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From: Bodo Heins [Bodo.Heins@draeger.com]
Sent: Wednesday, November 29, 2006 4:34 AM
To: NIOSH Docket Office (CDC)
Cc: Robert.Sell@draeger.com; klaus-michael.rueck@draeger.com
Subject: Dockket 005 CCER
Attachments: docket 005 Nov 29 06.doc; InterScan_Disclaimer.txt

Dear Sir/Madam,

please find attached the Draeger Safety comments on the Closed Circuit Escape Respirator (CCER):

Mit freundlichen Gruessen / Best regards,

Bodo Heins

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November 29, 2006

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Reference: DOCKET NUMBER NIOSH - **005**
CCER Concept Paper - September 2006

Dear Sir/Madam:

Draeger Safety is a worldwide and well known manufacturer of Self-Contained, Self-Rescuers (SCSR) and has sold thousands of units into various markets and applications to the full satisfaction of the user. Therefore we offer the following comments in response to the recently posted NIOSH Concept Paper for Closed-Circuit Escape Respirator (CCER) posted August 18, 2006.

We would like to recommend, that NIOSH would pay attention to the well known and proven EN 13794 Standard (Self-contained closed-circuit breathing apparatus for escape). This standard is state-of-the-art for these types of respirators and has been kept current throughout the years by keeping up with the technological advances being made to SCSR's. This would be a step to have a truly International Standard for this type of respirator.

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

- **Section 2 - Applicability to new and previously approved CCERs**

  The result of this chapter would be that customers would not get the full service life time from suppliers who stated a 10 year service life.
  § 2 (b) Example: A device with 10 years service life sold 3 years after effective date can only be used for 3 years instead of 10 years.
  This would cause companies who are considering purchasing new equipment to postpone the purchase until the new standard is in affect and new CCER's are available. If companies need to purchase new equipment and the effective date of the new standard is not clear there will be additional financial burdens to replace relatively new equipment with approved CCERs to the new standard.
  Units already on the market or in use should not be affected if the actual situation requires the need to have replacement units available prior to the release of the new standard.
  Currently, the National Fire Protection Association (NFPA) does not require that equipment is to be replaced, when one of their standards change, but they do require that once the standard has been released that any new equipment that is purchased are to meet the new

requirements. The NFPA does permit a grace period of six months after the effective date in order to get certified equipment to the market.

Consideration should also be given in the case of CCER's that were approved under the old requirements but after testing and evaluation to the new standard is found also to meet the requirements. Should these also be replaced under the requirements of this chapter?

If there are problems found with existing equipment, either through the Long Term Field Evaluation Program or by self-reporting by the manufacture, how will these be addressed three years after the effective date of the standard but prior to the six year effective date requirement?

- **Section 3 - Required components, attributes, and instructions**

§ 6 (c) Gases against which the CCER would provide protection:
For mining purposes the protection normally is for known gases only and do not need to protect against Chemical Warfare Agents (CWA). This should only be a topic if this standard was being developed for CBRN units. For typical CCER applications the warning "Not CBRN approved" would be enough as an additional "Cautions and Limitations" statement.

A required list of protections can in no case be complete and would require a lot of time and effort for the manufacturer to test the unit against all possible gases and vapors that could be present in an IDLH atmosphere.
We suggest that if this has to be a requirement, then NIOSH should specify the gases and vapors required and these should not be the gases and vapors that are used for CBRN certifications.
A respirator protecting against CBRN risks is already described as "Statement of Standard SCER" (Sept 30, 2003).

- **Section 4 - General testing conditions and performance requirements**

Table 1 Monitored Stressors and their Acceptable Ranges:
Ranges and values should be reviewed and discussed. International Δp ranges are significantly lower than these values, even 20 mbar would be higher than in the European standards which allows for a 60 minute unit Δp = 13 mbar.

- **Section 5 - Capacity test requirements**

The max. capacity rate of Cap 3 with ≥80 L is not wide enough.
For units with i.e. 150 L (chemical oxygen units) there should be either a classification Cap 4, or another link to the really available oxygen content, i.e. Cap 3/150.
In the capacity the units will be different from different manufacturers.

(5) For units going into coal mines, when tested in accordance to this section: are these to be conditioned in any way or are they going to be tested "As Received"?

- **Section 6 - Performance test requirements**

  § 6 (a)(3) The treadmill speed needs to be defined.

  § 6 (d) The tests must be performed IAW the manufacturer's IFU and we suggest the following: "The CCER will be operated in accordance with the manufacturer's instructions and the performance test will begin with two exhalation breaths from the simulator (immediately after these cycles the starter has to be ignited, if a starter is available), at the initial....."

  Table 3. We propose **not** to start the test sequence at the peak rate. While the unit is being donned the user is not at a peak work rate and during the various donning and use videos developed by NIOSH/MSHA the user is requested to calm down and not to panic.
  Chemical oxygen units need a short time to react properly, unless they do have a starter.
  We would propose a new Work-Rate Test Sequence of 5 minutes initial escape at 30 L/min, 4.5 Vol % CO_2, and 20 breaths per minute.

- **Section 7 – Wearability test requirements**

  § (a) We suggest that the physical characteristics of the three different human test subjects be identified in the standard.

  § (b) We suggest that wording be incorporated that identifies that the human test subjects will have some training in the use of the CCER before this test is monitored by NIOSH. This training could be done by the manufacturer or NIOSH which could include the use of a training video (MSHA or manufacturer's) and the use of a training unit.
  In recent meetings and reports, it has been identified that training is a critical component to successfully understand and don a CCER.

- **Section 8 - Environmental treatments**

  §(b) After each temperature cycle the devices shall be conditioned at room temperature for a period of time (four hours) before environmental conditioning is continued. We do not see where a drastic thermal shock is indicative of a real world scenario for this type of device.

  § (b) A tolerance should be identified for the temperatures identified for these tests.

  §(c) (1) The axis directions should be defined better. Is the drop to the top, or to the bottom of the unit?

  The vibration test procedure needs to be defined; i.e.: MIL Std 810.
  We suggest, to test from 5 Hz up to 500 Hz only, because 5 - 500 Hz is typical of a man or machine generated vibration. Higher frequencies are sensible for aeronautical purposes only.

- **Section 9 - Additional testing**

  §(c) The requirements should be reduced. The tests seem to be for units, which are worn a whole day. For 60 minutes only it is not relevant, if the lenses are damaged afterwards.

  §(c)(1) The eye protection used for disposable respirators is of limited duration and we suggest that this test be eliminated from the requirements.

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 011 49 451 882 2678.

Respectfully,

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