



**ACS.CMDDA1
SAFETY ASSESSMENT CRITERIA
INITIAL.DOMESTIC
CARBON MONOXIDE/CARBON DIOXIDE
ATMOSPHERE & APPLIANCE TESTING
APPLIANCES BURNING 1ST, 2ND AND 3RD
FAMILY GASES**

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| CMDDA1 | INITIAL |
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Introduction

Tests gas safety competence to carry out CO/CO₂ and combustion performance testing using electronic portable gas analysers on domestic gas appliances following indication of fumes, smells, spillage or leakage of combustion products, CO detector activation etc.

CBs may adopt Competence and Criteria numbering different to that used in this document.

CB documentation may adopt wording for criteria different to that used in this document, provided the meaning is unaffected.

Range

Covers the use of analysers to determine ambient levels of CO and presence of CO₂ in dwellings, CO and CO₂ in combustion products from flueless appliances (Type A), open flue appliances (Type B), and room sealed appliances (Type C).

Pre-requisites

(CCN1/CCLP1 + CPA1), or CCN1/CCLP1 sat from 1st April 2012 or valid equivalent
+ as appropriate from CKR1, CEN1, HTR1, WAT1, CENWAT, DAH1, CKHB1, LAU1, HWB1
or
Valid aligned Gas Utilisation QCF or Gas Services S/NVQ.

Exclusions

The sampling of ambient levels of CO and CO₂ in non-domestic properties or combustion products from non-domestic gas appliances, the procedures required for a full incident investigation.

References and normative documents

Appliance MIs.

Portable gas analyser user's instructions.

- HSL56
- GIUSP
- BS 7967
- HSEH40.

ACS.SMB.003.ACDND identifies Normative Documents that should be held by ACs.

Abbreviations

AC. Assessment Centre

I. Initial

MIs. Manufacturer's/manufacturers' instructions

OP. Operating pressure

Ref. Reference.

| PERFORMANCE CRITERIA | REF | I |
|--|--------------------------------------|----------|
| 1. Determine scope of investigation: | | |
| (i) clarify source of indication of CO (CO detector activated, customer report of fumes) | GIUSP | ✓ |
| (ii) identify vicinity of where fumes were first noticed | | ✓ |
| (iii) note details of all fossil fuel burning equipment in use at the time | | ✓ |
| (iv) note details of any advice previously given to occupier | | ✓ |
| 2. Determine ambient levels of CO in dwelling: | | |
| (i) check analyser is suitable for taking CO readings in the atmosphere; has been certificated and is in date | | ✓ |
| (ii) prepare analyser for use, to MIs | | ✓ |
| (iii) turn off all combustion appliances and ventilate room(s) until inside and outside levels of CO are same; record indoor and outdoor background levels of CO | | ✓ |
| (iv) set up sampling probe correctly in room to be tested | | ✓ |
| (v) close all external doors, windows and vents and monitor CO levels for 15 minutes to ensure CO is not migrating from elsewhere | | ✓ |
| 3. Identify potential sources of CO as appropriate: | | |
| (i) confirm installation is gas tight | | ✓ |
| (ii) visually examine all fuel burning appliances for: | | ✓ |
| • signs of spillage | | ✓ |
| • combustion problems | | ✓ |
| • incorrect flueing and/or ventilation | | ✓ |
| • general distressed condition | | ✓ |
| (iii) follow procedures when appliance is other than a gas appliance | | ✓ |
| (iv) check dwelling for possible external ingress of CO | | ✓ |
| 3a Commence testing of "in use" appliances | | |
| Open flue and room sealed appliances: | | |
| (i) Prepare the room/environment for sweep test | BS7967 2015 6.3.2 | ✓ |
| (ii) Prepare analyser to conduct sweep test | | ✓ |
| (iii) With appliance in operation at full rate, slowly move the sampling probe above, around and below the appliance, keeping the tip approximately 100mm away from the part of the appliance/chimney system being examined. | | ✓ |
| (iv) Conduct the test for a minimum of 2 minutes per appliance making a minimum of 2 passes around the appliance or chimney/flue. (Ensure analyser is zeroed between tests) | | ✓ |
| (v) Test any flue joints connected to the appliance | | ✓ |
| (vi) Record the maximum level of CO measured for each test | | ✓ |
| Unflued appliances | | |
| (i) Carry out combustion checks on any unflued appliances | BS7967 2015 8.3.4 & Table 3 | ✓ |
| (ii) Record readings and check against permissible values | | ✓ |
| 4. Investigate 'suspect' gas appliances: | | |
| (i) list appliances that initially had been identified as 'suspect', in order of suspicion | | ✓ |
| (ii) check room that had been previously checked in 2 iii - iv above and set up sampling tube and analyser correctly | | ✓ |
| (iii) test room for CO the most suspect gas appliance in operation first, all others progressively following | | ✓ |
| (iv) carry out final tests, as appropriate for all gas appliances:- spillage, gas rate/heat input, OPs, flame picture and combustion performance analysis | BS7967 2015 6.4.4 | ✓ |
| (v) clearly identify source of fumes | | ✓ |
| KNOWLEDGE & UNDERSTANDING | REF | I |
| 1. acceptable exposure levels of CO in dwellings without due risk | | ✓ |
| | | |
| 3. other sources of CO/CO ₂ generation into dwellings | | ✓ |
| 4. movement of CO in buildings | | ✓ |
| 5. dealing with other sources of CO leakage into dwellings | | ✓ |
| 6. types of CO detectors | | ✓ |
| 7. carrying out tests after activation of an electronic CO alarm | | ✓ |
| 8. 'Dwelling investigation reports' | | ✓ |

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| 9. | 'Gas appliance investigation reports' | | ✓ |
| 10. | understanding combustion performance analysis action levels for gas appliances | | ✓ |
| 11. | | | |
| 12. | | | |
| 13. | | | |
| 14. | Limitations of sweep test for open-flue and room sealed appliances | BS7967 2015 6.3.2 | ✓ |
| 15. | Detailed examination where it has not been possible to check the combustion performance of a suspect appliance | BS7967 2015 6.4.2 | ✓ |
| 16. | identification of servicing requirements for range rated and modulating appliances | | ✓ |
| 17. | | | |
| 18. | effects of CO ₂ from combustion process of flueless appliances and spillage of fumes | | ✓ |
| 19. | acceptable use of test procedure within CMDDA1 is clearly recognised | | ✓ |
| 20. | Determination of ambient CO and CO ₂ in dwellings | | ✓ |