



Single Cylinder Gases

Interactive Audit Guidance

This audit is provided as a guide to risk assessment, it does not remove the need for technical management judgment in all situations

Company Name		Date	
Address		Postcode	
		Tel	
H&S Manager		Tel	
		email	
Auditor Name		Signature	
Company		Tel	
Address		postcode	
Asset Number			
Asset Description			
Asset Location			

on site

open workshop

e-learning



Cylinder Security and Protection		YES	NO
Cylinders In The Gas Store & The Work Area	Secured from falling over		
	Original Supplier Label attached		
	Secured from theft or interference		
	Protected from excessive heat or cold		
	Protected from contaminants, oils, greases, and corrosive substances		
	Clear of doorways, walkways access & areas		
<p>Note: Suitable chains, clamps or retaining straps should be considered. Normal ambient weather conditions are not hazardous. Mechanical freezing or temperatures in excess of 600°C should be avoided.</p>			
Marking of Rooms Containing Gases	Would the use of signage aid the Emergency Services or others to identify rooms containing gas cylinders?		
Emergency Procedures	<p>Note: Ignitions through leakage of fuel gases from connections and hose defects are a common type of incident</p>		
	Are fire extinguishers available (dry powder or CO ² for gases)		
	Are fire fighting procedures known and practiced according to a written plan		
	Is the isolation of gas source (closing the cylinder valve) practicable in an emergency		
	Is a plan of the location of gas cylinders and control valves available to the emergency services		
	Are gas quantities, gas types & hazards known and available to the emergency services		
	Has it been ascertained that isolation of the gas source would NOT affect a process or produce another hazard		
	<p>Note: Define and use a safe cylinder systems shut down procedure</p>		

Useful Links
Know Your Stores - PDF
Personalised store signage
CP 44 Gas Storage Download
Find A CP 47 Inspector



Know Your Stores
A site specific Risk Assessment is required for each gas cylinder store

Training & Instruction: All staff involved in the handling, storage or use of cylinders must receive appropriate training & instruction. This should be done:

- Before they start work
- Whenever a new type of cylinder is used
- Whenever a new type of gas is used
- Whenever a new type of equipment is used
- Whenever a new type of process is used
- Whenever a new type of hazard is identified

Cylinder Labels: All cylinders must be clearly labeled with the correct gas name and hazard information. Labels should be legible and in the correct language for the user.

Location: Cylinders should be stored in a secure, well-ventilated area, away from heat, flames, and other hazards. They should be stored upright and secured to prevent falling over.

Signage: All gas cylinder stores must have appropriate signage, including hazard warnings and emergency procedures. Signage should be clearly visible and legible.

Gas Cylinders: Cylinders should be stored in a secure, well-ventilated area, away from heat, flames, and other hazards. They should be stored upright and secured to prevent falling over.

Emergency Procedures: All staff should be trained in the correct use of fire extinguishers and other emergency equipment. They should also be trained in the correct use of gas cylinder valves and other safety equipment.

Minimum Separator Distances (metres):

Gas Type	Flammable	Inert	Toxic	Corrosive
Flammable	5	5	5	5
Inert	5	5	5	5
Toxic	5	5	5	5
Corrosive	5	5	5	5

Notes:

Regulators		YES	NO
Regulator	Correctly labelled for the gas type in use		
Bullnose	Undamaged		
	Threads undamaged		
	Clean uncontaminated		
	90° to body		
	Tightening nut undamaged		
	No unauthorised modifications		
Outlet Connection	Threads undamaged		
	Clean uncontaminated		
	No unauthorised modifications		
Pressure Relief Valve	In place		
	No unauthorised modifications		
	Internal- outlet opening free from obstruction		
Gauges	In place; correct type		
	Appropriate high pressure & low pressure gauges marked ISO 5171		
	Undamaged; No unauthorised modifications or PTFE		
	Needles start at zero; positioned at correct side of stop; unbent; scale backing plate undamaged & allows free movement of the needles		
	Backs in place & clear covers		
Replacement Interval	Date stamp or code under 5 years or manufacturer's recommendation		

Useful Links
Regulator date codes - TIS 18
Know Your Regulator poster



Notes:

Flashback Arrestors and Non-Return Valves			
Flashback Arrestors will always contain integral Flame Arrestors and may also contain Cut-Off Valves; individual Flame Arrestors, Non-Return Valves (or Hose Check Valves) may also be used where required			
Oxygen and Flammable Gases		YES	NO
Oxygen flammable used together with source of ignition present	Non return valves (NRV) present in the process equipment connection in the hose assembly		
	FBA and NRV at regulator outlet connection present		
When using acetylene a Flash shall always be in use. When using oxygen or other flammable gases individually with no source of ignition an FBA is optional. Inert gases do not require NRV. Refer BGA CP47			
Flashback Arrestor Checks			
Body	Undamaged, standard marked ISO 5175 <i>(before 19.12.2017 EN 730-1)</i>		
Connections	Clean; uncontaminated; no PTFE		
Pressure Rating	Legible; suitable for cylinder		
Replacement interval	Date stamped under 5 years or manufacturer's recommendation		
Reset Button <i>(where applicable)</i>	Not tied down, restricted, modified or damaged		
Pressure Systems Safety Regulations (where applicable)		YES	NO
Are systems subject to the pressure systems safety regulations			
Are systems designed, assembled and constructed in accordance with the current issue of those regulations <i>Refer to Pressure Systems Safety Regulations 2000 from the HSE</i>			

Useful Links
FBA Date Codes TIS 18
Flashback ISO Update
Know Your CP47 Poster
PSSR 2000





FLASHBACK ARRESTORS STANDARD UPDATE

Flashback Arrestors Standard Update
Gas Welding Equipment Safety Devices incorporating a flame (flashback) arrestor
 BS EN 730-1:2002 has been replaced by BS EN ISO 5175-1:2017
 Flashback arrestors purchased from 2018 may now be seen with the new number ISO 5175-1

Before 19.12.2017
EN 730-1



After 19.12.2017
ISO 5175-1



Flashback Arrestors (FBA)
These should be used where oxygen & fuel gas are in use supplying the same equipment or process.
 The fitting of a FBA is mandatory when acetylene is the fuel gas.

5 Year Life

- Replace flashback arrestors every 5 years or according to manufacturer's recommendations.
- Check the manufacturer's date stamp or coding.
- As with regulators not all manufacturers may date the flashback arrestors.
- If the code is not present ascertain from purchase records or management whether the FBA is under 5 years old.
- If in doubt replace.


Before Use Flashback Arrestor Checks

- Appropriate for the gas in use.
- The body is free from damage, contamination & correctly labelled.
- Conforms to ISO 5175: "BS EN 730-1" "December 2017 updated to BS EN ISO 5175-1.
- Connections free from oil, grease, PTFE tape & other contamination.
- Appropriate Maximum Working Pressure of the FBA.
- Reset button or lever check for gas flow in the operating position. If there is no gas flow, check for signs of damage caused by previous flashback on the FBA or any attached hoses & regulators.

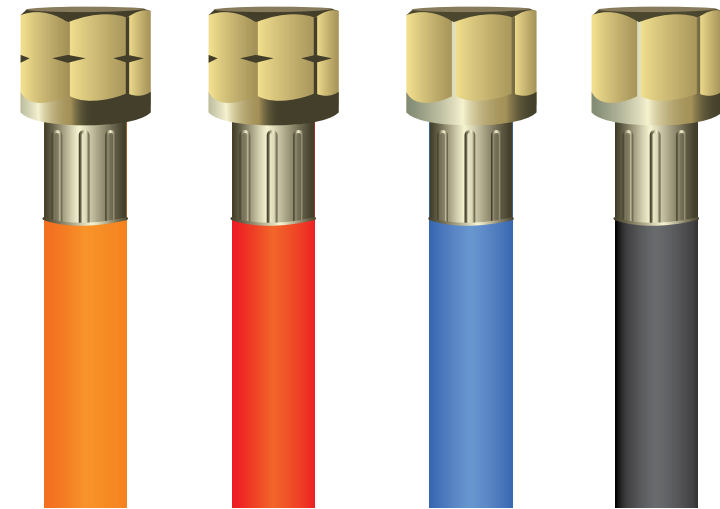
Nationally Accredited safety training for the users of compressed & cryogenic gases

admin@pgstraining.com on site open workshop e-learning 01606 872864
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Notes:

Hose Checks		YES	NO	
Correct colour code for the gas type in use				
Entire length undamaged				
Marked to the correct Standard	BS EN ISO 3821:2010 Rubber (for Welding & Cutting Applications)			
	BS 3212-1 (Low Pressure) or 3212-2 (High Pressure) Propane <i>(for single-gas applications; NOT suitable for mixed-gas applications such as welding and cutting)</i>			
	BS EN 1327 Thermoplastic			
	BS EN ISO 14113 Rubber & Plastic Hose Assemblies (450 bar)			
Protected from damage & entire length visible				
Hose Length	No longer than is necessary for the task in hand <i>(If long lengths are often required consider permanent piping - see BCGA CP4)</i>			
Hose Connections	Marked to the correct standard	BS EN 560 Hose Connections		
		BS EN 561 Quick Action Couplings		
		BS EN 1256 (the complete hose assembly standard but it is rarely marked on the hose)		
	Free from re-usable worm wheel-drive clips ('Jubilee' clips)			
	Free from contamination, oils, greases etc			
Free from PTFE tape on connections/joints				
NO PTFE <i>taped joints should not be used on hoses</i>	<i>O'dips & PTFE tape are bad practice as shown here</i> 			
Non-Standard Hoses to Process Equipment	Manufactured and tested to BS EN 1256 or BS EN ISO 14113			
	<i>NOTE: Many different types of metal, rubber or plastic tubing, hose and pipe are employed in laboratory applications – it is not possible to list all possibilities here. It is the duty of the user to ensure that such tube/hose/pipe is suitable for the purpose for which it is used. Refer to BCGA CP47 & CP4 for further information</i>			
Repairing hoses is not recommended; if in doubt replace the entire hose				
Anti-whip Cable	Attached to cylinder & fixed point where fitted			

Useful Links
BCGA CP47 Single Cylinders
CP47 Checklist
BCGA CP4 Manifold



Notes:

Risk Assessments			YES	NO
PPE - Personal Protective Equipment <i>Note: Requirement determined by Risk Assessment and by local conditions, process equipment or procedures</i>	Is PPE appropriate for the task in hand?	Gloves (manual handling of cylinders)		
		Safety Shoes (Manual Handling of Cylinders)		
		Safety Glasses (Connecting and disconnecting gas equipment)		
		Overalls		
	Are operators trained in the correct use of their PPE			
Training	Have all operators been trained in the following:	Hazards & Properties of gases		
		Safe use of gases and associated equipment		
		Safe Handling of cylinders		
		Start Up & Close Down procedures		
		Before Use Checks		
		Emergency Procedures		
Manual Handling	Are suitable trolleys available			
	Are trolleys maintained and regularly checked			
	Has a specific risk assesment been applied where cylinders are required to be moved in lifts			
	<i>Note: It is strongly recommended that gas cylinders are secured and unaccompanied where their movement in lifts is unavoidable</i>			

Useful Links
PGS Shop
PGS Onsite Courses
PGS Open Courses
PGS e-learning Courses
Manual Handling Video



Notes:

Ventilation & Oxygen Monitors		YES	NO
Are areas where gases are stored or in use adequately ventilated			
If required, are oxygen or other gas type monitors provided?	Personal monitors on employees		
	Work area monitors with displays & alarms	Before entry into the work area	
		Within the work area	
If required, is extraction equipment provided to remove hazardous fumes or gaseous build up			
If employees work in confined spaces, any vessel, tank, pit, trench, basement, duct or other area where gases may accumulate, has a specific Risk Assessment for this activity been undertaken			
Material Safety Data Sheets			
Material Safety Data Sheets <i>Suggestion - these could be placed at points of use</i>	Are these available for all gases in use		
	Have operators read and understood them		
	Does the COSHH file register these gases		
Emergency Evacuation			
Is an Emergency Evacuation Plan available and understood by staff			
Are Assembly Areas known to employees			
Do you have a procedure to inform neighbouring premises within a 200m radius of a potential gas cylinder incident			
<p>Note: For gas cylinders involved in fires the Emergency Services would consider 200m as the possible minimum distance for evacuation. The local Fire Service may be able to advise you on the area to consider and any procedure to adopt</p>			

Useful Links
Risk Assessment Guide
Monitor Information
Safety Data Sheet Example



Notes:

Frequently Asked Questions

What other inspections should be made to the single cylinder supply systems?

- Operators should be undertaking 'Before Use Checks' & 'After Use Checks'

How will I know if these checks are not being done?

Warning signs:

- Unattended cylinders left with one or all the following:
 - Cylinder key in 'open' position
 - Regulator showing pressure on one or more gauges

Note: Some process applications may require the cylinder to be left with gas flowing. You are strongly advised to question whether this is necessary out-of-hours, at weekends, or for closures.
- PTFE tape being used on Regulators and/or hose fittings
- Worm wheel drive ('Jubilee') clips being used on hose fittings
- Incorrect hose types in use and not to British or EN standards
- No approved Leak Detecting Fluid in use

Note: Where this is inappropriate a Pressure Drop Test should be in use

Regulators:

- In use when more than five years old or exceeding manufacturer's recommended service life
- Damaged or in poor condition
- Free-standing and/or unsecured cylinders in use
- Operators moving and operating cylinders without PPE, particularly the correct safety footwear

Many of these things are not being done: what should I do?

Check:

- Has the operator been trained?
- Does your company have appropriate safe-use procedures in place?
- Is the appropriate gas safety information available to operators?
- Are Emergency Procedures in place, understood and practiced?

Solution:

1. Ensure operators have received formal training and adhere to company safe-use procedures
2. Ensure Material Safety Data Sheets are available to the operator and understood
3. Ensure Emergency Procedures are available for fire or accidental gas release

Notes: