RECOMMENDED PRACTICE

ISA–RP92.04.02, Part II–1996 (R2013)

Installation, Operation, and Maintenance of Instruments Used to Detect Oxygen-Deficient/ Oxygen-Enriched Atmospheres

Reaffirmed 16 January 2013

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Annex A — Environmental and application checklist for oxygen-deficient/ oxygen-enriched (typical) 25

Annex B — Instrument maintenance record for oxygen-deficient/ oxygen-enriched detectors (typical) 27

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1 Scope

1.1 ISA-RP92.04.02, Part II, applies to all oxygen detection instruments that satisfy the performance requirements in ANSI/ISA-S92.04.01, Part I, *Performance Requirement for Instruments Used to Detect Oxygen-Deficient/Oxygen-Enriched Atmospheres*.

1.2 Definitions of terms, as used herein, are referenced in Clause 3 of ANSI/ISA-S92.04.01, Part I.

1.3 References useful in the installation, operation, and maintenance of oxygen detection instruments are listed in Annex C. These references are not considered to be part of this document, except for those specific clauses of documents referenced elsewhere in this Recommended Practice.

2 Purpose

This Recommended Practice establishes user criteria for the installation, operation, and maintenance of instruments used to detect oxygen-deficient/oxygen-enriched atmospheres.

Its companion Standard, ANSI/ISA-S92.04.01, Part I, provides minimum requirements for the performance of instruments used to detect oxygen-deficient/oxygen-enriched atmospheres.

3 General requirements

3.1 The following general requirements are intended to ensure that the instrument is suitable for the intended application and is compatible with its operating environment:

a) The user should provide the potential supplier with detailed information on the conditions that exist in the area(s) in which the instrument is to be used;

b) The instrument must meet the requirements of the applicable authority having jurisdiction; and

c) The instrument must be compatible with the environmental conditions; e.g., relative humidity, temperature, altitude, and atmospheric contaminants, etc. in which the instrument is to operate. A typical "Environmental and Application Checklist," included as Annex A, is intended to aid users in properly specifying requirements for their specific applications.

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4 Unpacking

4.1 Unpack the shipping carton(s) and determine whether the order is complete "as received." Check for main assembly, accessories, spare parts, and instruction manual.

4.2 In the event of shipment damage or for purposes of future correspondence, record the following:

a) User's purchase order number and manufacturer's order number and their respective dates

b) Carrier waybill number and date received in case of transit claim

c) Instrument serial number and user identification (ID) number, if assigned

5 Storage

5.1 When storing oxygen detection instruments, leave the instruments in their original containers or provide suitable protective covers.

5.2 Select a storage location that is in accordance with the manufacturer's recommendations. The environmental conditions (temperature, humidity, etc.) should comply with the manufacturer's storage specifications.

5.3 Before storage, inspect the instruments and remove any internal batteries and sensors that could cause corrosion, as directed by the manufacturer's instructions. If the instruments have rechargeable or "permanent" batteries, consult the manufacturer's instructions for battery maintenance during this period.

6 User record keeping

6.1 It is recommended that users

a) assign an equipment identification (control) number to each instrument; and

b) maintain complete records including periodic performance, calibration, and maintenance checks. (See Annex B.)

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7 Maintenance

7.1 To maintain the reliability of oxygen detection instruments, it is recommended that users assign responsibility for their initial inspection and subsequent use, including maintenance, to a specific qualified individual or group.

7.2 It is important that the checkout procedures (see Clause 10) be performed by qualified personnel who are trained in the operation, maintenance, and repair of instruments, and that the group responsible for maintenance be defined clearly.

7.3 It is recommended that users establish responsibility for obtaining the gas mixture recommended for calibration and testing by the instrument manufacturer.

7.4 It is recommended that when instruments are first put into use, the calibration be checked on a routine basis, as prescribed by the manufacturer. If experience shows minimal calibration deviation, then the period between calibration checks may be extended. Likewise, if routine checks indicate an increasing need for calibration, the period should be shortened and the cause should be investigated.

8 Preparing instruments for use

Read and understand the manufacturer-provided instruction manual. Pay particular attention to the location and functions of all controls and readout devices.

It is recommended that a shop calibration test of the type described in 13.7 be performed before the initial use of any oxygen-detecting instrument.

9 Installation of stationary instruments

It is extremely important that the equipment manufacturer-provided instruction manual be read thoroughly and followed completely.

9.1 Installation in hazardous (classified) locations

If instruments or ancillary components are installed in a hazardous (classified) location, they must be suitable for the area in which they are installed and so marked. Hazardous (classified) locations in the United States are defined by the *National Electrical Code®*, NFPA 70-1993, Articles 500-504. Markings required by ANSI/ISA-S92.04.01, Part I, should be visible to the operator. Installation of intrinsically safe systems shall be in accordance with ANSI/ISA-RP12.6, *Installation of Intrinsically Safe Systems for Hazardous (Classified) Environments*.

NOTE — Oxygen enrichment presents increased ignition risk, especially in a hazardous

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