



All respectful ICS Customers/Surveyors

This Technical Information is published to present a summary of IMO resolutions and required fire fighting equipments (SCBA).

The document related to the above mentioned subject and also the supplementary attachments are accessible through the following address on ICS Network (ICS-WAN):

\\server\ICS Organization\Convention and Legislation\Department\Publication\Tech\2014\04.

A.GHOLAM ABOLFAZL
head of Convention & Legislation
Department
Iranian Classification Society – ICS

Disclaimer : Although all possible efforts have been made to ensure correctness and completeness of the information and guides contained in this technical information, the Iranian classification society is not responsible for any errors ,damages ,penalties or emissions made herein, nor held for any actions taken by any party as a result of information retrieved from this technical information.

کلیه بازرسان و مشتریان محترم ICS

با سلام و احترام
این اطلاعیه فنی بر اساس الزامات سازمان جهانی دریانوردی در مورد تجهیزات و لوازم مقابله با آتش (Self- contained Compressed Breathing Apparatus) تهیه و تنظیم گردیده است .

این بخشنامه به انضمام پیوست‌های تکمیلی آن در بخش CLD از شبکه داخلی موسسه با آدرس ذیل قابل دسترسی می‌باشد.

\\server\ICS Organization\Convention and Legislation\Department\Publication\Tech\2014\04.

سرپرست واحد کنوانسیون ها و مقررات دریایی
موسسه رده بندی ایران

ع. غلام ابوالفضل

ترک دعوی: اگرچه در گردآوری کلیه راهنماهای فنی ارائه شده توسط موسسه رده بندی ایران، تا حد ممکن تلاش در دقت و صحت محتوا صورت گرفته است، این موسسه متحمل مسئولیتی در قبال هرگونه اشتباهات، خسارت های احتمالی و جرائمی که ممکن است در ارتباط با بکار گیری مفاهیم و مطالب ارائه شده رخ دهد، نمی باشد.

Content:

- 1- General.....
- 2- Application.....
- 3- Lifeline.....
- 4- Inspection.....

1- GENERAL

Self Contained Breathing Apparatus, also known as SCBA, is a necessary protective gear that is worn by paramedics, firemen, and people working on ships and oil rigs. As the name goes, the breathing apparatus has all necessary equipments fitted into it that will allow the rescue professionals to carry out their work without any interruption and with utmost safety

There are two major types of SCBA that are in use today. The **Open Circuit** SCBA and the **Closed Circuit** SCBA.

A **SCBA** comprises of the following items:

1.1- Closed-Circuit SCBA:

The closed-circuit type filters, supplements and re-circulates exhaled gas. Where a longer-duration supply of breathing gas is needed, such as in a mine, closed-circuit SCBA sets are used.

1.2- Open-Circuit SCBA:

Open-circuit sets are filled with breathable compressed air that lasts for 30-60 minutes. The air is stored in the tanks and the pressure is regulated to the same level of the breathable atmosphere by a regulator. Newly invented carbon fiber composite cylinders provide breathable air for about 90 minutes in a single fill. These cylinders weigh about 15 - 18 kg. The user uses a face-sealed mask where a positive pressure is maintained to ensure that no outside air can come into the breathing system.

1.3- A SCBA consists of the following:

- A high-pressure tank with low pressure alarm
- A pressure regulator, and an inhalation connection (mouthpiece, mouth mask or face mask
- Low pressure warning whistles assembly
- Pressure Gauge (rubber clad - impact/shock resistant)
- connected together and mounted to a carrying frame.

2- APPLICATION:

The fire hazard portions of internal combustion machinery or, for ships constructed before 1 July 2014, the fire hazard portions of internal combustion machinery used for the ship's main propulsion and power generation.

• Fire-fighter's outfits:

- a) Fire-fighter's outfits shall comply with the Fire Safety Systems Code; and
- b) Self-contained compressed air breathing apparatus of fire-fighter's outfits shall comply with paragraph 2.1.2.2 of chapter 3 of the Fire Safety Systems Code by 1 July 2019. (as mentioned in 2.2 below)

2.1- Former definition/interpretation of Resolution MSC.98 (73) adopted on 5 DEC. 2000:

Breathing apparatus shall be a self-contained compressed air breathing apparatus for which the volume of air contained in the cylinders shall be at least 1,200 liters , or other self-contained breathing apparatus which shall be capable of functioning for at least 30 min. All air cylinders for breathing apparatus shall be interchangeable.

2.2- Amendment to FSS Code: {(MSC. 339(91)) adopted on 30 nov.2012}

The existing paragraph 2.1 on this technical information is replaced by the following two new paragraphs:

2.2.1- Breathing apparatus shall be a self-contained compressed air breathing apparatus for which the volume of air contained in the cylinders shall be at least 1,200 liters, or other self-contained breathing apparatus which shall be capable of functioning for at least 30 min. All air cylinders for breathing apparatus shall be interchangeable,

AND

2.2.2- Compressed air breathing apparatus shall be fitted with an audible alarm and a

visual or other device which will alert the user before the volume of the air in the cylinder has been reduced to no less than 200 liters."(Paragraph 2.1.2.2 of Ch.3 of FSS CODE)

2.3- Number of required spare bottles:

There are **two** major application areas for SCBA onboard the vessel:

- Fire fighting; and;
- Ships carrying dangerous goods

The self-contained breathing apparatus required by the regulations should be type approved to meet the testing standards quoted in the Marine Equipment Directive. SCBA may be either of the negative demand or positive pressure type or may have a changeover facility to allow operation in either mode. Apparatus such as an anti-gas respirator, through which the surrounding atmosphere is inhaled through a canister of chemical absorbents, is unsuitable for enclosed spaces where there is a lack of oxygen, and such apparatus should not be used.

The volume of air contained in the SCBA cylinders should be at least 1,200 liters.

Two spare charges suitable for use with the apparatus should be provided for each apparatus required.

In this regard; If passenger ships carrying not more than 36 passengers and cargo ships are equipped with suitably located means of fully recharging the air cylinders free from contamination, only one spare charge is required for each apparatus required. On passenger ships carrying more than 36 passengers equipped with suitably located means of fully recharging the air cylinders, the required spare capacity may be reduced by one third.

2.4- Additional requirement for ships carrying dangerous goods: (Reg. II-2/19.3.6.2)

For each of the breathing apparatuses, two complete sets of air bottles are required. These spare bottles are to be in addition to the spare bottles required for fireman's outfit. (IACS Unified Interpretation SC92)

Application of the requirements to different classes of dangerous goods:

Certification for carriage of solid dangerous bulk cargoes covers only those cargoes listed in Appendix B of the BC Code except cargoes of MHB. Other solid dangerous bulk cargoes may only be permitted subject to acceptance by the Administrations involved. (Unified Interpretation - MSC/Circ. 1120)

(MHB: Materials Hazardous only in Bulk)

2.5- Effect of temperature on pressure gauge readings:

The pressure gauge's indicated gas pressure changes with ambient temperature. As temperature decreases, the pressure inside the cylinder decreases. Failure to accurately account for the effect of temperature on pressure readings can result in under filled air bottles, which in turn could lead to a firefighter running out of air prematurely.

3- LIFELINE:

For each breathing apparatus a fireproof lifeline of at least 30 m in length shall be provided. The lifeline shall successfully pass an approval test by statically load of 3.5 KN for 5 min without failure. The lifeline shall be capable of being attached by means of a snap-hook to the harness of the apparatus or to a separate belt in order to prevent the breathing apparatus becoming detached when the lifeline is operated.

4- INSPECTION:

4.1- Weekly Inspections:

SCBA should be inspected weekly to ensure that they do not present leakages.

4.2- Monthly Inspections:

For ships subject to the International Gas Carrier Code and International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk, SCBAs, should be inspected at least once a month by a responsible officer and inspected and tested by an expert at least once a year

4.3- Annual Examination:

All SCBAs shall be examined at least annually as part of the annual statutory survey for the Safety Equipment Certificate (SEC) or Mobile Offshore Drilling Unit (MODU) Code Safety Certificate. If applicable, the SCBAs air recharging systems should be checked for air quality as part of the annual statutory survey for the SEC or MODU Code Safety Certificate by crew provided that the followings are fulfilled:

4.3.1- The equipment required to test, examine and service the SCBA is obtained and maintained in a calibrated and serviceable condition.

4.3.2- The crew is properly trained in testing, examination and servicing of SCBA according to manufacturer's instruction manual.

4.3.3- The testing and inspection is carried out to the satisfaction of attending classification society surveyor.

- For ships subjected to the International Gas Carrier Code and International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk, SCBAs should be inspected and tested by an authorized service technical at least once a year.

4.4- Hydrostatic Testing of SCBA Cylinders:

Hydrostatic testing of SCBA cylinders shall be carried out once every five (5) years or in accordance with manufacturer's instruction not later than five years by **approved firms**. The hydrostatic test date must be permanently marked on the bottles. Intervals for hydrostatically testing cylinders of the ultra lightweight type may vary and will depend upon the requirements of the

cylinder manufacturer and the ship's Classification Society. Servicing of the cylinders must be performed to the satisfaction of the Classification Society surveyor.