

# FAAM rules on gas cylinder handling and storage

## ***Introduction***

Before attempting to move or use laboratory gases, all users must be fully aware of the hazards associated with the gas. Any users storing gases on detachment should have supplied a copy of the MSDS forms to the FAAM chemistry specialist and/or health and safety advisor.

NERC-maintained guidance on Safe Storage and Installation of Gas Cylinders can be found here:

[http://www.nerc.ac.uk/about/policy/safety/procedures/guidance\\_gas\\_cylinders.pdf](http://www.nerc.ac.uk/about/policy/safety/procedures/guidance_gas_cylinders.pdf)

A separate FAAM Risk Assessment has been completed to evaluate risk and controls associated with this activity.

## ***Transporting cylinders***

Cylinder trolleys should be used to transport cylinders between locations and should only be manually handled when loading / unloading onto the trolley.

Due to the way the cylinder is handled we recommend that you should be at least as tall as the cylinder if you are intending to manually handle it.

When moving a cylinder manually you should use the “churning” method. This involves placing one hand at the top of the cylinder and rolling it with the other. It should be only done in the following conditions:

- Over short distances
- Even ground
- Dry conditions
- Well lit areas

A separate guideline document covering road transport of compressed gas cylinders can be found here:

<https://www.faam.ac.uk/wp-content/uploads/2019/06/FAMIL-14-Compressed-gas-cylinders-road-transport-guidelines-issue1-AL4.pdf>

## ***Regulators***

A pressure regulator should be used for no more than 5 years from the date of purchase, regardless of frequency of use. Please make sure all regulators are current and that the last test / expiry date is clearly shown.

## ***Using the gas***

Gas cylinders should always be chained to the wall or bench in laboratories, in the gas store, or in a cylinder trolley. Never leave cylinders standing upright unsupported.

The pressure adjustment knob should be fully unwound when the regulator is not in use to avoid unnecessary tension on the springs and diaphragm.

Well fully unwound, the pressure adjustment knob should remain on the regulator to comply with regulations.

Never allow oil or grease to come into contact with the high pressure side of cylinders or regulators of oxidants as there is a risk of combustion. Oxygen compatible PTFE thread tape should be used when handling pure oxygen.

Do not keep cylinders filled with corrosive, explosive or highly toxic gases in the FAAM store for more than six months. If FAAM visitors are storing anything deemed corrosive, explosive or highly toxic please make it known to the FAAM health and safety advisor and/or chemistry specialist.

If a cylinder begins to leak move it outdoors and contact the supplier. Damaged or corroded cylinders should be returned to the vendor.

## ***Using the gas in FAAM laboratories***

Compressed gases are to be used only in FAAM's aerosol and primary/chemistry laboratories, Gas Store and Hangar 1 (supply to aircraft).

Uncontrolled leaks of inert gas (nitrogen, argon, helium), pure oxygen or carbon dioxide from cylinders/regulators used in FAAM's aerosol and primary/chemistry laboratories can be detected by FAAM's laboratory gas detection system. Staff will be notified by such leaks from the detection system audio/visual beacons, and must vacate the premises by the nearest emergency exit, as highlighted in the following notice posted on laboratory doors.

## **Evacuation of FAAM Building 85 Laboratories in case of gas leak alarm**

- Upon hearing gas detection alarm, **EVACUATE laboratory IMMEDIATELY** by nearest exit
- Report alarm to FAAM Offices Bldg 146
- **ONLY RE-ENTER laboratory**
  - if concentration levels are safe/normal (alarm unlatched)
  - or by following Re-Entry procedure kept in Engineering Lab

### **Contacts:**

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## ***Using the gas on FAAM's aircraft***

Commercially procured gas cylinders (NPL, BOC, Air Products, Air Liquide...) used onboard FAAM's aircraft must display in-date hydrostatic retest rings, a description of which is provided in "a guide to gas cylinder test date rings" in Appendix 2 of [BCGA Guidance Note 27](#).

For research custom-filled/blend gas standard cylinders, or institution-owned refillable cylinders, hydrostatic retest rings may not be readily available, but proper marking of the retest date should appear on the cylinder.

In some instances, the calibration certificate of special (ie research) gas standards (BOC, NPL) may exceed the date of the retest ring of the cylinder; such cylinders are deemed acceptable as long as documentation uniquely identifying the cylinder and its content expiry date are provided.

## ***General Care***

Gloves should be worn when moving cylinders in cold weather.

If refilling cylinders eye protection must be worn.

Cylinders should always be stored upright and fastened to a bench / wall or on a cylinder trolley. Smaller cylinders (<10L) can be stored horizontally on shelves.

Cylinders should have Status Tags indicating whether they are Full, In Use, or Empty.

Pressure regulators and associated transfer lines should be pressure tested (static pressure drop) and fittings leak tested when possible use leak detection liquid provided by FAAM.