



# UL 920002

## STANDARD FOR SAFETY

Installation, Operation, and  
Maintenance of Toxic Gas-Detection  
Instruments

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UL Standard for Safety for Installation, Operation, and Maintenance of Toxic Gas-Detection Instruments, UL 920002

First Edition, Dated September 30, 2013

### **Summary of Topics**

***This revision of ANSI/UL 920002 dated September 24, 2021 is being issued to update the title page to reflect the most recent designation as a Reaffirmed American National Standard (ANS). No technical changes have been made.***

***Adoption of ANSI/ISA-92.00.02-2013, Standard for Installation, Operation, and Maintenance of Toxic Gas-Detection Instruments as ANSI/UL 920002. As noted in the Commitment of Amendments statement located on the back side of the title page, UL and ISA are committed to updating this co-designated standard jointly after processing according to the standards development procedures by UL.***

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These requirements are substantially in accordance with Proposal(s) on this subject dated June 25, 2021.

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ANSI/ISA-92.00.02-2013 (R2021)  
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Underwriters Laboratories Inc.  
ANSI/UL 920002  
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## Installation, Operation, and Maintenance of Toxic Gas- Detection Instruments

September 30, 2013

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ANSI/UL 920002-2013 (R2021)

## Commitment for Amendments

This standard is issued jointly by ISA and Underwriters Laboratories Incorporated (UL). Comments or proposals for revisions on any part of the standard may be submitted to UL at any time.

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**CONTENTS**

**General Notes**.....5

**Preface (ISA)**.....7

**INTRODUCTION**..... 11

1 Scope ..... 15

2 References ..... 15

3 Terms and definitions..... 16

4 Basic information on the properties, behaviour, and detection of gases and vapors ..... 20

    4.1 Detecting gases and vapors – General ..... 20

    4.2 Some common properties of gases and vapors ..... 22

    4.3 The differences between detecting gases and vapors ..... 23

    4.4 Oxygen deficiency ..... 26

5 Measuring principles ..... 28

    5.1 General ..... 28

    5.2 Selection criteria ..... 28

    5.3 Miscellaneous factors affecting selection of equipment ..... 32

6 Behavior of gas releases ..... 32

    6.1 Nature of a release ..... 32

    6.2 Buildings and enclosures ..... 35

    6.3 Unventilated buildings and enclosures ..... 36

    6.4 Ventilated buildings and enclosures ..... 36

    6.5 Natural ventilation ..... 36

7 Design and installation of fixed gas detection systems ..... 37

    7.1 Basic considerations for the installation of fixed systems ..... 38

    7.2 Location of detection points ..... 38

    7.3 Access for calibration and maintenance ..... 42

    7.4 Additional considerations for sample lines ..... 42

    7.5 Summary of considerations for the location of sensors or sampling points ..... 43

    7.6 Installation of sensors ..... 44

    7.7 Integrity and safety of fixed systems ..... 44

    7.8 Timing of installation during construction operations ..... 46

    7.9 Commissioning ..... 46

    7.10 Operating instructions, plans and records ..... 47

8 Use of portable and transportable toxic gas detection equipment ..... 48

    8.1 General ..... 48

    8.2 Initial and periodic check procedures for portable and transportable instrumentation ..... 49

    8.3 Guidance on the use of portable and transportable equipment ..... 51

9 Training of operational personnel ..... 54

    9.1 General ..... 54

    9.2 General training – Basic limitations and safety ..... 54

    9.3 Operator training ..... 55

    9.4 Maintenance training ..... 56

10 Maintenance, routine procedures and general administrative control ..... 56

    10.1 General ..... 56

    10.2 Operational checks ..... 58

    10.3 Maintenance ..... 59

    10.4 Sensors ..... 60

    10.5 Flow systems ..... 61

    10.6 Readout devices ..... 61

    10.7 Alarms ..... 62

    10.8 Workshop calibration test and equipment ..... 62

**Annex A (Normative) Applicability & acceptance criteria**

**Annex B (Informative) Environmental parameters**

**Annex C (Informative) Instrument maintenance record for toxic gas detectors (typical)**

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## General Notes

This is the common ISA and UL, Standard for the Installation, Operation, and Maintenance of Toxic Gas-Detection Instruments. It is the first edition of ANSI/ISA-92.00.02 and the first edition of ANSI/UL 920002. The document is a modification of the ISA document to create the equivalent UL version and maintain the ANSI approval of this standard.

ANSI/ISA-92.00.02 and ANSI/UL 920002 contain identical requirements, and identical publication dates.

This common standard was prepared by the (ISA) - The International Society of Automation on September 30, 2013 but is now being maintained by Underwriters Laboratories Inc. (UL).

Note: Although the intended primary application of this standard is stated in its scope, it is important to note that it remains the responsibility of the users of the standard to judge its suitability for their particular purpose.

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## Preface (ISA)

This preface, as well as all footnotes and annexes, is included for information purposes and is not part of ANSI/ISA-92.00.02-2013 (R2021).

This document has been prepared as part of the service of ISA toward a goal of uniformity in the field of instrumentation. To be of real value, this document should not be static but should be subject to periodic review.

The ISA Standards and Practices Department is aware of the growing need for attention to the metric system of units in general, and the International System of Units (SI) in particular, in the preparation of instrumentation standards. The Department is further aware of the benefits to USA users of ISA standards of incorporating suitable references to the SI (and the metric system) in their business and professional dealings with other countries. Toward this end, this Department will endeavour to introduce SI-acceptable metric units in all new and revised standards, recommended practices, and technical reports to the greatest extent possible. *Standard for Use of the International System of Units (SI): The Modern Metric System*, published by the American Society for Testing & Materials as IEEE/ASTM SI 10-97, and future revisions, will be the reference guide for definitions, symbols, abbreviations, and conversion factors.

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## INTRODUCTION

Toxic gas detection equipment may be used whenever there is the possibility of a hazard to life or property caused by the accumulation of a toxic gas-air mixture. Such equipment can provide a means of reducing the hazard by detecting the presence of a toxic gas and issuing suitable audible or visual warnings. Gas detectors may also be used to initiate precautionary steps (for example plant shutdown, evacuation, and operation of fire extinguishing procedures).

Equipment may be used to monitor a gas atmosphere below the applicable level, (PEL, REL, TWA, STEL or IDLH), limit in circumstances where accumulation of toxic gas may result in a concentration of the gas/air mixture to potential risks to life and health. Performance requirements for gas detecting equipment for such purposes are set out in ANSI/ISA-92.00.01 and ISA-92.00.04. However performance capability alone cannot ensure that the use of such equipment will properly safeguard life or property where toxic gases may be present. The level of safety obtained depends heavily upon correct selection, installation, calibration and periodic maintenance of the equipment, combined with knowledge of the limitations of the detection technique required. This cannot be achieved without responsible informed management.

Portable equipment covered by the ANSI/ISA-92.00.01 and ISA-92.00.04 commonly have additional detectors for combustible gases and also for oxygen deficiency. Users are cautioned that even mild oxygen deficiency may be due to toxic concentrations of some other gas or vapor, which may not be detectable or adequately detected by the equipment in use. This concept must not be relied upon for detection of a non-monitored toxic gas because 0.1% oxygen reduction can mean 1,000 ppm or greater of the unknown toxic gas, which usually exceeds most toxic gas safety limits. All toxic gases suspected should be monitored by the proper equipment.

Minimum requirements for the instruction manual of any particular toxic gas detection equipment are specified in ANSI/ISA-92.00.01 and ISA-92.00.04. These standards provide some necessary background knowledge on the points mentioned above.

This standard has been specifically written to cover all the functions necessary from the need for gas detection all the way through ongoing maintenance of a successful gas detection operation. Different clauses are appropriate for different tasks within this range of operations. Each clause has been written as stand-alone as far as practicable. This means that some information is repeated in different clauses but with a different emphasis.

The following table gives a broad suggestion as to the most relevant clauses to the typical tasks to be performed.