

Isle of Man Ship Registry Manx Shipping Notice



Storage of Oxy-Acetylene, Refrigeration Gas and Nitrogen Cylinders

Ref. MSN 060

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This MSN has been issued to provide guidance to all Isle of Man Registered vessels on the installation and maintenance of oxy-acetylene and refrigeration gas equipment. This MSN replaces Industry Circulars 14 and 20 which are withdrawn.

Refrigeration Gas & Nitrogen Cylinders

Gas cylinders containing refrigeration gas and nitrogen are normally sent to the ship full and returned to a service provider when empty. These gases are not corrosive and providing the bottle contains the original gas sent from the supplier (and gas has not been added to the bottle on board) the bottles can be periodically inspected and tested at intervals in accordance with the RID/ADR* regulations. In most cases, for refrigeration gases and nitrogen this is at 10 yearly intervals.

The inspection and testing procedure should include:

- Checking the cylinder's internal and external conditions
- Checking of threads, valves, service equipment and any other accessories including the pressure relief devices
- Carrying out a pressure test

The procedure should be carried out in accordance with one of the following standards (as appropriate, depending upon the type of cylinder) or another internationally recognised equivalent standard:

- BS EN 1803:2002 Transportable gas cylinders – Periodic inspection and testing of welded carbon steel gas cylinders
- BS EN 1968:2002 Transportable gas cylinders – Periodic inspection and testing of seamless steel gas cylinders

Both of these standards place the emphasis on the service provider to inspect and test the cylinders if they have passed their periodic inspection date. Potentially it is permitted for a service provider to receive a refrigeration bottle at 9.5 years, and not carry out a test before filling the bottle and then sending it to the vessel.

**RID/ADR regulations for the basis of the Ship Registry policy since there is no internationally recognised regulation for shipping*



The vessel is not required to return the gas cylinder before the contents have been used even though the test interval period may have lapsed. This is provided the cylinder has been subjected to normal conditions of use and has not been subjected to abusive or abnormal conditions of use rendering the cylinder unsafe, or any gas has been added to the cylinder.

After consultation with the industry, the Ship Registry recommends that cylinders which have exceeded their inspection dates should not remain on the vessel more than 5 years after the inspection date, after which time the cylinder should be returned to a service provider for inspection and testing. Therefore a bottle containing refrigeration gases that has been sent to the vessel could remain on the vessel for a maximum of 15 years before being sent ashore for testing, assuming that it was brand new when sent to the vessel.

Refrigerant Recovery Cylinders

Since refrigerant recovery cylinders are normally filled with products of an uncontrolled purity these cylinders should be inspected and tested at a maximum interval of five years. The testing procedure is outlined above.

Oxy-Acetylene Equipment

Installation and Stowage

Cylinders containing acetylene or oxygen normally used for welding/gas cutting should be provided with a permanent storage facility.

Any new fixed piping installation should be approved by the vessel's Classification Society and pressure tested to their satisfaction.

Central Storage Facility

If the vessel is fitted with a central storage facility for such gases, it should be:

- On or above the uppermost continuous deck in a lockable, well ventilated room or cabinet and not subject to extremes of temperature
- Constructed of steel, separated from other spaces by gas tight divisions and have direct access to the open deck
- If the total combined number of cylinders is four or more the oxygen and acetylene cylinders should be placed in separate compartments

Open Deck Storage

If a central storage facility is not provided, the cylinders should be stored in designated storage position, allowing the cylinders to be:

- Firmly secured in an open deck area on or above the uppermost continuous deck
- Provided with purpose built storage racks and protected against mechanical damage and direct exposure to the sun, wind and weather
- Locked within a wire cage with a solid roof forming an enclosure, to prevent interference by unauthorised persons

General Requirements

The following conditions apply to the storage of oxy-acetylene equipment, wherever it is stored:



- No electrical equipment is to be provided in the storage spaces unless it is certified as safe for use in flammable environment
- Gas cylinders, including empty cylinders are to be stored in an upright position and securely fastened with arrangements that permit the rapid disconnection of the cylinders
- A protective cover is to be screwed to the head of each cylinder when it is not in use or being moved
- Storage spaces are to be clearly marked with warning signs indicating that oxygen and acetylene gases are stored inside. No smoking signs are to be posted
- It should be ensured that cylinder valves, controls and associated fittings be kept free from oil, grease and paint. For instance, valves should not be opened with oily hands
- Used cylinders should be sent ashore for replacement prior to 5 years elapsing since the last hydrostatic pressure test
- Storage in machinery spaces is not permitted
- Relief valves vent to a safe place on the open deck
- If two or more cylinders (of the same gas) are connected to a manifold, the supply pipes between the cylinders should be fitted with non-return valves
- Cylinders should be placed on wooden boards or similar arrangement so they are not in direct contact with the deck plating
- The following standards or an equivalent national standard should be applied, as applicable: regulators (BS EN2503), flashback arrestors (BS EN730), high pressure hoses (BS EN14113) and low pressure hoses (BS EN559). All components should be renewed at intervals recommended by their manufacturer

Maintenance: Annual Checks

It is recommended that a leak test of piping be performed at least once a year. This will be carried out by using the ordinary operating pressure for oxygen and acetylene respectively. The gas supply to the pipelines should then remain constant for at least 8 hours or all joints/connections tested with a 'soapy water' solution. If pressure drop or leaks are detected in the pipelines, the installation should be checked and repaired by a suitably qualified person.



Reference Material

Documents referred to in this MSN:

- RID Regulations - Regulations Concerning the International Carriage of Dangerous Goods by Rail
- ADR Regulations - European Agreement concerning the International Carriage of Dangerous Goods by Road
- British Standard EN 1803:2002 - Transportable gas cylinders. Periodic inspection and testing of welded carbon steel gas cylinders
- British Standard EN 1968:2002 - Transportable gas cylinders. Periodic inspection and testing of seamless steel gas cylinders
- British Standard EN 2503 - Gas welding equipment. Pressure regulators for gas cylinders used in welding, cutting and allied processes up to 300 bar
- British Standard EN 730 - Gas welding equipment. Equipment used in gas welding, cutting and allied processes, safety devices for fuel gases and oxygen or compressed air. General specifications, requirements and tests
- British Standard EN 14113 - Gas welding equipment. Rubber and plastics hose and hose assemblies for use with industrial gases up to 450 bar (45 MPa)
- British Standard EN 559 - Specification for the design and construction of signs for publicity, decorative and general purposes

Most Regulations and notices are available on the Isle of Man Government website: www.iomshipregistry.com or by contacting marine.survey@gov.im

Please note - The Isle of Man Ship Registry cannot give legal advice. Where this document provides guidance on the law it should not be regarded as definitive. The way the law applies to any particular case can vary according to circumstances - for example, from ship to ship. You should consider seeking independent legal advice if you are unsure of your own legal position.

