practical knowledge and to get more pleasure safely out of your boating experience. Call 0845 345 0400 or visit [www.rya.org.uk](http://www.rya.org.uk) for details.
- BSS acknowledge the HSE leaflet 'Gas Appliances - Get them checked, Keep them Safe' ref: INDG238(rev2) as a source document.
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