

Acceptable Air Quality Measurement Devices

ENCLOSED SPORTS ARENAS

General Requirements

Air quality measurement devices must:

- Measure carbon monoxide (CO) concentrations in a range of 0 – 100 parts per million (ppm) in increments of 1 ppm.
- Measure nitrogen dioxide (NO₂) concentrations in a range of 0 – 5 ppm in increments of 0.1 ppm.
- Be operated, maintained, stored, and calibrated according to manufacturer specifications.
- Have associated maintenance and calibration records kept at the arena.

Portable Electronic Devices

Electronic monitoring devices can be used without special approval from MDH. Users can select from single gas devices or from devices with multiple sensors in the same unit.

MDH is aware of the following manufacturers of portable electronic instruments: Drager, Gray Wolf Sensing, Honeywell Analytics (includes BW Technologies and RAE Systems), Industrial Scientific, MSA, 3M, Extech, and RKI Instruments.

Instruments and local vendors can be found on the manufacturer’s website or by searching for industrial safety supply vendors on the internet. Compare manufacturer specifications for maintenance and calibration, because it varies considerably from one device to another.

Avoid using portable electronic devices that automatically “zero-calibrate” to ambient air whenever the device is turned on. Look for devices that can operate in sub-freezing temperatures, if arena temperatures at board height are below freezing, and that don’t automatically turn off after a period of time.

Pump and Tube

The following gas detector tube systems meet the arena rule requirements:

Manufacturer	Model	CO tubes	Range (ppm)	No ₂ tubes	Range (ppm)
Drager	Accuro	6733051	2 - 300	8103631	0.1 - 30
Gastec	800, GV-100	810-1L	2.5 – 2000	810-9L	0.5 – 125
Sensidyne	AP-20S	106S	10 – 250	117SB	0.5 - 30
UNIPHOS (Formerly MSA)	Kwik-Draw	SCO-3	5 – 100	SND-2	0.5 - 30

Continuous Monitoring Systems

Systems that are installed at a fixed location may be approved. Written approval must be obtained by MDH. Since continuous monitoring systems are an emerging technology and the particular installation differs by arena, MDH will evaluate each request on a case-by-case basis. Installation of a continuous monitoring system does not automatically replace air monitoring requirements.

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