



**CSA C22.2 No. 62990-1:20**

**Workplace atmospheres — Part 1: Gas detectors — Performance requirements of detectors for toxic gases**  
(IEC 62990-1:2019, MOD)

**CSA C22.2 n° 62990-1:20**

**Atmosphères des lieux de travail — Partie 1: Détecteurs de gaz — Exigences d'aptitude à la fonction des détecteurs de gaz toxiques**  
(IEC 62990-1:2019, MOD)



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# National Standard of Canada

CSA C22.2 No. 62990-1:20

## **Workplace atmospheres — Part 1: Gas detectors — Performance requirements of detectors for toxic gases (IEC 62990-1:2019, MOD)**

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# CSA C22.2 No. 62990-1:20

## **Workplace atmospheres — Part 1: Gas detectors — Performance requirements of detectors for toxic gases**

### *(IEC 62990-1:2019, MOD)*

## **CSA Preface**

This is the first edition of CSA C22.2 No. 62990-1, *Workplace atmospheres — Part 1: Gas detectors — Performance requirements of detectors for toxic gases*, which is an adoption, with Canadian deviations, of the identically titled IEC (International Electrotechnical Commission) Standard 62990-1 (first edition, 2019-06). It is one in a series of Standards issued by CSA Group under Part 1 of the *Canadian Electrical Code*.

For brevity, this Standard will be referred to as “CSA C22.2 No. 62990-1” throughout.

This Standard is considered suitable for use for conformity assessment within the stated scope of the Standard.

This Standard was reviewed for Canadian adoption by the CSA Integrated Committee on Hazardous Location Products, under the jurisdiction of the CSA Technical Committee on Industrial Products and the CSA Strategic Steering Committee on Requirements for Electrical Safety, and has been formally approved by the Technical Committee.

This Standard has been developed in compliance with Standards Council of Canada requirements for National Standards of Canada. It has been published as a National Standard of Canada by CSA Group.

**Interpretations:** The Strategic Steering Committee on Requirements for Electrical Safety has provided the following direction for the interpretation of standards under its jurisdiction: “The literal text shall be used in judging compliance of products with the safety requirements of this Standard. When the literal text cannot be applied to the product, such as for new materials or construction, and when a relevant CSA committee interpretation has not already been published, CSA Group’s procedures for interpretation shall be followed to determine the intended safety principle.”

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## CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	7
2 Normative references .....	8
3 Terms and definitions .....	8
4 General requirements .....	16
4.1 Overview.....	16
4.2 Design .....	17
4.2.1 General .....	17
4.2.2 Indicating devices .....	17
4.2.3 Alarm signal .....	19
4.2.4 Fault signals .....	19
4.2.5 Adjustments.....	20
4.2.6 Battery-powered equipment .....	20
4.2.7 Gas detection transmitter for use with separate gas detection control units .....	20
4.2.8 Separate gas detection control units for use with gas detection transmitter(s).....	21
4.2.9 Software-controlled equipment .....	21
4.3 Labelling and marking.....	22
4.4 Instruction manual .....	23
5 Test methods.....	25
5.1 General.....	25
5.2 General requirements for tests.....	26
5.2.1 Samples and sequence of tests.....	26
5.2.2 Preparation of equipment before each test.....	27
5.2.3 Mask for calibration and test.....	28
5.3 Normal conditions for test .....	28
5.3.1 General .....	28
5.3.2 Test gas(es) .....	28
5.3.3 Flow rate for test gases .....	28
5.3.4 Power supply.....	29
5.3.5 Temperature.....	29
5.3.6 Pressure.....	29
5.3.7 Humidity .....	29
5.3.8 Acclimation time .....	29
5.3.9 Orientation.....	29
5.3.10 Communications options.....	29
5.3.11 Gas detection equipment as part of systems.....	30
5.4 Tests .....	30
5.4.1 General .....	30
5.4.2 Unpowered storage .....	30
5.4.3 Measurement of deviations .....	31
5.4.4 Mechanical tests.....	31
5.4.5 Environmental tests .....	33
5.4.6 Performance tests .....	36
5.4.7 Electrical tests.....	41

5.4.8	Stability .....	44
5.4.9	Fault signal tests .....	45
5.4.10	Software controlled equipment.....	46
5.4.11	Protection against water .....	46
6	Uncertainty of measurement and lower limit of measurement for type HM equipment .....	47
6.1	General.....	47
6.2	Method of calculation of uncertainty of measurement .....	47
6.2.1	Basic concept.....	47
6.2.2	Sources of uncertainty .....	48
6.2.3	Calculation of relative expanded uncertainty .....	53
6.3	Method of calculation of lower limit of measurement .....	54
6.4	Acceptance criteria .....	55
6.4.1	Uncertainty of measurement .....	55
6.4.2	Lower limit of measurement .....	55
6.5	Relation between uncertainty and accuracy .....	55
Annex A	(normative) Gas specific performance requirements .....	56
Annex B	(informative) Determination of time of response and time of recovery .....	57
B.1	Aspirated equipment .....	57
B.1.1	Test rig .....	57
B.1.2	Equipment without internal pump .....	57
B.1.3	Equipment with internal pump .....	57
B.2	Equipment that samples by diffusion .....	58
B.2.1	Calibration mask method .....	58
B.2.2	Diffusion or flow methods .....	58
Bibliography	.....	60
Figure 1	– Relationship between indication range and measuring range .....	14
Figure 2	– Warm-up time in clear air (typical) .....	15
Figure 3	– Warm-up time in standard test gas (typical) .....	15
Figure 4	– Example of zero uncertainty .....	16
Figure B.1	– Schematic example of test rig for use with aspirated equipment.....	58
Figure B.2	– Schematic example of test chamber for diffusion method .....	59
Figure B.3	– Schematic example of test chamber for flow method .....	59
Table 1	– Factors to be considered in the expanded uncertainty estimate .....	48
Table A.1	– Gas specific performance requirements .....	56

## WORKPLACE ATMOSPHERES –

### Part 1: Gas detectors – Performance requirements of detectors for toxic gases

#### 1 Scope

This part of IEC 62990 specifies general requirements for design, function and performance, and describes the test methods that apply to portable, transportable, and fixed equipment for the detection and concentration measurement of toxic gases and vapours in workplace atmospheres and other industrial and commercial applications.

This document is applicable to continuously sensing equipment whose primary purpose is to provide an indication, alarm and/or other output function the purpose of which is to indicate the presence of a toxic gas or vapour in the atmosphere and in some cases to initiate automatic or manual protective action(s). It is applicable to equipment in which the sensor generates an electrical signal when gas is present.

This document applies to two types of equipment:

- Type HM (Health Monitoring) ‘occupational exposure’ equipment:  
For occupational exposure measurement, the performance requirements are focused on uncertainty of measurement of gas concentrations in the region of Occupational Exposure Limit Values (OELV). The upper limit of measurement will be defined by the manufacturer in accordance with 4.2.1.
- Type SM (Safety Monitoring) ‘general gas detection’ equipment:  
For general gas detection applications (e.g. safety warning, leak detection), the performance requirements are focused on alarm signalling. The upper limit of measurement will be defined by the manufacturer according to the intended use of the equipment.

In general, the requirements for accuracy will be higher for Type HM equipment than for Type SM equipment. The same equipment may meet the requirements of both Type HM and Type SM.

For equipment used for sensing the presence of multiple gases this document applies only to the detection of toxic gases or vapour.

This document is not applicable to equipment:

- with samplers and concentrators such as sorbents or paper tape having an irreversible indication;
- used for the measurement of gases and vapours related to the risk of explosion;
- used for the measurement of oxygen;
- used only in laboratories for analysis or measurement;
- used only for process measurement purposes;
- used in the domestic environment;
- used in environmental air pollution monitoring;
- used for open-path (line of sight) area gas measurement;
- used for ventilation control in car parks or tunnels.