

Take Action On Dipslide Results

- Dipslides consistently at or above 10^4 cfu/ml indicate bacteria growth. Check and review measures to maintain fluid quality e.g. fluid concentration, pH, tramp oil content, metal contamination, temperature, agitation/flow. Only after this should additional biocide be added and as agreed with fluid supplier.
- Dipslides consistently at or above 10^6 cfu/ml indicate heavy bacterial contamination and poor control. Immediate action is required. This normally means draining and disposal of the MWF and a complete system clean or taking other equally effective measures.

Health Surveillance

Welding – Provide health surveillance for asthma when regularly welding with metals which are respiratory sensitisers e.g. nickel and chrome.

MWF – Dermatitis health surveillance will be required if there is frequent 'wet work', glove use or risk of contact with MWF that can cause dermatitis. Respiratory health surveillance will be required where there is exposure to MWF mist as there is a risk of inhalation and developing lung disease.

Respiratory health surveillance usually includes a questionnaire and lung function test and dermatitis health surveillance includes skin checks.

Engage an occupational health provider to help you design and implement your health surveillance.

Information, instruction and training

Employees should be aware of the health risks/symptoms associated with exposure to welding fume and MWFs and the controls in place to prevent or reduce exposure.

They should know to report any suspected symptoms as soon as possible.

Further information

www.hse.gov.uk/coshh/essentials/direct-advice/welding.htm

www.hse.gov.uk/coshh/essentials/direct-advice/metalworking-fluids.htm
(these sheets are due to be updated)

www.ukla.org.uk/wp-content/uploads/UKLA-HSE-Good-Practice-Guide-for-Safe-Handling-and-Disposal-of-Metalworking-Fluids.pdf



Welding Fume and Metalworking Fluid Seminar

The focus of this seminar is to improve your ability to manage the health hazards from welding fume and metalworking fluids.

Health Hazards

All welding fume (including mild steel) is now classed as a carcinogen which can cause lung cancer and has the potential to cause kidney cancer. This is based on the outcome of recently published research by the International Agency for Research on Cancer (IARC). There are a range of health risks from metalworking fluids which can cause occupational asthma, occupational hypersensitivity pneumonitis and dermatitis.

Some of the changes may mean you need to buy and implement Local Exhaust Ventilation (LEV) and/or Respiratory Protective Equipment (RPE) if you don't already have it in place. It is important to ensure you have suitable and sufficient controls in place to reduce the exposure until such time as the new control equipment can be installed.

Focus on the potential risk to health from exposure to all types of welding fumes

Welding

Consider the overall risk to health from exposure to all types of 'welding fume' (including mild and stainless steels, high chrome steels, armour plating and exotic metals).

The exposure controls required will be:

- The provision of suitable engineering controls including LEV for all welding fume indoors with RPE for any residual fume.
- The provision of suitable and sufficient RPE for welding outdoors.

- Indoor welding tasks will now require the use of LEV (other than sporadic TIG or spot resistance welding).
- If LEV is unable to control fume capture then RPE will also be required.
- Both LEV and RPE will need to be suitably maintained and inspected, with LEV being thoroughly examined at least every 14 months.

Welding

What do you need to consider?

- What processes you use (i.e. arc welding, plasma cutting, gouging)
- What consumables you use (i.e. aluminium, carbon steel, stainless steel)
- Where is the welding being carried out (indoors/outdoors/confined space)?
- What percentage of the workload involves welding?
- Is there visible fume being generated by the welding activity?
- Is all fume generated being controlled?

Both LEV and RPE, when used correctly, control weld fumes to ensure compliance with Control of Substances Hazardous to Health (COSHH) regulations. RPE offers basic protection for welders, whilst LEV captures fumes at the source.

For most types of welding HSE will no longer be accepting short-duration work without any appropriate exposure control.

Respiratory Protective Equipment (RPE)

There are two types of RPE – respirators and breathing apparatus – and these are available in various styles, including tight-fit (half and full face masks) and loose-fit (hoods, helmets, and suits).

For instances where LEV isn't practical, like welding outdoors, RPE is vital. In confined spaces where welding fumes cannot be avoided, wearing an air-fed mask will offer reasonable protection for welders, reducing their exposure to hazardous fumes.

Before welding, it's essential to check that RPE has been face fit tested to the wearer (tight fitting only), the equipment works properly, and to ensure it is well maintained.

Management of Metalworking Fluids (MWF)

It is no secret that poor quality or badly maintained metalworking fluids can have serious health and safety consequences. The inspection campaign will focus on water-mix metalworking fluids and the high risk activities of using CNC machines and compressed air.

Control measures for MWF

- LEV should be fitted to CNC machines. LEV should be designed and maintained to keep the mist inside the enclosure during machining (i.e. under negative pressure) and to effectively extract mist.
- Mist levels will be highest during and immediately after machining. There should be a delay that is long enough for the LEV to extract the mist, so when the operator opens the doors, no mist is present in their breathing zone (the space within 20-30 cm of the nose and mouth).
- The time delay can be established by filling the enclosure with smoke or using a dust lamp to observe fine mist. It can be implemented by incorporating a time delay into the machine program or using a timer.
- This may be more difficult to achieve on large gantry machines. On tool room machines an alternative to installing LEV is to allow mist to settle out prior to opening the CNC enclosure door. Due to the time taken this is unlikely to be practicable in a production environment.
- Alternatives to cleaning down parts with compressed air guns during machining should be considered, for example vacuum guns, absorbent materials, low pressure coolant guns or spindle mounted fans.
- Where there is no reasonably practicable alternative to using compressed air guns: blow down components inside the CNC machine with the LEV on and reduce the exit pressure of the compressed air to as low a level as practicable.
- The cleaning of machine surfaces using compressed air should be avoided. Suitable swarf vacuums should be used to remove wet swarf/chips from machine surfaces.
- To prevent/reduce skin contact: use automatic mixing and dispensing devices, reduce pressure and use longer lances on compressed air guns, enclose machines as much as possible, use suitable tools e.g. brushes, swarf hooks and vacuums.
- Provide suitable PPE, single use 0.4mm nitrile gloves for general machining and thicker chemical resistant gloves for cleaning and maintenance. Skin should be covered and clothing not heavily contaminated.

Monitoring

Monitoring the MWF should include daily checks on the odour and appearance and weekly checks on bacteria levels (using dipslides), concentration and pH.

Concentration and pH should be kept within the range recommended by the fluid supplier.

