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ISEA STATEMENT EMPHASIZES NEED TO VALIDATE PORTABLE GAS MONITOR OPERABILITY

ARLINGTON, Va. (March 5, 2010) -- Questions about the frequency and methods by which a portable gas monitor should be calibrated are now answered in an updated industry statement from the International Safety Equipment Association (ISEA). This revised industry statement, first published in 2002, reflects current instrumentation technologies and monitoring practices and seeks to reinforce the frequency and scenarios whereby a monitor's operability should be validated.

"Worker safety is the primary concern anytime personnel are entering or working in an area that may contain a potentially hazardous atmosphere," said Scott Larson, CIH, chairman of the ISEA Instruments Group and Technical Service Specialist at 3M Company, St. Paul, Minn. "A key in helping to protect these workers is to ensure that the work area is accurately monitored for all potential hazards. One of the first steps in doing so is to know that the detection equipment being used is in correct working order."

The document provides guidance on validation methods that can be used to confirm that a portable gas monitor is working properly before each day's use. This can be done by conducting either a qualitative function check (bump test) or a quantitative test (calibration check). Equipment failing either of these two methods must be adjusted by performing a full calibration procedure outlined by the manufacturer's instructions. In addition, the statement provides guidance on those situations where operability should be checked beyond a defined interval.

"Many users are often unaware that there are certain conditions or events that can occur during storage or use of a monitor that may compromise its ability to function properly," Larson said. "Given the reliance users place on the monitor's ability to detect potential hazards, they need to be aware of influences that may affect an instrument's operational capabilities."

The "ISEA Statement on Validation of Operation for Direct Reading Portable Gas Monitors" may be found at www.safetysafetyequipment.org or by requesting a copy at info@safetysafetyequipment.org.

-- ISEA --

Arlington, VA-based International Safety Equipment Association is the leading trade association for manufacturers of safety and personal protective equipment. Established in 1933, ISEA supports its 70-plus members in manufacturing and marketing the highest-quality products to protect the safety and health of people who may be exposed to hazardous and potentially harmful environments while working on the job or at home. Visit www.safetysafetyequipment.org.

ISEA Statement on Validation of Operation For Direct Reading Portable Gas Monitors

The International Safety Equipment Association (ISEA) is the leading national organization of manufacturers of safety and health equipment including environmental monitoring instruments. ISEA is dedicated to protecting the health and safety of all workers through the development of workplace standards and the education of users on safe work practices and exposure prevention.

ISEA has developed this statement to ensure definition consistency in all documentation, and to emphasize the need to validate the operational capability of portable gas monitors. The statement reflects current instrumentation technologies and monitoring practices. Specifically, the statement intends to:

- a. Define and clarify the differences between bump test (function check), calibration check, and full calibration;
- b. Clarify when these validation methods are to be performed; and
- c. Reemphasize to users, regulatory agencies and standards writing bodies the importance of validating the operational capabilities of portable gas monitors used to examine the atmosphere in potentially hazardous locations.

1. Definitions

- a. **Bump Test (Function Check)** - A *qualitative* function check where a challenge gas is passed over the sensor(s) at a concentration and exposure time sufficient to activate all alarm indicators to present at least their lower alarm setting. The purpose of this check is to confirm that gas can get to the sensor(s) and that all the alarms present are functional. This is typically dependent on the response time of the sensor(s) or a minimum level of response achieved, such as 80% of gas concentration applied. Note this check is not intended to provide a measure of calibration accuracy.
- b. **Calibration Check** - A *quantitative* test utilizing a known traceable concentration of test gas to demonstrate that the sensor(s) and alarms respond to the gas within manufacturer's acceptable limits. This is typically $\pm 10\text{-}20\%$ of the test gas concentration applied unless otherwise specified by the manufacturer, internal company policy, or a regulatory agency.
- c. **Full calibration** – The *adjustment* of the sensor(s) response to match the desired value compared to a known traceable concentration of test gas. This should be done in accordance with the manufacturer's instructions.

2. Recommended Frequency

- a. A **bump test (function check)** or **calibration check** of portable gas monitors should be conducted before each day's use in accordance with the manufacturer's instructions.

Any portable gas monitor which fails a bump test (function check) or calibration check must be adjusted by means of a full calibration procedure before further use, or removed from service.

- b. A **full calibration** should be conducted at regular intervals in accordance with instructions specified by the instrument's manufacturer, internal company policy, or a regulatory agency.

- c. Validation of an instrument's operability should be conducted if any of the following conditions or events occurs during use:
 - i. Chronic exposures to, and use in, extreme environmental conditions, such as high/low temperature and humidity, and high levels of airborne particulates.
 - ii. Exposure to high (over range) concentrations of the target gases and vapors.
 - iii. Chronic or acute exposure of catalytic hot-bead LEL sensors to poisons and inhibitors. These include volatile silicones, hydride gases, halogenated hydrocarbons, and sulfide gases.
 - iv. Chronic or acute exposure of electrochemical toxic gas sensors to solvent vapors and highly corrosive gases.
 - v. Harsh storage and operating conditions, such as when a portable gas monitor is dropped onto a hard surface or submerged in liquid. Normal handling/jostling of the monitors can create enough vibration or shock over time to affect electronic components and circuitry.
 - vi. Change in custody of the monitor.
 - vii. Change in work conditions that might have an adverse effect on sensors.
 - viii. Any other conditions that would potentially affect the performance of the monitor.

International Safety Equipment Association
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