

Gas Safety(Handling & Storage of Cylinders)

Date: 21.09.2017



Name: Kundan Kumar

Email ID:kundancusat007@gmail.com

K-Bank

Confidentiality Statement

The information in the document mentioned is not confidential and have been taken references from various sources as specified.

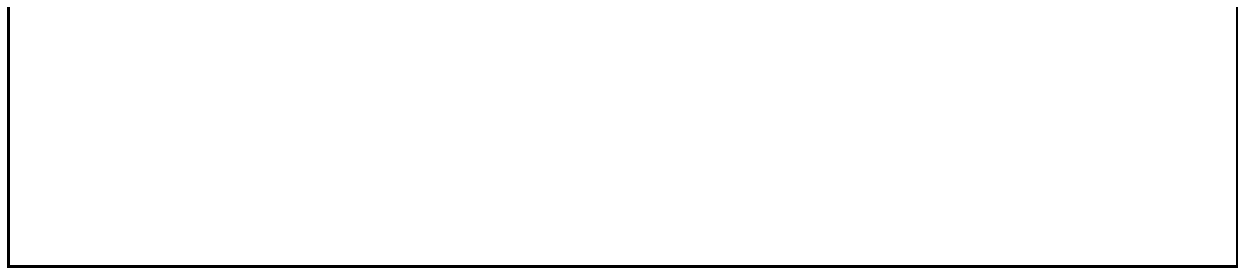
Abstract

Procedure for safe operation of gas cutting and safe handling & storage of gas cylinders.

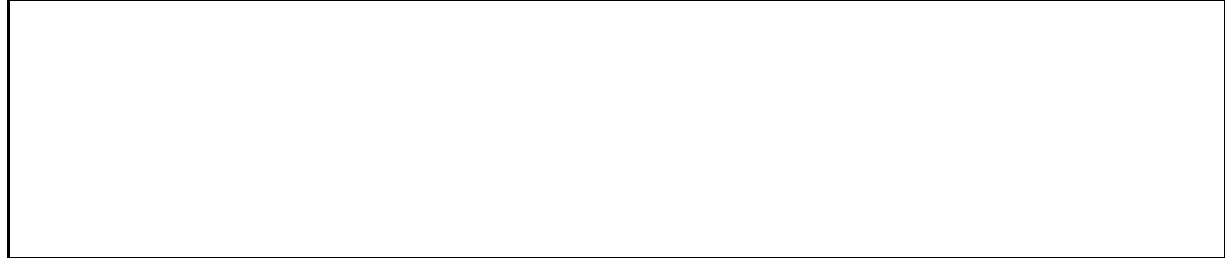
About the Author

Kundan Kumar , Asst Manager (Safety). He is associated with NINL for the last 5 years

Intended Readers




Introduction



Description

Ensure that Compressed Gas Cylinder is equipped with the correct ISI marked pressure regulators and dial gauges. For Gas Cutting operations ensure that Flash Back Arrestors are provided at both the Torch and Cylinder end.



Always Use Torches Equipped With Flash Back Arrestors

Hose clamp or clips are used to connect hoses firmly on both sides of cylinders and torches should be ensured.

Contents of any Gas Cylinder must be clearly identified.

Inspect the regulator and Gas Cylinder valves for grease, oil, dirt, and solvent. Never use grease or oil to lubricate regulators or Gas Cylinder valves because they can cause an explosion especially with Oxygen.

Allow the use of standard key, or tools that are provided by the Gas Cylinder supplier to open or close a valve.

Arrange an approved lighter to light the torch. Match-stick shall never be used to light the torch.

Hoses & Cutting torch should be in good condition and should be connected correctly. There should be no leakage.

In case of LPG, domestic cylinder shall not be used.



Refer to MSDS for the gas being used, to get more information regarding use, toxicity etc. Fire extinguishing equipment and fire blanket should be readily available when combustible materials are exposed to welding or cutting operations using Gas Cylinder.

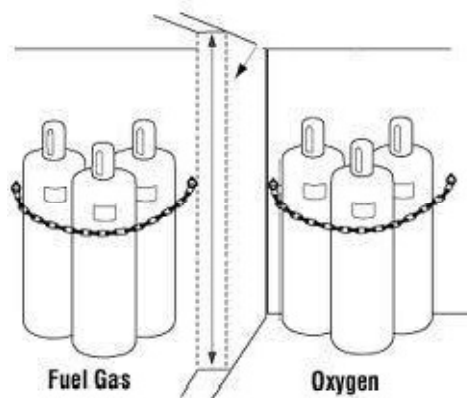
Appoint fire watchers if there is a possibility of ignition unobserved by the operator.

Site Specific Risk Assessment should be carried out and appropriate control measures to be ensured.

Storage of Gas Cylinders

Gas Cylinders must be kept vertical, secured by chain/ plastic coated wire rope etc. at all times to prevent tipping.

Gas Cylinders must be segregated in hazard classes while in storage. Oxygen must be separated from flammable gases, and empty cylinders must be isolated from filled cylinders.



Gas Cylinders must be stored away from direct sunlight and away from sources of heat and ignition temperatures.

Gas Cylinder must always be protected by valve protectors when they are not connected for use.

Gas Cylinder must be protected from damage. Do not allow to store Gas Cylinder near elevators or gangways, or in locations where heavy-moving objects may strike or fall on them.

Gas Cylinder should be protected against tampering by unauthorized individuals.

Ensure that storage areas must be well-ventilated, cool, dry, and free from corrosive materials.



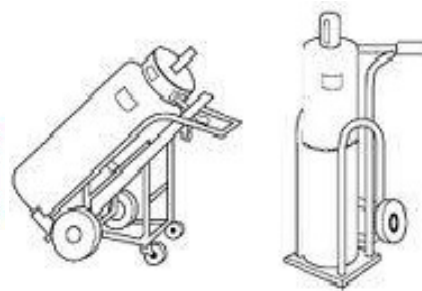
Vertical Small Gas Cylinder



Vertical Gas Cylinder

Moving / Shifting of Gas Cylinders

Gas Cylinder shall never be dragged, slide or rolled. Use a cylinder trolley-cart or basket.



Cylinder Trolleys

Always have the protective cap covering the valve when transporting the Gas Cylinder.



Never transport the Gas Cylinder with the regulator.

Make sure the Gas Cylinder is secured to the trolley before moving it.

Do not drop Gas Cylinders or strike them against each other or against other surfaces violently.

Do not allow the use of valve cover to lift Gas Cylinders; they could be damaged or detached. If the Gas Cylinder is dropped on a hard surface it can cause an explosion.

Gas Cutting Operation

Permit To Work as applicable should be obtained.

Site Specific Risk Assessment should be carried out and appropriate control measures to be ensured.

Only Competent and experienced personnel, aware of the hazards shall be allowed to handle Gas Cylinders and cutting operation.

The valve should be opened slowly and one should never stand in front of the cylinders. Crack open the O₂ valve to remove dirt before fixing the regulator and ensure that only appropriate regulators are in place.

Keep the Gas Cylinder away from all electrical circuits, flame and sparks.
Safe route for hoses should be ensured.

Never leave the valve open when gas cutting set is not in use, even when cylinder is empty.

Never use copper fittings or tubing on acetylene –may result in an explosion.
Do not force connections that do not fit.

Close the Gas Cylinder valve and release the pressure in the hose before removing the regulator from the Gas Cylinder.

To stop the gas supply, use the Gas Cylinder valve not the torch regulator.

Ensure the use of appropriate PPE including safety goggles / face shields. All fall protection accessories shall also be ensured while work at height.

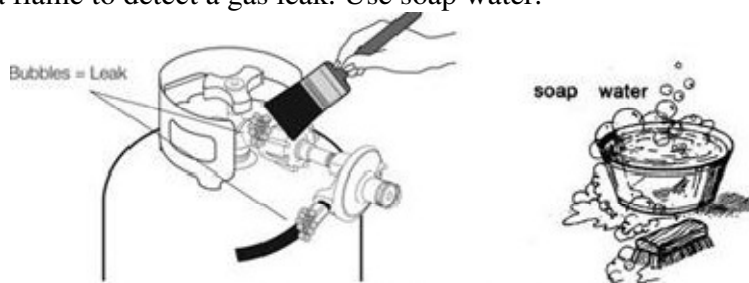
Oxygen and acetylene cylinders shall never be allowed inside confined spaces.

In case of gas cutting at height, area below shall be safeguarded against fire hazards.

If leakage in Gas Cylinder

Gas Cylinder to be removed to an isolated area, away from possible ignition sources. Allow it to remain isolated until the gas is completely discharged; making certain that area is restricted /cordoned off.

Never use a flame to detect a gas leak. Use soap water.



10. Measurement and Monitoring

Frequency	Responsibility	Parameter
Daily	Gas Cutter	Gas Cutting Set inspection checklist
Weekly	Site HSE Person / Area In charge	Inspection Checklist

Acknowledgement

References

IS 5903: 1970 Recommendations for safety devices for gas cylinders
IS 5844: 1970 Recommendations for Hydrostatic Stretch Testing of Compressed Gas Cylinders
IS 6901: 1988 Specification for pressure regulators for gas cylinders used in welding, cutting and related processes
IS: 4379 for industrial gas cylinder and IS: 3933 for medical cylinders.

