



DALMIA CEMENT (B) LIMITED – DALMIAPURAM



MECHANICAL SOP

Issue No. 02	Rev. No: 01	Effective Date: 22.05.2015	SOP/MEC/37
Issued By: S & P		Approved By: Head- Mech	
SOP FOR HANDLING & USE OF WELDING EQUIPMENT			

SCOPE

This SOP is to ensure employee safety during the handling and use of welding equipment. It covers both electric arc welding as well as gas welding and cutting.

RESPONSIBILITIES

: Welder

ACCOUNTABILITY

: Section Engineer

PPE:

1. Safety glasses
2. Welding mask
3. Appropriate footwear
4. Close fitting/protective clothing to cover arms and legs
5. Respiratory protection devices for some operations
6. A welding mask with correct grade lens.
7. Oil free leather gloves.
8. Fire extinguisher

TOOLS:

1. Chipping hammer
2. Wrench spanner
3. Cylinder key
4. Lighter
5. Wire brush

Hazard Analysis:

Risks associated

Burn injury
Electric shock
Fire
Toxic fumes & gases
Eye injury
Explosion

Mitigating Measures

Wear Kevelar suit (Fire proof suit)
Wear oil free leather hand gloves
Use suitable fire extinguisher
wear respiratory protection
Wear safety glasses in addition to mask
Follow safe handling of compressed gas cylinders

TRAINING NEEDS:

1. Fire fighting
2. First aid procedures
3. Emergency preparedness
4. Potential health hazards and precautions for the metals and alloys



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General Procedures

1. When welding or using a torch, wear lenses for filtering harmful radiation.
2. When welding, a welding helmet should always be worn with cover plates protecting lenses.
3. Head protection (leather hood) must be worn when performing overhead welding or cutting.
4. Do not wear nylon or other synthetic materials.
5. Wear high cut shoes.
6. Gloves and aprons of leather should be worn during welding and cutting operations.
7. When welding, the vent system should be positioned as close to the arc as possible

Electric Arc Welding

1. The secondary of the supply transformer and case of any portable welding transformer as well as the frame must be grounded
2. Dry all wet machines. Do not stand in water or on wet ground while welding.
3. Check the whole length of the welding cables for exposed conductors & damaged insulation
Check electrode holder for loose or exposed connections
4. Do not loop welding cables around your body.
5. Do not change the polarity switch with the machine is under load.
6. Welding machines should be equipped with power disconnect switch in case of emergency.
7. Keep away electrode holders from electrical power sources and compressed gas cylinders.
8. Switch off welding machine when no welding is to be performed. .

Gas Welding and Cutting

1. Store cylinders in a well-ventilated & dry location
2. Valve protection caps must be in place when the cylinder is not in use.
3. OXYGEN CYLINDERS MUST BE STORED AWAY FROM FLAMMABLE GASES,
4. All cylinders must be marked identifying their contents
5. Cylinders in use must be chained or otherwise secured to prevent falling.
6. Hoses showing burns or leaks must be immediately replaced.
7. Hoses should be color coded
8. Check hose connections for correct threading. .
9. Do not repair hoses with tape. Test for leaks using soapy solution
10. Use only approved bronze brass fittings.
11. DO NOT use grease or any other readily oxidizable substance on any regulator or torch.
12. Do not handle this equipment with oily rags or gloves.
13. Never face a gauge while opening a cylinder.
14. Do not use oxygen to blow out pipelines or to dust off work or clothing.
15. Acetylene cylinders must be kept and used in an upright position
16. Acetylene cylinder must never be used at a pressure exceeding 15 psi.
17. Never use acetylene from cylinders without reducing the pressure through a suitable regulation attached to the cylinder valve.
18. Always keep the wrench or key for the acetylene cylinder on the cylinder while in use.
19. Never open the cylinder more than one full turn



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20. Make sure that valves are closed when returning empty acetylene cylinders.
21. The following describes the proper procedure for lighting and shutting off a gas welding torch. This procedure reduces the possibility of regulator fires when the oxygen cylinder valve is opened again

Lighting

- open acetylene cylinder 3/4/ turn
- open torch valve 1/4 turn
- adjust acetylene working pressure with gas regulator screw
- slowly open oxygen cylinder all the way
- open oxygen torch valve 1/2 turn
- adjust oxygen to working pressure with the gas regulator screw
- close valves on acetylene and oxygen cylinders
- reopen the acetylene torch valve 1/4/ turn and light gas with friction lighter. NEVER USE MATCHES.
- open the oxygen valve 1/4/turn. adjust flame.

Shutting off

- ALWAYS close the acetylene torch valve first, then the oxygen.
- close the cylinder valves, acetylene first
- open both torch valves to release the pressure
- shut off the regulator adjusting handle until you no longer feel any spring tension.
- close the torch valves.

Emergency / Emergency Shut OFF:

- If any injury is there, and inform to the Security Havildar / safety department or call Emergency number 516 / 222 / 523/9865177444

Records/Annexure:

- Handling and use of welding equipment
- JSA is enclosed below.



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Job Safety Analysis	Job: Handling of Welding Equipment	Date:	Analysis by:	Reviewed by:
Title of employee doing job:	Supervisor: Section Engineer	Department: Mechanical	Section: Mechanical	Approved by:
Req'd/recommended PPE: Insulated Tools, Safety shoes				
Sequence of Basic Job Steps	Potential Hazards	Recommended Safe Job Procedure	What Could Go Wrong	Corrective Action
Connecting welding lead To the machine	Electric shock	Ensure the machine supply is OFF	Wrong Indication of ON-OFF condition	Ensure that machine is in off condition
Switching on welding machine	Electric shock	Ensure the knob is in good condition	Electric shock	Ensure the knob is in good condition and wear leather hand gloves
Welding	Burn injury	Wear Kevelar suit (Fire proof suit)	Using wet hand gloves Damaged welding cables	Use only dry good quality hand gloves, welding cables & welding holder. Use correct shade glass Only trained welders to be permitted
	Toxic fumes & gases	wear respiratory protection	Using damaged welding holder Using wrong shade welding glass	
	Eye injury	Wear safety glasses in addition to mask	Untrained welder	
	Explosion	Follow safe handling of compressed gas cylinders	Keeping cylinders near heat source	Keep cylinders away from heat sources

HEAD MECHANICAL

HEAD TECHNICAL