

# “Don't Cure, Prevent!”

PaSea Circular 09/2017



PREVENTION AT SEA

## SUBJECT:

### ‘Gas Welding and Cutting; safe storage and operations on ships!’

A common finding during Prevention at Sea Marine Risk Audits is that **oxygen** and **acetylene equipment**, are either improperly connected, stored or in poor overall condition.

Oxygen and acetylene, commonly used as part of the standard maintenance equipment on ships for welding, burning, and heating should be handled with great care and their associated equipment, including hoses, fittings, and regulators, be properly maintained.



**Case:** During a recent inspection on board a tanker vessel at Dakar, Senegal, the PaSea Marine Risk Auditor found that oxygen and acetylene cylinder(s) were not properly stored in accordance with the Code of Safe working practices and Flag administration requirements. They were exposed at the main deck and moreover the crew was not familiar with the procedures to be followed for the safe use of the gas welding and cutting equipment.

The cylinders and relevant equipment should always be protected from damage, and be secured whenever the vessel is underway.

The following areas should be considered for the safe handling, storage and use of cylinders on board;



#### 1. Storage areas

A **dedicated storage facility** should be provided for cylinders containing acetylene or oxygen. The storage facility should be separated from other spaces by gas tight divisions and should have direct access to the open deck. Where two or more bottles of each gas are intended to be carried in enclosed spaces, separate dedicated storage rooms should be provided for each gas.

**If a dedicated storage facility is not provided**, the cylinders should be firmly secured in an open deck area, on or above the upper deck, protected against damage and direct exposure to the sun, wind and weather.

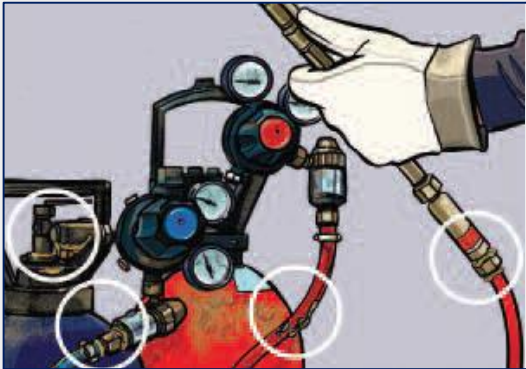
- **Accommodation areas:** Storage areas should not be located in or close to accommodation areas. The storage of acetylene and oxygen in machinery spaces is **not permitted**.
- **Access routes:** Corridors and other walkways should not be used as storage areas. Materials should not be stored where they may obstruct access routes or where they could interfere with emergency escape routes.
- **Warning marking:** Storage spaces should be clearly marked with warning signs indicating that Oxygen and Acetylene gases are stored inside. **‘NO SMOKING’** signs should be displayed at the gas cylinder storage rooms.



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Source: North of England P&I

## 2. Fittings

Cylinder valves, controls and associated fittings should be kept free from oil, grease and paint. Valves should not be opened with oily hands. Oxygen cylinders should be kept away from fuel-gas cylinders or combustible materials (especially oil and grease).

A gas distribution manifold should be fitted in the storage room or cabinet to feed oxygen and acetylene to the engine room welding station via hard piping color coded **blue** for oxygen and **red or yellow** for acetylene<sup>1</sup>.

(<sup>1</sup>) *Color marking is to be done in accordance with the regulations of the State whose flag the ship is flying.*

## 3. Maintenance

Hoses should be properly maintained. The user should inspect them regularly, looking particularly for any chafing, splitting or cracking which is most likely to occur near fittings. They should never be coiled around gas cylinders or left on the deck.

Hoses should be regularly examined and leak-tested **at least once a year** and should be **replaced every 5 years**.



### Useful Tips for safe operations onboard!

- ☑ Only **approved leak detection fluid** should be used for detection of leak from hoses or regulator arrangement.
- ☑ **Non-return valves and flame arresters** should be fitted in the acetylene and oxygen cylinder lines.
- ☑ **The temperature of acetylene cylinder** is suggested to be monitored on a regular basis. If the temperature is elevating, relevant actions should be taken to avoid flashbacks.
- ☑ When performing gas welding, **the pressure of oxygen** should always be high enough to prevent acetylene flowing back into the oxygen line.
- ☑ **The hoses** should be laid properly and kept out of any moving machinery spaces, high temperature areas etc.
- ☑ Only special tools should be used to clean any clogging in the blow pipe. Before performing any **maintenance**, the system should be properly isolated.

**Don’t cure, prevent! For more information, please do not hesitate to contact us!**

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