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Thermic Lance – Safety Information Guide

Thermic lancing should be carried out in the open air, although good ventilation could allow work inside. Always ensure good ventilation and/or wear an approved respirator. Remove all flammable materials for a distance of at least ten metres from the place of work. Suitable fire precautions should be taken (i.e. fire fighting equipment made available) and protecting gas cylinders from sparks. The operator and other working personnel must work upwind of the lancing operation. Other personnel working downwind of the lancing operation must be at least 10 metres away. Sufficient sand should be made available to contain the molten material from the lancing operation.

Oxygen has no smell or taste and is difficult to detect. Normal oxygen content of air is 21%; if it becomes enriched by leaking oxygen to 30% there is an acute increase in the speed at which material will burn. Fires in oxygen enriched atmospheres are VERY difficult to extinguish and can spread rapidly across combustible materials from a single source such as a spark from a cigarette. In the presence of oil or grease, it can cause rapid oxidation that produces so much heat, that ignition can occur. Therefore, oil and grease on overalls or gas equipment can cause severe burns.

1. Turn off oxygen supply when not required
2. Prevent and test for any oxygen leakage
3. Test equipment daily for oxygen leaks, any leaks should be immediately rectified.

Minimum Requirements:

1. Welding helmet/goggles for eye protection.
2. Flame retardant safety clothing (i.e. leather apron, caps etc.)
3. Respiratory equipment (i.e. type 3 disposable respirators)
4. Ear protection
5. Safety footwear
6. Hard hat depending on work area
7. Leak detection solution

It is the users' duty under the Management of Health and Safety at work regulations to conduct a risk assessment, prior to commencing thermic lancing operations.

There is a statutory requirement covering this type of operation embodied in Section 30 of the Factories Act 1961. There are also general requirements under Section 2 of the Health and Safety at Work Act 1974, to provide both a safe place of work and safe working systems. To ensure a safe system of working it may be necessary in some circumstances to use a Permit to Work procedure.

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Clients should consider the products of combustion and refer to the COSHH Regulations 1999 and the current HSE Guideline Notes EH40 (Occupational Exposure Limits), EH54 (Assessment of exposure of fumes from welding and allied processes) and EH55 (the method of exposure to fumes from welding, brazing and similar processes).

General Safety Points

- Check regulator pressure.
- Use effective protective equipment and wear it.
- Point lance in a safe direction when igniting.
- Handle the ignited lance with due caution and take care not to impinge on anything but the work in hand.
- Concentrate on watching closely the progress of the work.
- Hold the lance with sufficient grip to ensure full control at all times.
- If vision becomes impaired for any reason during the operation, turn off the oxygen supply, clear vision, reignite and continue operation. Do not attempt to work with impaired vision.
- Do not operate in the overhead position.
- Always comply with prescribed safety precautions and fire prevention procedures.

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MATERIAL SAFETY DATA SHEET

Product Identification:- Thermic Lance

1. Hazardous Ingredients

Chemical Name/Common Name	(CAS No.)	%	Exposure Limits ACGIHTLV	Exposure Limits OSHA PEL
BASE METAL				
Iron	7439896	99 max	as Iron Oxide Fume 5	10
Alloying Elements:				
Carbon	7440440	.08 - 0.18	--	--
Manganese	7439965	.30 - .60 (dust)	5 (fume) 11	5 (c) 5 (c)
Phosphorus	7723140	.015 - .035 (yellow)	.1	.1
Sulphur	7704349	.02 max	as Sulphur Dioxide 5.2	13
Silicon	7440213	.02 max (dust) (respirable fraction)	10 --	15 5
Aluminium	7429905	.02 - .07 (dust)	10 (fume) 5	15 5

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2. Physical Data

Boiling Point: N/A

Specify Gravity (H2O = 1): N/A

Vapour Pressure (mm Hg): N/A

Melting Point: N/A

Vapour Density (Air = 1): N/A

Evaporation Rate (Butyl Acetate = 1): N/A

Solubility in Water: Insoluble

Appearance and Odour: Tubular steel - No Noticeable Odour

3. Health Hazard Data

Primary Route(s) of Entry: (In the Form of Dust and/or Fumes Only)

Inhalation? Yes

Skin? No

Ingestion? No

*UV Exposure

Carcinogenicity: NIF

Acute Effects of Overexposure:

EYES: Local Irritation

SKIN: Local Irritation

INHALATION: Excessive exposure to fume may cause a sweet or metallic taste in the mouth, immediate dryness and irritation of the throat, tightness of the chest, and coughing. Several hours later, symptoms may progress to fever, malaise, perspiration, frontal headache, muscle cramps, low back pain, occasionally blurred vision, nausea, and vomiting. Pulmonary congestion, shortness of breath and symptoms of oxygen deficiency may also develop.

INGESTION: Nausea, Vomiting, and Purging

EXPOSURE TO UV: Exposure to UV Radiation can result in keratoconjunctivitis, also known as welders flash. Symptoms include inflammation, blurred vision, and headache.

Chronic Effects of Exposure:

SKIN: Prolonged chronic or repeated skin contact with zinc dust or powder may cause a mild dermatitis.

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INHALATION: Repeated over-exposure may cause prolonged forms of metal fume fever.

Toxicity Data:

Job task data extrapolated over an eight hour TWA. Conditions for worst case scenarios. Zinc, total of 0.265 mg/m3 and Chromium, total of 0.0354 mg/m3

-Mild irritation: 300 ug/3 days. Intermittent skin contact
-Lowest toxic concentration: 124 mg/m3, 50 minute inhalation

Medical Conditions Aggravated by Exposure:

Respiratory illness/diseases, neurological and skin disorders/diseases.

Emergency and First Aid Procedures:

EYE CONTACT: Flush with running water, including under the eyelids, for about 15 minutes. If irritation persists, seek medical attention.

SKIN CONTACT: Contaminated shoes and clothing should be removed and the affected area washed with soap and water.

INHALATION: Remove victim from exposure area to fresh air immediately. If breathing has stopped, give artificial respiration. Keep the affected person warm and at rest. Seek medical attention immediately.

INGESTION: If victim is conscious dilute the stomach and induce vomiting. Qualified medical personnel should remove remaining chemicals by gastric lavage. Seek medical attention immediately.

4. Fire and Explosion Hazard Data

Flash Point (Method Used): NONE

Flammable Limits: N/A LEL UEL

Extinguishing MEDIA: N/A

Special Fire Fighting Procedures: N/A

Unusual Fire and Explosion Hazards: Oil and grease on torches can cause a violent reaction in the presence of oxygen.

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5. Reactivity Data

Stability:

_____ Unstable
__X__ Stable

Conditions to Avoid: Allowing gases to be trapped in a confined area.

Incompatibility (Materials to Avoid): Oil and grease on torch can cause a violent reaction in the presence of unburned oxygen.

Hazardous Decomposition or By-Products

Hazardous Polymerization:

_____ Will Occur
__X__ Will Not Occur

Conditions to Avoid

6. Spill or Leak Procedures

Steps to be Taken in Case Material is Released or Spilled: N/A

Waste Disposal Method: Comply with all local government regulations for proper disposal.

7. Special Protection Information

Respiratory Protection: Air purifying respirator if area is unventilated and local exhaust not available.

Ventilation: Local Exhaust - Use if in enclosed area
Mechanical
Other - Well ventilated area

Protective Gloves: Leather Gloves

Eye Protection: 4 - 5 minimum tinted glass recommended full face shield

Other Protective Equipment: Face shield, hard hat, leathers or fire retardant protective clothing, leather gloves

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8. Special Precautions

Precautions to be Taken in Handling and Storing: Warning - Keep away from oil and grease.

Other Precautions: Other hazards can be created based on material being cut eg., vapours released from residue while cutting.

9. Other Information

Use proper procedure at all times as specified by the following:

1. Your company's Safe Practices Manual
2. COSHH Regulations 1999 and HSE current guideline notes EH40 (Occupational Exposure Limits)
3. EH54 (Assessment of exposure of fumes from all welding processes)
4. EH55 (the method of exposure to fumes from welding, brazing and similar processes)
5. Other applicable references

ABBREVIATIONS

NA - Not Applicable
NE - Not Established
NL - Not Listed
NIF - No Information Found