

# 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 quickly approaching implementation. The information below specifies timelines and provides information about the changes. The current status of these NFPA Standards revisions is as follows:

- The standards will be marked as 2013 Edition.
- The issuance date was November 27, 2012.
- The standard will be published on March 2, 2013.
- The last ship date for 2007 Edition SCBA will be August 30, 2013.

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 does not have a specific test for the facepiece lens. The complete SCBA is tested by a 5 minute oven test 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 proposed tests below will be incremental to the above test:
    - A high heat and flame test - it is proposed that a test to evaluate convective heat loads be added to further evaluate the integrity of the lens and facepiece. The SCBA will be subjected to a 500°F oven 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 -it is proposed that a test to evaluate radiant heat loads be added to further evaluate the integrity of the lens and facepiece. The SCBA's facepiece will be exposed to a radiant heat load of 15 kW/m<sup>2</sup> 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 Transmissibility 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) will move from 25% to 33% (with a tolerance of -0%, +5% or 33% - 38%) of the cylinder's operating pressure
  - The chart below will demonstrate the differences in alarm set points after the standard promulgates

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 may 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 will be the introduction of a universal PASS sound and updating 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 current NFPA Standard calls out UL 913, 5th Edition, containing 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.

## **AUSTRALIA**

Sydney

Phone: +61 (0) 2.8718.2191

Fax: +61 (0) 2.8718.2121

## **CHINA**

Shanghai

Phone: +86 (21) 6163.3376

Fax: +86 (21) 6163.3372

## **MEXICO**

Querétaro

Phone: +52 (44) 2262.0089

Fax: +52 (44) 2262.0089

## **UNITED KINGDOM**

Skelmersdale, Lancashire

Phone: +44 (0) 1695.727171

Fax: +44 (0) 1695.711775

## **UNITED STATES**

Monroe, North Carolina

Phone: +00 (1) 800.247.7257

Fax: +00 (1) 704.291.8330