IMCA

The International Marine Contractors Association

Periodic Examination of Bail-Out Bottles

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Over a number of years, problems have been encountered with bail-out cylinders (normally called bottles) which have been found to be very badly corroded (even to the extent of spontaneous explosion) while still covered by valid certification.

THE LEGAL POSITION:

In the UK, the principal legislation covering Diving Operations is The Diving Operations at Work Regulations (1981) Section 13 Paragraph 3(c). This requires that a pressure leak test to a safe working pressure, or an internal pressure test, must be carried out on bail-out bottles at maximum intervals of two years.

In Norway the principal legislation is the Provisional Regulations for Diving on the Norwegian Continental Shelf (latest amendments 1 April 1980) in which Paragraph 14.1.4 requires that all bail-out bottles must be examined and tested in accordance with British Standard 5430. Effectively, this imposes the same maximum interval between tests of two years.

RECOMMENDATION:

Evidence shows that if water gets into a bail-out bottle then very serious corrosion, even to the point of failure, can occur in much less than two years. This is almost certainly due to the high partial pressure of oxygen, inside the bottle, accelerating the corrosion process.

Fortunately a simple check can be carried out to establish whether there is water or moisture in a bottle.

It is strongly recommended that at six monthly intervals the pillar valve in the neck of the bottle be removed and the bottle turned upside down. ANY evidence of water dripping from the inside, or rust or corrosion particles, should cause the bottle to be returned to base for a full examination, by a competent person, before it is used again.

If there is no evidence of water dripping from the bottle or rust particles then it is reasonable to assume that the bottle is safe to use.

N.B. Pillar valves must be removed and replaced carefully using the correct tools, as damage can easily be caused if incorrect techniques are used.

This advice is not intended to replace or alter the two yearly test and examination required by law, but to provide a simple means of checking for water or moisture inside a bottle, at regular intervals between the statutory two yearly tests and examinations.

NOTE: Gas cylinders carried on the outside of a diving bell are at similar risk, however the possibility of water entering them is less than with a bail-out bottle and, therefore, it is recommended that the simple check is only carried out if they are found to have lost pressure to a level which could have allowed water to enter them.