

Carbon monoxide

Are you at risk?

Are you having headaches,
having difficulty thinking clearly
or **feeling tired** or **sick?**

Have you had your heating and
cooking appliances checked recently?

Find out about the **risks of exposure**
to **carbon monoxide** (CO) and how to
avoid them – **it could save your life.**

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What is carbon monoxide?

Carbon monoxide (CO) is a poisonous gas that you can't see, taste or smell. It is released when a carbon-containing fuel – such as gas, oil, coal, coke, petrol or wood – doesn't burn fully because not enough air is available. This can happen when appliances such as room and water heaters, fires and cookers have been wrongly installed or poorly maintained, or when a chimney, flue or air vent into the room such as an air brick has been fully or partially blocked. Poor ventilation adds to the problem by allowing CO concentrations to build up. Anyone spending time with faulty appliances will be affected.

Accidental exposure to CO kills more than 50 people each year in England and Wales. It can kill without warning, sometimes in a matter of minutes. Low levels that don't kill you can still cause serious harm to your health – by affecting your nervous system or memory, for example – if breathed in over a long time.

The poisoning effects of CO can be long-lasting: in patients who suffer severe poisoning, long-term damage to the brain can occur.

Are your heating and cooking appliances safe?

Look for signs of incomplete burning of fuel, such as when the pilot light or flame from a gas appliance is burning orange or yellow instead of mostly blue. (Note that this does not apply to fuel-effect, living-flame or decorative-flame gas fires. They are designed to look like flames from a solid-fuel appliance, and so are meant to appear orange or yellow.) Another sign to look out for is the pilot light frequently blowing out.

CO can also be found in the smoke coming from solid-fuel, wood or oil-burning appliances. Paraffin heaters in poor condition can also be a source of CO.

For all appliances, CO may be present if you notice sooty or yellow/brown staining on or around the appliance, such as on the walls, or if you see or smell smoke or have excessive condensation in the room where the appliance is installed. Blackening of the china clay radiants of gas fires is another sign of poor combustion. Do not block chimneys, flues or air vents in any rooms where combustion appliances are installed and used.

If the flue, chimney, extractor or airway is blocked or leaking, CO cannot escape and will flow back into your property, where it can build up to dangerous levels. In extreme weather conditions, fumes can also be pushed back down the flue or chimney, and CO can even get into properties through shared flues or chimneys – so it may be coming from next door.

If you have had building work done recently, such as double glazing installation, or if floodwater has caused the build-up of silt or debris, this may affect your property's ventilation.

Caravans, boats and mobile homes are at risk because portable appliances that use bottled fuels such as liquid petroleum gas, paraffin or kerosene are often used for heating and cooking.

Vehicle engine or generator exhaust gases can also contain high levels of CO.

Appliances installed in rented student accommodation should receive an annual safety check to ensure that they function properly. This is a responsibility of the landlord, who should keep a record of each safety check for at least two years and issue copies to tenants.

How you may feel if you are being poisoned by CO

CO poisoning can be difficult to detect, because its symptoms are the same as those of many other common ailments. For example, you may experience headaches, tiredness, difficulty thinking clearly and feeling sick. Sometimes it may feel as though you have food poisoning or that you are coming down with flu. You may also notice that others in the same property have similar symptoms, and that the symptoms are less severe if you are away from your property – for example, at work or on holiday.

Those most vulnerable to the effects of CO poisoning are older people, pregnant women and their babies, children and those with breathing problems or heart disease.

What you should do if you have these symptoms...

...and think they could be caused by CO

- **Turn off ALL your cooking and room- or water heating appliances that use fuel other than electricity. Open the windows in the room and in other parts of your home to let in fresh air, and move outside.** For solid-fuel room or water heaters, fires and cookers, open windows and then carefully turn off the appliance or put out the fire (or allow it to burn itself out) but do not remain in the room.
- **See a doctor at once** and say that you think you may have CO poisoning. You may be offered a special test for CO poisoning, which could involve measuring CO in a breath sample or a blood sample. You should be aware that CO leaves the body quite quickly, and tests made some hours after your exposure has stopped may not reveal high levels of CO in either your breath or your blood.
- **Call a suitably qualified engineer** to check all your cooking and room- or water-heating appliances (see 'Further information' on page 10). Your local authority environmental health office may be able to offer advice. If you rent a property, your landlord should be able to assist in resolving the matter.

How you can protect yourself from CO poisoning

- **Fit an audible CO alarm that meets European Standard EN 50291**, showing a British Standards Kitemark or LPCB (Loss Prevention Certification Board) logo. These alarms are available in homeware or DIY stores, and you must make sure that you follow the alarm manufacturer's instructions for installation and maintenance. You may also wish to take a battery-operated audible CO alarm with you on holiday. You can also buy CO detection patches and 'black-spot' indicators, but these will not wake you and warn you if dangerous levels of CO develop. It is important to remember that fitting an audible CO alarm is **not** an alternative to having appliances, flues and chimneys serviced and tested.
- **Keep rooms well ventilated while using an appliance.** Fumes from a room or water heater, fire or cooker may affect your health unless there is enough ventilation in the room. This also applies to running a vehicle or generator in a confined or poorly ventilated area such as a garage with the door closed.
- **Have all appliances, flues and chimneys correctly installed and serviced by trained, reputable, registered and competent engineers – do not attempt to do this yourself.** Never use a poorly maintained appliance. Appliances should be maintained and serviced regularly (for example an annual service). By law, engineers for gas appliances must be registered with a body approved by the Health and Safety Executive. A new registration scheme for domestic gas will start in April 2009 – until then, gas engineers must be CORGI registered. Engineers for solid-fuel

appliances are registered with the Heating Equipment Testing and Approval Scheme (HETAS), and those for oil appliances with the Oil Firing Technical Association (OFTEC) – see 'Further information' on page 10.

Other important tips

- **If you live in rented accommodation**, landlords have a legal duty to have any gas appliances they provide, including cabinet heaters and flues, checked annually and to provide you with a copy of the safety check record. Landlords also have a legal duty of care to you. For appliances that use fuel other than gas, it is strongly recommended that landlords use suitably trained, reputable, registered engineers to install, service and inspect appliances (see above).
- **Never install or use unflued (without a chimney) appliances such as gas cookers, flueless gas fires or cabinet heaters in small, closed-up or poorly ventilated rooms.** When using a gas cooker, always make sure that the kitchen is well ventilated; a gas cooker should never be used to provide heating for the kitchen area. Do not use unflued appliances designed for outdoor use (such as paraffin heaters, camping stoves, barbecues or similar devices) inside your property.
- **If you're buying a new solid-fuel open fire, room heater or boiler**, check that it has an air intake control to regulate the burning rate, and that the room in which it is being installed is properly ventilated. For advice on solid-fuel heating, call the Solid Fuel Association (see 'Further information' on page 10).

- **Fitting an extractor fan in the same room as an appliance will be beneficial unless it affects the draw of an existing flue or chimney in the same or adjoining room**, such as those used for flued appliances (in which case the extractor fan may cause the combustion gases to fill the room instead of going up the flue or chimney). It is best to seek expert advice in such situations. Other appliances such as tumble dryers can produce the same effect as an extractor fan.
- **Have your chimney swept from top to bottom at least once a year**, preferably before each winter if you burn smokeless fuel or twice a year if you burn wood or coal. Use a qualified sweep, such as a member of the National Association of Chimney Sweeps, the Guild of Master Sweeps or the Association of Professional and Independent Chimney Sweeps (see 'Further information' on page 10).

Recent examples of CO poisoning

Example 1:

An ambulance was called out to attend a 29-year-old woman who was feeling generally unwell and complaining of chest pains. When the ambulance crew arrived, they monitored the patient with a CO monitor, which showed that she had a higher than normally expected level of CO in her blood; her mother, who lived in the same flat, showed the same raised CO level in her blood.

The apartment block contained six flats. They were all evacuated and the residents' CO levels were monitored. The residents in the flat below had either similar or higher levels of CO. All patients with raised CO levels were transported to hospital where they received treatment. The cause of the CO poisoning was traced to a faulty heating boiler at the original address.

Example 2:

Ambulance crews attended a two-year-old child who was floppy and unresponsive and had difficulty breathing. Other members of the family were also feeling unwell. Three children and one adult were monitored for CO, and all were found to have high levels of CO in their blood – with the children having higher CO levels than the adult. The heating boiler on the premises had recently been turned off by emergency gas engineers as it was beyond repair. As the family had no other source of heat, they had burnt charcoal in a barbecue in the main family room, which had produced the CO and caused the illness.

Further information

National Gas Emergency Service – call **0800 111 999** or visit **www.nationalgrid.com/uk/Gas/Safety/Emergency**

Health and Safety Executive (HSE) Gas Safety Line – call **0800 300 363** or visit **www.hse.gov.uk/gas/domestic**

CORGI consumer advice – call **0800 915 0485** or visit **www.trustcorgi.com**
(From April 2009 contact the HSE Gas Safety Line – see above)

Oil Firing Technical Association (OFTEC) – call **0845 65 85 080** (helpline) or visit **www.oftec.org**

Solid Fuel Association (SFA) – call **0845 601 4406** (helpline) or visit **www.solidfuel.co.uk**

Heating Equipment Testing and Approval Scheme (HETAS) – call **0845 634 5626** or visit **www.hetas.co.uk**

Association of Professional and Independent Chimney Sweeps (APICS) – call **01392 479239** or visit **www.apics.org.uk**

Guild of Master Sweeps (GMS) – call **01953 451 322** or visit **www.guild-of-master-sweeps.co.uk**

National Association of Chimney Sweeps (NACS) – call **01785 811732** or visit **www.nacs.org.uk**

Carbon Monoxide Consumer Awareness Alliance (COCAA) – call **0870 401 2254** or visit **www.becarbonmonoxideaware.com**

Council of Gas Detection and Environmental Monitoring (CoGDEM) – call **0800 1694 457** (CO alarm and general advice) or visit **www.cogdem.org.uk**

NHS Choices – visit **www.nhs.uk/carbonmonoxide**

NHS Direct – call **0845 4647** or visit **www.nhsdirect.nhs.uk**

Health Protection Agency (HPA) – visit **www.hpa.org.uk**

Patient support groups

Carbon Monoxide and Gas Safety Society (CO-Gas Safety) – call **01372 466112**, or visit **www.co-gassafety.co.uk**

CO-Awareness – call **07715 899296** or visit **www.co-awareness.org**



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289814 1p 150k Nov 08 (CWP)

Produced by COI for the Department of Health

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