

Safety in Gas Cutting.



To be Known.....

- **Know the Gas cutting Sets.**
- **Hazards & Precautions**
- **Risk Assessment.**

Safety in Gas Cutting

■ Know the Gas cutting set.

Flexible
Hose,
Acetylene-
RED

Valve
guard

Valve

Cylinder
key.



Cylinder
contents &
outlet
pressure
gauges.

Flash Back
Arrestor

Pressure
Gauge.

Flexible
Hose,
Oxygen
-Blue

Flash back arrestors.

Blow pipe.

Nozzle.

Safety in Gas Cutting.

- **Hazards.**

- **Fire/explosion.**
- **Lighted Blow pipe (Torch)**
- **Leakage of Gas.**
- **Back Fire and Flash Back.**

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- **Fire/Explosion;**

This may cause by;

- Careless handling of a lighted blow pipe (torch) resulting burns to users or others.
- Using the torch close to the combustible materials.
- Cutting of tanks or drums, which containing flammable materials.
- Gas leaking from hoses, valves and other equipments.
- Back fires and Flash backs.

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■ Prevention of Fire.

- Move the work pieces to a safe location for carrying out the hot work process.
- Remove all combustible materials such as; wood, paper, plastic etc;
- Protect all combustible materials that cannot be moved from close contact with flame, heat, spark or hot slag.
- Use suitable guards or cover metal sheeting or fire retardant blanket



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- Maintain a continuous fire watch during the period of Hot work.
- Keep adequate fire preventive measures like as; Fire Extinguishers, Fire bucket with sand & water.

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- **Lighted Blow pipes (Torch)**

A lighted torch is a very dangerous piece of these equipment. They may also injure other peoples and set flammable materials on fire.

Preventive measures;

- Work in a safe location away from other people.
- Shut off the torches and cylinders when not in use. Don't leave a lighted torch on a platforms or floors.
- Clamp the work piece do not hold it by hand.
- Keep hoses away from the working area to prevent contact with flames, heat, sparks or heat splatters.
- Wear all PPE'S; specially protective clothing's and eye protection.



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- **Leakage of Gases.**

Gas leaks are often the result of damaged or poorly maintained gas control equipments, hoses, torches and valves poor connections and not closing valves after use.

- **Prevention of gas leakages.**

- Keep hoses clear of sharp edges and abrasive surfaces or vehicle can run over them.
- Do not allow hot metals or spatters to fall on hoses
- Handle cylinders carefully. Keep them in an upright position and fasten them to prevent them from falling or being knocked over. E.g.: chain them in wheeled trolley or against a wall or rigid structure

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- Always turn the gas supply off at the cylinder when the job is finished.
- Maintain all equipment and keep in good condition.
- Regularly check all connections and equipments for faults and leaks, with the help of soap solution..



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- Never placed the gas cutting sets near by the area of grinding, welding etc;
- Never placed the gas cutting sets on the below area where ever the hot work is going on at height.
- keep wet gunny bags on the cylinder valves and ensure that it is wet in all times.
- Keep Fire bucket containing water near the gas cutting cylinders, It will help for maintain the gunny bag wet.



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- **Back fire and Flash back.**
 - **What is back fire?**
 - A back fire is when the flame burns back in to the blow pipe (torch) often with a sharp bang.
 - **How it happens?**
 - When the torch is held too close to the work piece.
 - If the nozzle is blocked or partially blocked.
- **To be know if the back fire does occurs....**
 - Shut off the torch valves, oxygen first and then fuel gas.
 - Shut off the oxygen and fuel gas cylinder valves.
 - Cool the torch with water, if necessary.
 - Check the equipment for damage or faults, particularly the nozzle.

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- **Flash backs.**

Flash backs are commonly caused by a reverse flow of oxygen in to the fuel gas hose (or fuel in to the oxygen hose) and producing a explosive mixture in the hose. The flame can then burn back through the torch, in to the hose and may even reach the pressure regulator and the cylinder.

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- **How to prevent the flash backs?**
- Use correct lightening up procedures. Purge the hoses before lightening the torch to remove any potentially explosive gas mixtures .
- Use a spark igniter and ignite the gas quickly after turning it on.
- Ensure that the flash back arrestors is fitted with both ends (cylinder side and torch side).
- Use the correct gas pressures and nozzles for the job.
- Maintain the equipment in good condition.



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- **If a Flash back does our;**
 - Immediately close the cylinder valves, both the fuel gas and oxygen , if it is safe to do so.
 - If the fire cannot be put out at once, evacuate the area and call the emergency fire services.
 - The torches, hoses, regulators, flash back arrestors may have been damaged, check it's carefully and replace if necessary before reuse.

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■ Risk Assessment.

Before using gas cutting equipment a careful assessment of risk should be carried out.

➤ Permit to work and Job safety analysis.

Companies operate a written permit system and job safety analysis for hot work. The permit and JSA details the work to be carried out, how and when it is to be done, and precautions to be taken. It is likely to result in a higher standard of care and supervision.

Permit to Work (PTW)
Job Safety Analysis (JSA)

SAFETY FIRST

Job Safety Analysis (JSA)
Permit to Work (PTW)

SAFETY FIRST

Safety in Gas Cutting.

➤ Training.

No one should operate the gas cutting sets unless they have received adequate training in;

- ❖ Safe use of the equipment.
- ❖ Precautions to be taken.
- ❖ Use of fire extinguishers.
- ❖ Means of escape when raising the fire alarm.



THANK YOU