

Technical Bulletin

Hot work

Frequently the Club inspectors come across poor practice regarding 'hot work' – not just the permit to work system but also a general lack of awareness as to proper procedures and checking of equipment.

The oxy / acetylene equipment is covered by Technical Bulletin 26 issued in 2008 but the importance of flashback and flame arrestors (also known as 'back fire' valves – DREW Ameroid) needs to be stressed. These should be fitted to both oxygen and acetylene cylinders on deck and to the hose cabinet (if fitted) in the engine room workshop. There are also check valves (NRV) and flashback arrestors that can be fitted on the torch.

In some countries (Flag states) the use of check valve and/or flashback arrestors are mandatory, whereas in others it is only advisory.

Causes of flashback

A gas mixture in one of the hoses in combination with a backfire when igniting a burner can cause a flashback. The gas mixture in the hose results from a reverse flow, i.e. when gas at a higher pressure flows into a hose with a lower pressure. If there is sufficient gas mixture in the hose the explosion can be so violent as to rupture or burst the hose.

It is important to apply this protection not only to the acetylene (fuel side) but also to the oxygen side. A flashback arrestor on the oxygen regulator can for example prevent oxygen from continuing to flow out in the case of fire – i.e. additional oxygen raises the combustion rate.

It is not unusual to see very poor and weathered gauges fitted to one or both of the cylinders on deck. Flash back arrestors – when fitted – also suffer from the salt laden atmosphere.



Welding in the workshop

The trained welding operator should always have proper PPE – but for others in the area in the workshop for example they must also be protected from ‘welding flash’ also known as ‘arc eye’ a very painful eye injury. Welding flashes out of your peripheral vision is dangerous and can have long term effects.

The simplest way of protecting others is by using flame proof curtains that can be drawn around the welding station. Other solutions could be portable screens that are easy to set up and can be folded away when the welding work is completed.



Workshop practice

Drums containing oily rags or any combustible material must never be stored in the workshop area when ‘hot work’ is in progress. It is good workshop practice to clear away any combustibles before any hot work commences and if this is not possible then to ensure that the drums are covered with good fitting steel lids.

Hot work on tankers must always be carefully monitored – no hot work may be permitted outside of

the ER workshop without Company permission and when in port hot work is never allowed and hoses must be disconnected completely from the cylinders on deck. Notices to this effect signed by the chief engineer must be prominently displayed in the workshop.



Hot work permits

We would suggest that a hot work permit to work cannot be issued for more than four (4) hours. If the space is vacated for more than 30 minutes then it must be re-tested and re-certified i.e. After meal breaks, coffee breaks, etc. It should always state the validity on the PTW. The four (4) hour limit falls in nicely with normal working conditions on board ship – allowing for meal breaks, etc.

Our earlier Technical Bulletin No 28 refers to this – the detail there being from one of our chemical tanker Members.

Their system is more onerous and only lasts two (2) hours, they do not issue a separate certificate each time but the certificate is ongoing and re-validated and initialled each and every two hours, this tends to concentrate the mind.

Supervision and awareness is always the key to any successful hot work operation.

References and acknowledgments:

EIGA – European Industrial Gases Association, Brussels
Unitor / DREW Ameroid
LAVAsield, Ca. / Weldas Europe B.V.