Miller, Diane M. (CDC/NIOSH/EID)

From: Sell, Robert [Robert.Sell@draeger.com]
Sent: Friday, November 13, 2009 9:50 AM
To: NIOSH Docket Office (CDC)
Cc: Drews, Wolfgang; Rueck, Klaus-Michael; Bahr, Axel; Hodson, David; Ammann, Klaus; Dedig, William; Palcic, Jeffery D. (CDC/NIOSH/NPPTL)
Subject: Docket No: NIOSH-083B
Attachments: SAR Concept Comments - NIOSH Docket No 083B - Nov 2009.doc

Hello:

Attached please find Draeger Safety's comments on the proposed concept on Supplied-Air Respirators (SAR) Standard dated August 10, 2009. Please include our comments into the file.

If there should be any questions concerning this information please contact me.

Regards

Bob Sell

Sr. Project Engineer - Protection

Dräger Safety, Inc.
101 Technology Drive
Pittsburgh, PA 15275
Tel: (412) 788-5685
Fax: (412) 787-2207
Mobile: (412) 996-9344
Robert.Sell@Draeger.com
www.draeger.com

Dräger. Technology for Life®

Dräger safety

November 13, 2009

NIOSH Docket Office,
Robert A. Taft Laboratories, M/S C 34
4676 Columbia Parkway
Cincinnati, Ohio 45226

Telephone 513-533-8303, Fax 513/533-8285
Email: niocindocket@cdc.gov

Reference: DOCKET NUMBER NIOSH – 083B
Proposed Concept: Supplied-Air Respirators (SAR) Standard; Subpart J
Dated August 10, 2009

Dear Sir / Madam:

Draeger Safety manufactures respirators for various markets and applications; therefore we offer the following comments in response to the NIOSH Proposed Concept: Supplied-Air Respirators (SAR) Standard; Subpart J, Dated August 10, 2009.

The following Draeger Safety comments are being submitted for consideration and we will comment step-by-step through the draft protocol:

Section 1 Scope:

Draeger suggests the addition of some new sections which detail the implementation period when the standard will take affect, grandfather clause for existing SARs which are already deployed in the field, and mandatory compliance with the new requirements.

Section 2 Definitions:

Draeger suggests that a "Definitions" section be added to the document and that these definitions follow those that have been either implemented by EN 132:1998 or utilize the proposed definitions as being finalized in the Draft International Standard ISO/DIS 16792 where the terms are commonly used.

Section 2.5:

We agree that this is a category for use as a method of supplying respirable air to the SAR, but we do not agree that the air source (portable blower/air compressor) should be a component of the respirator approval. By making the portable blower/air compressor a part of the approved respirator it will now require that the respirator manufacturer inspect, stock, and identify any changes to NIOSH and we consider this to be a burdensome requirement for a component that we do not care to offer. We currently offer a portable compressor and have found that it only takes up space and that we only no longer stock them and only purchase these items when ordered by the customer. This would increase the manufacturer's costs for shipping the product which in turn gets passed along to the customer. We suggest that the definition be changed as follows:

Draeger Safety, Inc.
101 Technology Drive
Pittsburgh, PA 15275-1057
Tel: 412-787-8383
Fax: 412-787-2207
www.draeger-safety.com

Air Source Respirator - represents a ~~approved~~ respiratory protection system that ~~encompasses~~ utilizes a portable blower/air compressor supplying breathing air to the respiratory inlet covering. The approved respiratory system starts where the respirator connects to the portable blower/air compressor which supplies Grade D or better breathing gas to the respiratory inlet covering.

Section 4.1.1.2.7:

As noted in our comment for Section 2.5, we agree that this is a category for use as a method of supplying respirable air to the SAR, but we do not agree that the air source (portable blower/air compressor) should be a component of the respirator approval. We suggest that this requirement be removed from the document.

Section 4.1.5.2:

There are several categories identified in ANSI Z87.1-2003 and we would suggest that the specific sections be identified in this section. Some suggested sections are:

Face Shields: Section 9.2.1.1 – High Mass Impact
Section 9.2.2.1 – Drop Ball Impact
Welding Helmets: Section 10.2.2.1 – Drop Ball Impact
Section 10.2.2.2 – Plastic Lens Penetration Test
Full Face Respirators: Section 11.2
Loose Fitting Respirators: Section 11.3

We therefore propose the following wording and the addition of subsections to Section 4.1.5.2:

Section 4.1.5.2.1 Face shields shall be tested in accordance with ANSI Z87.1-2003, Section 9.2.1.1 – High Mass Impact and Section 9.2.2.1 – Drop Ball Impact.

Section 4.1.5.2.2 Welding helmet lenses shall be tested in accordance with ANSI Z87.1-2003, Section 10.2.2.1 – Drop Ball Impact and Section 10.2.2.2 – Plastic Lens Penetration Test.

Section 4.1.5.2.3 Full Facepiece Respirators shall be tested in accordance with ANSI Z87.1-2003, Section 11.2.

Section 4.1.5.2.4 Loose Fitting Respirators shall be tested in accordance with ANSI Z87.1-2003, Section 11.3.

Section 4.1.6:

Draeger Safety would like some clarification on the noise level requirements. The current wording implies that the noise level test will be performed on all SAR being certified and we are wondering if this only applies to hoods and helmets. Also, as noted in our comment

Draeger Safety, Inc.
101 Technology Drive
Pittsburgh, PA 15275-1057
Tel: 412-787-8383
Fax: 412-787-2207
www.draeger-safety.com

above for Section 2.5 concerning the certification of air compressors or portable blowers being a component of the approved respirator we still suggest that this requirement be removed.

Section 4.2.1.3:

In order to allow multiple users to operate off of a compressor system there is a need to permit increased supply pressure to the point of attachment of the respirators. We suggest that the 125 psi requirement be increased to 145 psi and we put forward the following wording:

The specified air pressure at the point of attachment of the hose to the air-supply system shall not exceed ~~863~~ 1000 kPa (~~125~~ 145 pounds per square inch gage).

Section 4.2.1.4:

This section is permitting the pressure at the point of attachment to be greater than the 125 psi (or 145 psi as Draeger is requesting) therefore, the pressure relief system needs to be a component of the respirator and not the compressor system. We advocate changing this section to the following:

Where the pressure at any point in the supply system exceeds ~~863~~ 1000 kPa (~~125~~ 145 pounds per square inch gage), the ~~system~~ respirator shall be equipped with a pressure-release mechanism that shall prevent the pressure at the ~~hose connection~~ respirator from exceeding 863 kPa (125 pounds per square inch gage) under any conditions.

Section 4.2.2.3:

In keeping with our comment as noted in Section 4.2.1.2, to allow multiple users to operate off of a compressor system there is a need to permit increased supply pressure to the point of attachment of the respirators. We suggest that the 125 psi requirement be increased to 145 psi and we put forward the following wording:

The specified air pressure at the point of attachment of the hose to the air-supply system shall not exceed ~~863~~ 1000 kPa (~~125~~ 145 pounds per square inch gage).

Section 4.2.2.4:

As noted above in Section 4.2.1.3, this section is permitting the pressure at the point of attachment to be greater than the 125 psi (or 145 psi as Draeger is requesting) therefore, the pressure relief system needs to be a component of the respirator and not the compressor system. We advocate changing this section to the following:

Draeger Safety, Inc.
101 Technology Drive
Pittsburgh, PA 15275-1057
Tel: 412-787-8383
Fax: 412-787-2207
www.draeger-safety.com

Where the pressure at any point in the supply system exceeds ~~863~~ 1000 kPa (~~125~~ 145 pounds per square inch gage), the ~~system~~ respirator shall be equipped with a pressure-release mechanism that shall prevent the pressure at the ~~hose connection~~ respirator from exceeding 863 kPa (125 pounds per square inch gage) under any conditions.

Section 4.2.3.2:

Draeger is not sure what the purpose of this section is and how it relates to Breathing Air Quality for Airline SAR, we suggest that this section be removed.

Section 4.2.4:

With the exception of Section 4.2.4.6 all remaining sections should be deleted as a requirement for this concept standard. As noted in our comment for Section 2.5, air compressors for air source SAR should not be a component of the certification. To remain consistent with the wording used in Section 4.2.3.1 we recommend the following for Section 4.2.4.6:

4.2.4 Breathing gas for Air source SAR; minimum requirements;

~~4.2.4.1 Blowers/air compressors for Air source SAR shall be equipped with a CO alarm to warn the user if the CO concentration in the air supply is ≥10 ppm of CO.~~

~~4.2.4.2 The temperature of the air produced by the blower/air compressor for all Air source respirators shall not exceed 6 degrees Celsius above ambient as measured at the air entrance point of the respiratory inlet covering.~~

~~4.2.4.3 Must maintain positive pressure in the breathing zone of the respiratory inlet covering(s) at the manufacturer's specified work rate(s) as defined in Section 4.2.8.~~

~~4.2.4.4 Air source SAR shall be equipped with a filter between the portable blower/air compressor and the respiratory inlet covering(s) to effectively remove 95% of the particles from the breathing air.~~

~~4.2.4.5 The filter between the blower/air compressor and the respiratory inlet covering shall be easily replaceable by the user. The manufacturer's filter change-out scheduled should be followed (See: user instruction).~~

4.2.4.6 Compressors used to supply breathing air to air source respirators are constructed and situated to meet the requirements set forth in the Compressed Gas Association Commodity Specification for Air, G-7.1, 5th Edition, 2004 (Grade D or higher quality).

Table 2: NIOSH Approved Work Rates:

Draeger Safety believes that the optional low work rate listed should not be used and only the 40 Lpm and 57 Lpm works rate should be maintained. The work rates will vary throughout a

Draeger Safety, Inc.
101 Technology Drive
Pittsburgh, PA 15275-1057
Tel: 412-787-8383
Fax: 412-787-2207
www.draeger-safety.com

working shift and what may have been light work in the beginning of a shift can become a moderate or heavy rate by the end of the shift. Also, the daily work activities will vary and for an employer to maintain different respirators for various tasks seems to be a redundant and may lead to issues if the users keep using a respirator rated for a lower rate when they move to a task that requires a respirator for a higher work rate. We propose that Table 2 be also modified accordingly.

Table 2: NIOSH Approved Work Rates

Work Rate	*Minute Volume*	*Tidal Volume and Respirations*
~~*Low*~~	~~*25 Lpm*~~	~~*1.30 liters @19.2 respirations per minute*~~
Moderate	*40 Lpm*	*1.67 liters @ 24 respirations per minute*
High	*57 Lpm*	*1.95 liters @ 29.1 respirations per minute*
Very High	*78 Lpm*	*2.00 liters @ 39 respirations per minute*

Section 4.2.9.9:

It is mentioned that "...At least one sample of the three tested shall not exceed 1.0 %."
In our opinion, if a requirement is going to be imposed then why allow a 66% failure rate? The design should be in such a way that 1.0 % CO_2 is not exceeded for all samples tested. We suggest that the requirement be changed to account for all samples meeting the requirement and if not then the requirement of 1.0% CO_2 should be removed. If the test set-up has a low repeatability another test should be considered or the CO_2 requirement should be increased.

Section 4.2.11:

We suggest that the number of test subjects and facial size information be included as a subsection to this section or will this be identified with the Total Inward Leakage (TIL) once it has been developed? We also suggest that SF_6 or Sodium Chloride (NaCl) be considered for the TIL testing.

Table 3:

We suggest that the reference to the "neck dam" in the third row of the table is to be removed. The definition previously identified in the July 2008 concept for a Loose Fitting Neck Dam (Section 2.8.4) has been removed from the current concept (August 2009) and should b e deleted here too.

Draeger Safety, Inc.
101 Technology Drive
Pittsburgh, PA 15275-1057
Tel: 412-787-8383
Fax: 412-787-2207
www.draeger-safety.com

Dräger safety

Section 4.3:

As noted above in our comments on that portable blowers/air compressors should not be included in the certification SAR respirators we advocate the removal of this entire section.

Section 4.4.1.2:

As compared to the previous concept document there appears to have been some information that may have been omitted. We suggest that the maximum air pressure and minimum length of hose requirement be incorporated into this section:

If an air-regulating valve is provided, it shall be so designed that it remains at a specific adjustment, which shall not be affected by the ordinary movement of the wearer. The valve must be so constructed that the air supply with the maximum length of hose and connections at the minimum specified air-supply pressure while maintaining positive pressure in the respiratory inlet covering at the manufacturer's specified work rate(s) as defined in Section 4.2.8 for any adjustment of the valve.

Section 4.4.3.6 and Section 4.4.3.7:

Currently we do not understand the need to test permeation resistance with the three substances that are currently identified. Permeation of substances is dependent upon the solubility, diffusion, and chemical structure. Solubility increases with higher molecular weight and diffusion decreases with higher molecular weight and hydrocarbons in the range of C7 have the maximum permeability capacity. In reviewing the three substances being considered, we find that Kerosene consists of hydrocarbons in the range of C12 - C15, gasoline consists of hydrocarbons in the range of C5 – C12, and Toluene is a pure substance with exactly C7. From a permeation aspect, Kerosene is less critical than gasoline and Toluene and will provide no additional benefits when used for testing. Gasoline will be the more critical test than Toluene since gasoline is comprised of a mixture of different substances and we believe that the use of gasoline should be sufficient. In addition, at least the grade should be identified and if the selected grade is so specific a source or other information should also be provided in order that it can be obtained. We suggest removing Section 4.4.3.6 (toluene) and Section 4.4.3.7 (kerosene) and only use gasoline.

Section 5.1.5:

We suggest a slight rewording to this section to eliminate the term "cylinder air" and replace it with "breathing air out of the escape cylinder":

"...and no back flow of the ~~cylinder air~~ breathing air out of the escape cylinder through the disconnected air supply line.

Draeger Safety, Inc.
101 Technology Drive
Pittsburgh, PA 15275-1057
Tel: 412-787-8383
Fax: 412-787-2207
www.draeger-safety.com

Dräger safety

Section 5.1.6:

As noted in our comment for Section 2.6, we do not feel that pneumatic tools should be permitted to operate from the same compressor system that the respirator is using unless there is a definite separation and controls to ensure that the respirator function is not compromised by the operation of the pneumatic tool. We suggest the following modification to the statement.

The connection between the air hose and the rest of the respirator shall be such that breathing air from the cylinder shall only flow to the tight fitting respiratory inlet covering and shall not flow back through the supply air hose. ~~or pneumatic tool connection if so equipped.~~

Section 5.1.7:

In addition to requiring an automatic switch to the compressed air cylinder, an option for automatically switching back to air line supply, if it should be restored along, with visible or audible notification that the system has returned to normal should be considered as an optional feature with testing and verification requirements. We are providing some possible text that may be used to cover this feature.

Section 5.1.7.2 Supplied breathing air, as an option, can be automatically restored once the situation has been corrected and the respirator will automatically switch to the air line supply and turn off the available SCBA integrated breathing air cylinder source. This shall occur without loss of air pressure to the user and with no detectable inward leakage of contaminants.

Section 5.1.7.1:

We would like to suggest a minor rewording to this section:

"~~Supplied breathing air will be disconnected and~~ In the event of interruption to the air supply or a severe loss of air the respirator will automatically switch to the available ~~SCBA~~ integrated breathing air escape cylinder..."

Section 5.1.8:

In keeping with our comment for Section 5.1.7.2, we propose that this section be modified to allow for this option.

An alarm providing an indication that the system is on cylinder air or has been restored to supplied air mode shall be readily visible (via light) or detectable (via sound or vibration) to the user without manipulation of the respirator and without affecting protection and performance.

Draeger Safety, Inc.
101 Technology Drive
Pittsburgh, PA 15275-1057
Tel: 412-787-8383
Fax: 412-787-2207
www.draeger-safety.com

Dräger safety

Section 5.1.9:

We suggest that relevant clauses of Subpart H be listed within this section in order to understand the pertinent requirements that would be imposed.

Section 5.2.2:

As noted in our comment for Section 4.1.5.2, there are several categories identified in ANSI Z87.1-2003 and we would suggest that the specific sections be identified in this section. Since a tight fitting respiratory inlet covering has been stated as a requirement for Enhanced SAR/SCBA we would suggest ANSI Z87.1-2003, Full Face Respirators: Section 11.2 be imposed as the requirement and propose the following wording:

Section 5.2.2.1 Tight Fitting respiratory inlet coverings shall be tested in accordance with ANSI Z87.1-2003, Section 11.2 – Full Face Respirators.

Section 5.2.4:

Section 5.2 covers the requirements for lens testing and does not reference communications. We suggest that this section be renumbered as Section 5.3.

Section 7.2:

As noted above in comments for Section 2.6 and Section 5.1.6, pneumatic tools should not be permitted to operate from the same system as the respirator and this entire section should be deleted.

Draeger Safety thanks NIOSH for the opportunity to provide comments. Please consider our comments concerning the ongoing changes to the standard.

If there should be any questions concerning this matter, please do not hesitate to contact me at 412-788-5685 or via e-mail at Robert.Sell@Draeger.com.

Respectfully,

Robert Sell

Robert Sell
Sr. Project Engineer

Draeger Safety, Inc.
101 Technology Drive
Pittsburgh, PA 15275-1057
Tel: 412-787-8383
Fax: 412-787-2207
www.draeger-safety.com