

**NFPA 1981 AND 1982,
2013 EDITION STANDARDS UPDATE**



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- WHITEPAPER

The NFPA 1981 and 1982 Standards - Open-Circuit Self-Contained Breathing Apparatus for Emergency Services and Personal Alert Safety Systems (PASS) - are now upon us and in full implementation. The information below specifies timelines and provides information about the changes. The current status of these NFPA Standards revisions is as follows:

- The issuance date was November 27, 2012.
- The standard was published on March 2, 2013.
- A Tentative Interim Amendment (TIA) was issued by the NFPA Standards Council on March 3, 2014 with an effective date of March 23, 2014.
- The last ship date for 2007 Edition SCBA was August 30, 2013.
- Scott Safety received approvals for the Air-Pak 75 SCBA and Air-Pak X3 on March 20, 2014.

Key points of the changes:

NFPA 1981:

The changes to the standard include increased lens integrity testing, new voice intelligibility requirements, end-of-service time indicator changes, requirements for emergency breathing support systems and updating the intrinsic safety standards.

- Increased facepiece lens durability requirements through two additional tests designed to challenge the integrity of the lens and facepiece.
 - The 2007 standard did not have a specific test for the facepiece lens. The complete SCBA was tested by a 5 minute oven test (heat soak) at 200°F while breathing at a rate of 40 liters per minute (lpm), followed by a flame impingement exposure (approximately 1,800°F) for 10 seconds while breathing at a rate of 103 lpm, then survive a 6 inch drop test and should self-extinguish (no after flame) after 2.2 seconds. The facepiece must pass a visual acuity requirement and the SCBA must maintain positive pressure for 30 breaths after the low-pressure alarm activates following the heat and flame.
 - The two additional tests will be incremental to the above test:
 - A high heat and flame test - A test to evaluate convective heat loads was added to further evaluate the integrity of the lens and facepiece. The SCBA is subjected to a 500°F oven test (heat soak) for 5 minutes then followed by a flame impingement exposure at 1800°F for 10 seconds, while breathing at a rate of 40 lpm for each section of the test. Following the heat and flame exposures, the SCBA and Facepiece must survive a 6 inch drop test. There are no requirements for visual acuity and a garden sprayer is permitted to extinguish any after flame. The SCBA must maintain a positive pressure for a period of twenty-four minutes regardless of the cylinder's capacity.
 - Radiant Heat - A test to evaluate radiant heat loads was added to further evaluate the integrity of the lens and facepiece. The SCBA's facepiece is exposed to a radiant heat load of 15 kW/m² for 5 minutes while the SCBA is breathing at a rate of 40 lpm. The radiant heat panel is then removed and the SCBA must maintain a positive pressure for a period of twenty-four minutes regardless of the cylinder's capacity.
- New voice intelligibility requirements to eliminate the subjectivity of the testing and improve overall intelligibility
 - The Modified Rhyme Test (MRT) will no longer be used due to the subjectivity and lack of repeatability of the test protocol.
 - Introduction of the Speech Transmission Index (STI) to improve repeatability and reproducibility in the test results.
 - There are two test protocols: one for mechanical communication performance and another for amplified communication performance

- End-of-Service Time Indicator (EOSTI) was moved from 25% to 33% (with a tolerance of -0%, +5% or 33% - 38%) of the cylinder's operating pressure
 - The chart below demonstrates the differences in alarm set points

SCBA Cylinder Pressure	Alarm Point at 25%	Alarm Point at 33%
2216	550	730
3000	750	1000
4500	1125	1500
5500	1375	1825

- The NFPA committee has worked with NIOSH to establish minimum performance and approval requirements for Emergency Breathing Support Systems.
- For SCBA using a wired HUD system, the user shall not be able to disconnect the HUD wire and still maintain the air connection.
- The SCBA must meet the Class I, Division I intrinsic safety requirements set forth in the 6th edition of UL 913 standard. The current NFPA standard calls out UL 913, 5th edition, containing very similar requirements for intrinsic safety standards.

NFPA 1982:

The key changes to the standard are the introduction of a universal PASS sound and a change/update to the intrinsic safety standards.

- Introducing a universal sounding alarm so that all PASS devices will have the same sound for both pre-alarm and full alarm.
- The PASS device must meet the Class I, Division I intrinsic safety requirements set forth in the UL 913, 6th Edition standard. The previous NFPA Standard called out UL 913, 5th Edition, which contained very similar requirements for intrinsic safety.

Thank you for your continued support and confidence in Scott Safety and its life saving products. If you have further questions concerning the standard changes, please feel free to contact your local Scott Regional Sales Manager.

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