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SAFETY CIRCULAR ***5th Feb 2019***

To: Fleet

Subject: Flash back arrestors on oxygen and acetylene bottles storage of OX and AC bottles

Dear Masters and Chief Engineers,

In reference to a vetting remark we received on one of our fleet vessel, regarding the use and fitting of flash back arrestors we have to address your attention to:

1. OXYGENE and ACETYLENE Bottles are to be separately stored
2. Bottles not in use are to be closed and the protecting cap have to be screwed on the bottles. This applies for full bottles and empty bottles.
3. For bottles in use valve guard have to be fitted.
4. Gas bottles have to be always stored in upright position and properly secured.
5. Storage area have to be well ventilated
6. Storage area have to be properly marked
7. Flashback arrestor has to be installed on each gas bottle
8. Flashback arrestors has to be installed on each workstation

The flashback arrestor (not to be confused with a check valve) prevents the shock waves from downstream coming back up the hoses and entering the cylinder (possibly rupturing it), as there are quantities of fuel/oxygen mixtures inside parts of the equipment (specifically within the mixer and blowpipe/nozzle) that may explode if the equipment is incorrectly shut down.

Flashback is the condition of the flame propagating down the hoses of an oxy-fuel welding and cutting system. To prevent such a situation a flashback

arrestor is usually employed. The flame burns backwards into the hose, causing a popping or squealing noise. It can cause an explosion in the hose with the potential to injure or kill the operator. Using a lower pressure than recommended can cause a flashback.

9. Particular care to be taken for fitting direction of the flashback arrestor. This is marked.

10. Hoses for acetylene and oxygen are to be free from cracks (aging) and damages, couplings to be free from leaks. Hose fittings to be tight and free from leaks. Proper dedicated band clamps to be used.

QHSE
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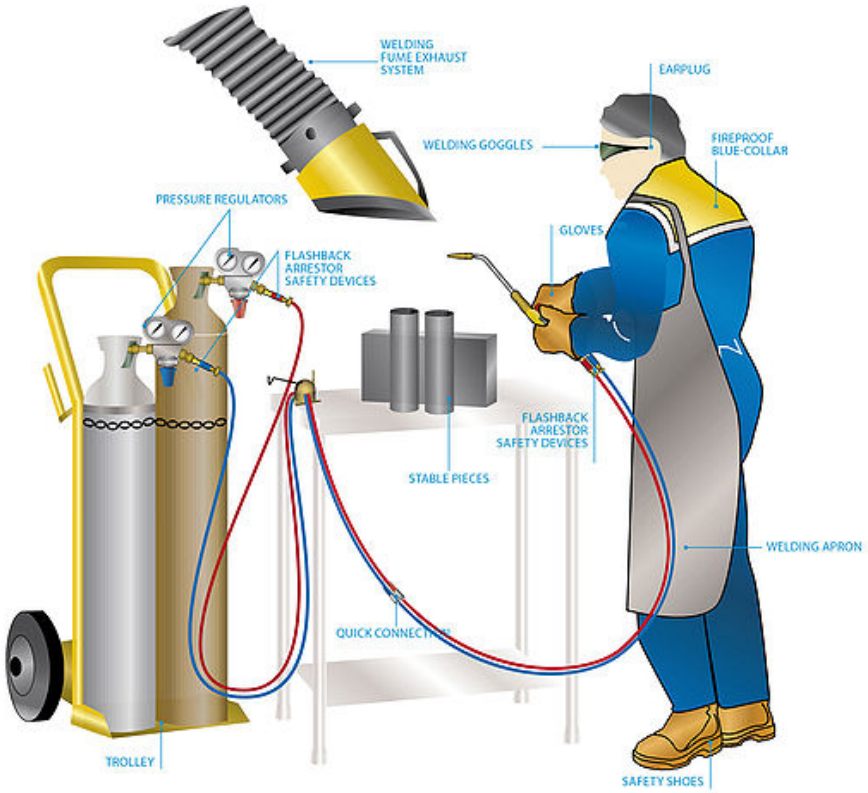
Addendum 1 --- Example of workstation

Correct and safe oxygas welding station



Addendum 2: MARKINGS OF GAS BOTTLES

Class 2.1 Flammable gas

Examples: LPG, hydrogen, acetylene

Class 2.2 Non-flammable, non-toxic gases

Examples: compressed air, nitrogen, argon, carbon dioxide, helium.

Class 2.2, Sub-risk 5.1

'Oxidising gas'

Examples: oxygen, nitrous oxide, Entonox (50% oxygen, 50% nitrous oxide).

Under the *Dangerous Goods Safety Management Legislation* gas cylinders are required to be labelled with the following, as shown below:

- class label and any subsidiary risk labels
- the proper shipping name
- a four digit United Nations number
- Manufacturer/importer's name.

Figure 1 Gas cylinder markings

Gas cylinder marking for oxygen

In addition, to the markings shown in Figure 1, a cylinder will also be required to have other markings which are stencilled onto the cylinder near the neck of the cylinder these will include:

- the tare weight
- serial number
- owner's name
- test pressure
- retest date
- manufacturer's stamp
- water capacity.

Water capacity is the equivalent water volume of the cylinder in liters.

Manufacturers paint gas cylinders using a color coded system that is useful in identifying gas cylinders. You should consult the manufacturer's product catalogues for color charts with this information.

Addendum 3

Valve protection

Cylinder valve guard

Protection Cap

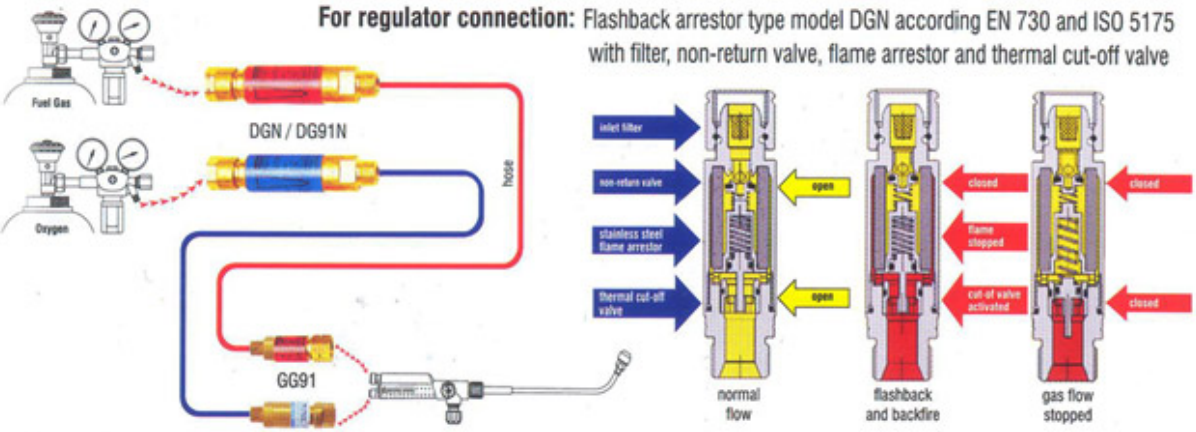
Proper hose clamps

Ear Clamp Type

T-Bolt Clamp Type

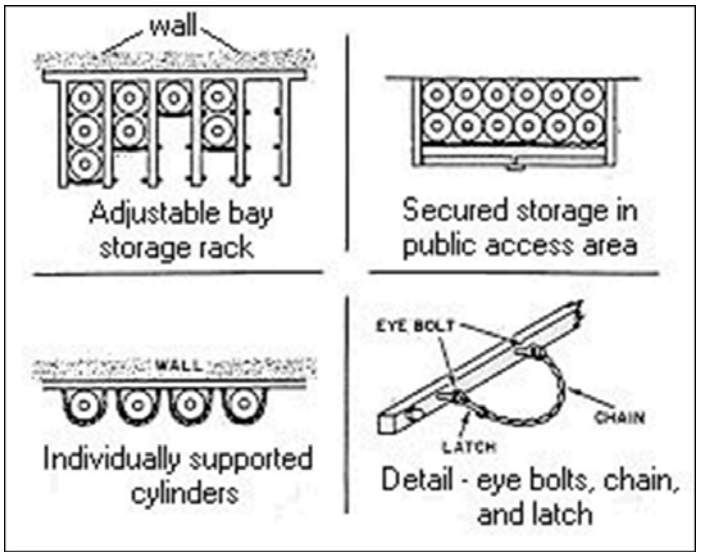
Band Clamp Type

Flash back arrestor



Cylinder storage

Storage with lashing chains



Storage examples