Imperial College London

FIRE SERVICES
ROOM 174, SHERFIELD BUILDING

Code of Practice

Revision No: 1
Date: 25th August 2011

Acetylene Cylinders

Imperial College has a duty under the Fire Safety Order 2005 to avoid risks and to evaluate risks which cannot be avoided.

Acetylene presents a unique risk in comparison to all other bottled gases due to its instability. Heating or mechanical shock can cause spontaneous internal heating. The risk of explosion remains for 24 hours unlike all other gases which are safe once the initial fire has been extinguished. In the past whole cylinders and fragments have travelled for 175 metres.

Because of the risk of explosion a hazard zone of 200 metres radius is set up every time these cylinders are in danger of exploding at a fire.

If a gas cylinder explodes following a fire the resulting dangers can include a travelling fireball, flying glass and structural damage to nearby buildings.

As can be seen from above, there is considerable risk where acetylene is in use. Were an incident to occur, there are considerable risks to persons in the vicinity, the financial costs would be extremely high and the profile and reputation of the College would be in jeopardy.

Alternative methods are available for site contractors and these should be used in preference to acetylene, but there is reluctance to find alternative methods in laboratories. It should be the aim of the College to make every effort to find alternatives to acetylene and consequently make all campuses acetylene free.

Consequently, acetylene for general usage is discouraged from all Imperial College campuses except where absolutely essential for laboratory use. Where there is a particular procedure that can only be carried out with acetylene, method statements giving full details of proposed usage, storage and safety precautions must be submitted in advance to the Fire Office. A ‘Permission to use Acetylene’ form must also be completed and submitted to the Fire Office and in all cases other than laboratory use, a Hot Works Permit will be required.

Chief Fire Officer