

Carbon Monoxide – CO – Needed Safety Improvements

Introduction – what is CO & how is it created?

(Sent at his request to Gaelan Komen of APPCOG on 06.07.24)

CO is created when insufficient oxygen mixes with carbon fuels in combustion.

CO is deadly in tiny amounts – under 2% CO in air can kill within 3 minutes.

With smoke (which you can smell & contains CO), fire fighters talk about three breaths, at the first you don't know there's anything wrong, at the second you suspect there's a problem but by the third you're unable to do anything.

CO cannot be sensed using human senses.

Prevention requires:

Correct installation, regular servicing & testing of carbon fuelled appliances & room air to ensure sufficient oxygen at flame and no appliance/flue leaks.

As an extra safeguard fit CO alarms to EN BS 50291 in all homes or possibly only those with carbon powered appliances but as anyone can bring a BBQ indoors & you can be poisoned by next door's appliances, perhaps better and easier to just have a blanket requirement.

Flue & chimney sweep and test for CO to ensure safe combustion and/or evacuation.

Problem suffered by survivors or families

No proof of CO exposure means medics assume neurological injury from CO caused by stress, emotion or mental illness. Common misdiagnosis also 'Flu, ME or dementia.

This adds insult to injury and wastes medical resources.

Not testing all deceased persons or homes causes lack of data, stopping regulators or the fuel industry understanding impact of CO.

Solutions

- Test appliances & air in homes and other enclosed places where practicable.

If CO is found, give parts per million (PPM) results to survivors & their medics in writing or digitally from a named engineer with contact details.

- Collect & publish test data with case studies where practicable.
- Blood test the deceased, because CO remains stable in dead persons.

- Raise awareness to ensure prevention and safety improvements.
- Help victims/survivors/families to assist them and also find new dangers and gaps.

CO-Gas Safety has tried to keep this list that follows as short and simple as possible. Other changes may be necessary and may be desirable.

How to achieve the solutions

1. Require Carbon-based Fuel Emergency Service (CFES) and carbon-based fuel heating & hot water system installers & service technicians (IST) to test for CO whenever practicable.

This would specifically require CFES or IST (ideally both) to:

- All CFES engineers be qualified to CMDDA1.
 - Perform 2 minute sweep test on every Carbon-based fuel appliance – e.g. BS7967
 - Emissions test every carbon fuel appliance – e.g. BS7967
 - Perform room air test with appliance off to confirm no other sources of CO.
 - Provide PPM in writing/digitally to person exposed and medics with details where CO found, identifying appliance to turn off & label ‘Immediately Dangerous – Do Not Use’.
 - Change the algorithm used by GPs to enable GPs to order a test of the home and emissions from appliances etc. for CO.
2. Require CFES & IST to collect, collate & publish data of unintentional CO deaths & injuries from carbon-based fuels.
 3. Require Carbon-based Fuel Industry to raise awareness by publicity.
 4. Require testing of every deceased person for CO at least when post mortem undertaken, giving results to family & organisations collecting mortality data.
 5. Provide funded body to help victims/survivors/families, supply case studies, data & ideas for improvements, including safety, and monitor & properly publicise known & new dangers.
Fund by industry (e.g. UK Advertising Standards Authority see <https://www.asa.org.uk/about-asa-and-cap.html>) or levy (e.g. UK energy regulator Ofgem).
 6. Require EN BS 50291 or similar/improved CO alarms be fitted in properties with carbon-based fuel appliances, including portable appliances such as cookers. Ideally with downloadable data from alarms. Alternatively, just all homes.

7. CO alarms to EN BS 50291 and ideally worldwide, to harmonise alarm sounds and also enable voice to be used too e.g. research has found the mother's voice to rouse children asleep when the loud alarm is slept through.
8. Make sure CO alarms to EN BS 50291 are sold in airports etc. Ideally if the families agree, put a picture of a recent death abroad from CO on the alarms.
9. Register & renew annually all IST engineers, as done by UK's Gas Safe Register.
10. Require homeowners or occupiers to have carbon-based fuelled appliances serviced annually with chimneys/flues checked & swept with adequate ventilation, as condition of carbon-based fuel supply.
11. Give CFES right to cut off appliances or gas without landlord, owner or occupier permission but with safeguards, given existing right of entry rules must be considered.
12. Consider adding annual service & chimney/flue check & sweep cost as a standing charge or cost per therm as condition of carbon-based fuel supply.