



ACETYLENE CYLINDERS

RECENTLY A VESSEL INSURED by this Association became a total loss due to a fire which developed in an acetylene cylinder, the fire spread rapidly to nearby flammables and caused a series of explosions in other acetylene cylinders stored in the adjacent area. Fire continued to spread along the entire working deck and eventually reached fuel tanks and hydraulic systems resulting in a catastrophic explosion which eventually sank the vessel. Fortunately all crew members abandoned ship and were subsequently rescued and landed safely ashore.

This incident is an important reminder of the potential danger from acetylene cylinders and all crews should be aware of the safety precautions and procedures to be taken during handling, storage and use of acetylene cylinders on board vessels.

Acetylene is classified as a flammable compressed gas which can, under certain conditions, decompose into its constituent elements of carbon and hydrogen with explosive results.

As a compressed gas, the cylinders used must be of a steel construction and meet certain requirements such as hydrostatic testing. Cylinders are protected by pressure release devices, which normally consist of a fusible plug located at the bottom of the cylinder.

Acetylene gas cylinders should be handled with care, if a cylinder is dropped or subjected to shock then damage is possible to the cylinder, valve or pressure relief device. For safety, cylinders should be stored on board ship in a designated storage area, dry, well ventilated and away from sources of heat and also the number of cylinders carried should be kept to a minimum.

When cylinders are received on board, checks should be carried out by responsible personnel and if there is any doubt as to the condition or any defects noted the cylinders should be immediately rejected.

Fire in acetylene cylinders can be unpredictable, the pressure release device in most cases can safely vent the acetylene, however it is possible that heat could weaken the cylinder and internal pressure could result, violent rupture of the cylinder could then occur.

Extreme care should be taken when dealing with acetylene and the following basic safety precautions should be followed.

1. The number of cylinders stored on board must be kept to a minimum, the more cylinders stored the more the exposure to risk.
2. Acetylene cylinders must be stored upright on deck or in a special well ventilated location protected from the elements, heat and flammables.
3. Acetylene must never be stored in or near accommodation.
4. Acetylene cylinder valve protection caps must be in place when the cylinder is not in use.
5. After use of acetylene welding or burning gear, cylinder valves must be closed and the gas lines purged, regulators removed and all equipment stored in a safe place.
6. Cylinders must only be used for their designed purpose and not used as work benches or racks as this may cause damage to the cylinder walls.
7. Carefully check the condition of the cylinders received on board and don't be fooled by a fresh coat of paint which may hide corrosion or damage. If there is any doubt regarding the condition of the cylinder it should be rejected and returned ashore.
8. Acetylene gas cylinders must be handled as if your own life and the lives of your fellow crew depend on it.

For further information concerning the storage handling and use of acetylene please refer to the Vanuatu Register Bulletin No. 3MSMD105, Code of Safe Working Practices for Merchant Seaman, M. Notice M957 or alternatively contact British Marine.

While every care is taken in the preparation of this page, it is published solely for the purpose of providing information and should not, in any way, be construed as a substitute for legal advice, which should always be sought in respect of any specific legal problems experienced.

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