

## Ruptured acetylene hose: Fire

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A subcontractor was preparing to use an oxy-acetylene torch on the back deck of a vessel.

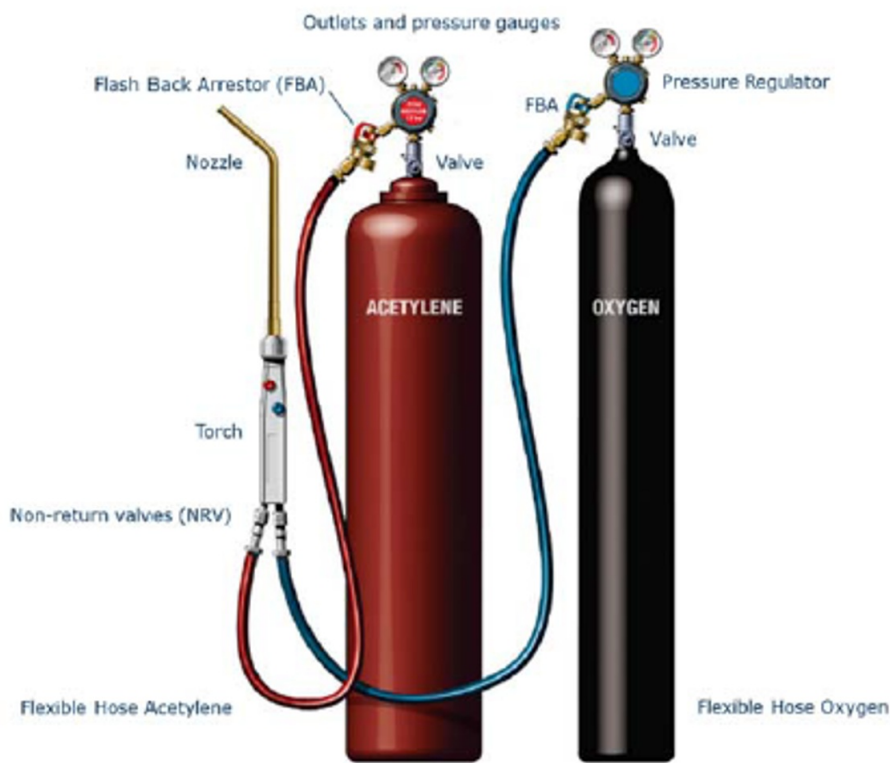
### What happened?

The oxygen and acetylene cylinders were located on the quayside with the hoses rigged to the vessel. On lighting the torch, a 'pop' sound was heard, and a small fire was observed from a rupture of the acetylene hose just ahead of the flash-back arrestor.

#### IOGP Life Saving Rules:



Hot work



Typical oxy-acetylene equipment configuration

### What went wrong?

The actual cause of this incident could not be established. However, flash-back can occur when a flammable mixture remains in the blowpipe or hoses when the torch is lit.

Ignition can travel towards the cylinder but is normally stopped by the flash-back arrestor, which prevents decomposition of the acetylene or an explosion.

## What actions were taken?

Our Member took the following actions:

- Regularly check the condition of oxygen and acetylene hoses and ensure they are replaced as required in any planned maintenance system (PMS) or supplier instructions.
- Keep torches in good condition to avoid turbulent gas flow and so reduce the risk of flash-back.
- As a minimum there should be a non-return valve at the torch end of each hose and a pressure or temperature variation activated flash-back arrestor at the cylinder end.
- Only use regulators, flash-back arrestors, hoses and blowpipes which are designed for either acetylene or oxygen and are clearly marked and manufactured to the correct standard.
- Ensure that flash-back arrestors are being replaced at least every 12-months.
- Welding gas hoses should be correctly connected, and jubilee clips should never be used.
- For cutting and purging operations the oxygen and acetylene hoses should be separately purged to remove any flammable mixtures before lighting the blowpipe.
- Monitor and confirm the subcontractor's compliance to the above requirements.

## What lessons were learned?

Our Member gave the following advice to crew for what to do if a flash-back occurs and it is safe to do so:

- Immediately close the oxygen nozzle valve and then the acetylene nozzle valve (NB: This is the opposite of the normal closing down sequence).
- Close both oxygen and acetylene cylinder valves.
- If the flame cannot be put out at once, evacuate the area and raise the alarm. For onshore sites or for a vessel which is alongside alert the emergency services.
- Once the situation is secured, the equipment must be quarantined until it can be fully examined for damage and either confirmed safe for reuse or safely disposed of.

- Never attempt to move or vent a cylinder but monitor for any heat generation.
- If a hotspot is detected on the acetylene cylinder, evacuate the area, raise the alarm and where appropriate, notify the emergency services, if safe to do so apply cooling water.

Members may wish to refer to:

- Proper care of oxy-acetylene cutting and welding equipment
- Oxygen and acetylene hose caught fire
- Hose fire caused by flashback in oxygen and acetylene hoses

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