



The 2008 Edition of NFPA 1989 Standard on Breathing Air Quality for Fire and Emergency Services Respiratory Protection is available for free viewing or purchase at www.nfpa.org. We highly recommend that you purchase the document to familiarize yourself with the changes and to determine if the service company and/or laboratory you are using are in compliance with this standard. Feel free to contact Trace Analytics with questions or visit our website for a more detailed AirCheck Note on recent changes, go to www.AirCheckLab.com. The following is a brief summary. It is not intended to cover the complete document, nor replace the reader's responsibility in reading and interpreting the original document. Not all sections are included.

Chapter 5 AIR QUALITY REQUIREMENTS

Regular Periodic Testing - at least quarterly samples shall be taken and submitted to accredited laboratory. ✓ Maintain documentation for minimum of 5 years.

✓ **Special Testing for Maintenance Conditions** - a sample shall be taken before and after changing air purification filters or whenever air contamination could occur such as alterations, maintenance, repairs, or relocation.

✓ **Special Testing for Contaminated Air** - when a sample fails to meet air quality specifications; air system shall be removed from service, cause of failure determined, corrective action taken and documented, air sample submitted to accredited lab. Air system shall not be returned to service until air sample is in compliance. Maintain documentation of test results and corrective actions for minimum of 5 years.

✓ **Air Samples** - shall be taken downstream from purification and prior to or bypassing storage cylinders or receivers. When purification filters are changed, two samples shall be taken - one before and one after filter change. A remote fill hose or air sampling port shall be permitted if unable to sample at containment fill station. Bleed fill hose line for minimum of one minute prior to sampling. *If length of hose is extremely long, make certain that bleed is sufficient to evacuate all air from hose. This directive is intended to eliminate the need to sample all cascade or storage cylinders as required in previous edition of NFPA 1989. If test results of "before filter change" sample fail; then corrective action must be taken to remove the contaminated air from storage cylinders. In cases of gross contamination, it is prudent to sample cascade systems to verify that contamination no longer exists in storage cylinders. This new sampling requirement will in some cases reduce the number of samples required by a department with multiple cascade systems. Other cases, it may increase the number of samples required.*

✓ Air Quality Requirements

New	Breathing Air Quality	Maximum Allowable Limit	Notes
	Oxygen	19.5 – 23.5%	
✓	Carbon Monoxide	5.0 ppm/v	Reduced from 10 ppm
	Carbon Dioxide	1000 ppm/v	
✓	Condensed Oil & Particulate	2.0 mg/m ³	Reduced from 5 mg/m ³
	Water	24 ppm (-65°F)	
✓	Volatile Organic Compounds	25 ppm	Excludes methane
	Odor	Not pronounced or unusual	
✓	Nitrogen	75-81%	New requirement

Chapter 6 TEST METHODS

This chapter establishes requirements for the laboratory such as calibration standards, daily instrument calibration, minimum accuracy and detection limits for each gas analyzed. In addition, condensed oil and particulate content must be sampled at a flow rate of 500 liters. Trace Analytics' analytical methods comply or exceed the NFPA 1989 requirements.

✓ Chapter 7 COMPRESSED BREATHING AIR SYSTEMS

This chapter establishes requirements for the installation, operation, and maintenance of a compressor.

✓ **Installation** - Air intake located to minimize contaminants and marked with sign/placard. Purification cartridges shall be installed in correct sequence and according to manufacturer's instructions.

✓ **Compressor Monitors** - Oil-lubricated compressors shall be equipped with a tamper proof, audible and visual alarms for carbon monoxide, high temperature, and low oil level or low oil pressure that shall shut the compressor down when conditions exceed manufacturer and/or NFPA 1989 limits.

It will be up to appropriate governing bodies to determine if monitors are required for existing systems or systems installed after 12/31/07. Note: Texas Commission on Fire Protection has determined monitors are required for new compressor installations only.

✓ **Maintenance** - Compressor shall be run a minimum of 30 minutes weekly. Filters to be replaced according to manufacturer's instructions, air in steel cylinders shall be replaced annually, positive pressure shall be maintained in empty cylinders.

✓ **Records** - shall be maintained by the fire department for a minimum of 5 years. Records to maintain include: compressor installation, maintenance, filter changes, operation, trouble reports, corrective actions, air quality test reports, and all SCBA and storage/receiver cylinder fills (except storage cylinders/receivers attached to compressor). Fill records to include: fill date, person performing fill, cylinder serial number, breathing air source, final cylinder pressure, and most recent hydrostatic test date.



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Standard on Breathing Air

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**ask the AirCheck
Team of Experts**