

MW2

Fluid control: skin risks

COSHH essentials for machining with metalworking fluids



The Control of Substances Hazardous to Health Regulations 2002 (COSHH) require employers to ensure that exposure is prevented or, where this is not reasonably practicable, adequately controlled. This guidance gives practical advice on how this can be achieved by applying the principles of good practice for the control of exposure to substances hazardous to health, as required by COSHH.

It is aimed at people whose responsibilities include the management of substances hazardous to health at work (eg occupational health specialists, anyone undertaking COSHH assessments, supervisors and is also useful for trade union and employee safety representatives). It will help you carry out COSHH assessments, review existing assessments, deliver training and supervise activities involving substances hazardous to health.

This guidance is issued by the Health and Safety Executive. Following the guidance is not compulsory, unless specifically stated, and you are free to take other action. But if you do follow the guidance you will normally be doing enough to comply with the law. Health and safety inspectors seek to secure compliance with the law and may refer to this guidance.

See Essential information near the end of the sheet.

Control approach S Harm via skin or eye contact

What this sheet covers

This sheet describes good control practice to reduce fluid contact with the skin.

It covers the points you need to follow to reduce exposure to an adequate level. Follow all the points, or use equally effective measures.

Hazards

- ✓ Metalworking fluids can cause skin diseases such as dermatitis.
- ✓ Prolonged or frequent contact with water (including water-based fluids) can cause dermatitis, 'wet work' is the term used to describe such tasks in the workplace.
- ✓ Metal 'fines' may abrade and irritate the skin leading to dermatitis. Some chemicals and contaminants in metalworking fluids can cause skin allergies.

Access to work area

- ✓ Allow access to authorised and appropriately trained people only.

Equipment and procedures

- ✓ Confirm that you are using the most suitable fluid. Take advice from your fluid supplier about any hazards.
- ✓ If possible prevent skin contact. If you cannot prevent skin contact can you limit it?
- ✓ Use mixing valves instead of manual mixing.
- ✓ Enclose machining head(s) as much as possible.
- ✓ If not enclosed, reduce splash risks; provide properly designed splash-guards. Don't use rags or plastic sheeting.
- ✓ Warn workers to avoid getting metalworking fluid on their skin, particularly hands.
- ✓ If possible adjust the fluid flow rate to avoid overheating while minimising mist and splashes.
- ✓ Stop fluid delivery when not machining.
- ✓ Remove tramp oil (hydraulic, lubricating or gearbox oil, which has leaked into metalworking fluid) regularly by mechanical skimmers, coalescers, or by manual skimming.

Neat oil

- ✓ Only use highly refined neat oils.

Water-mix fluids

- ✓ Mix fresh water-mix fluids to the supplier's recommended concentration. Make sure you use the right amount of concentrate.
- ✓ In use, water-mix fluids evaporate and become more concentrated. Top up only with fluid below working strength.
- ✓ You may need to use biocides and corrosion inhibitors in sumps. Add the right amount.

Caution: Don't add concentrate or water direct to the sump.

Synthetic fluids

- ✓ Some synthetics may be topped up with water. Follow your suppliers' guidelines.

Personal protective equipment (PPE)

- ✓ Provide 0.4 mm nitrile gloves. These protect for up to eight hours only. These gloves are normally thin enough to provide dexterity.
- ✓ Provide thicker gloves to protect against abrasions and sharp edges.
- ✓ Workers should change and discard damaged gloves immediately. Deal with used gloves in accordance with the supplier's recommendations.
- ✓ Provide eye protection where there is a risk of splashing.
- ✓ Provide overalls and make sure forearms are covered.
- ✓ Make suitable arrangements for maintenance, storage and replacement of PPE.
- ✓ Ask your supplier to advise on suitable protective equipment.

Personal decontamination

- ✓ Provide warm water, mild skin cleansers, and soft paper or fabric towels for drying. Avoid abrasive cleansers.
- ✓ Provide pre-work skin creams, which will make it easier to wash dirt from the skin. Provide after-work creams to replenish skin oils.

Caution: 'Barrier creams' are not 'liquid gloves' and they do not provide a full barrier.

Maintenance, examination and testing

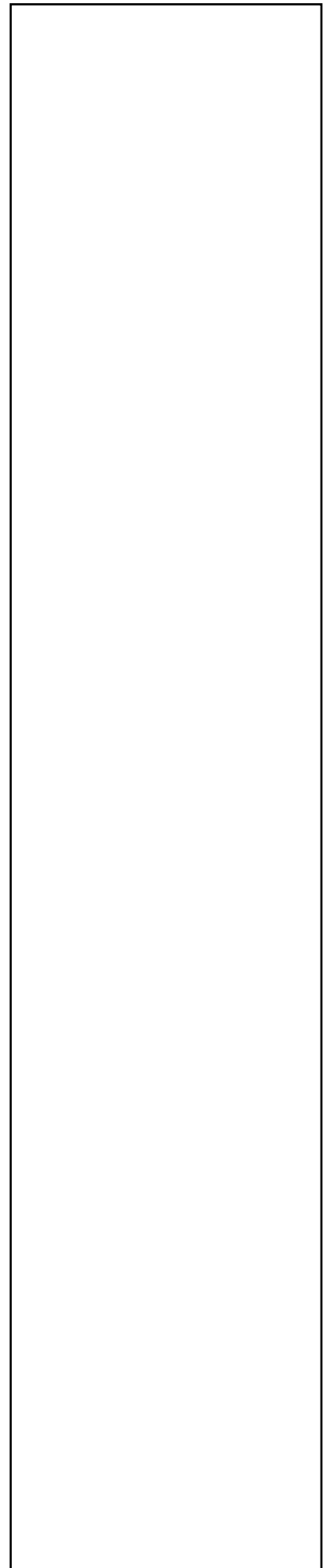
Checking and maintenance

- ✓ Keep all equipment in effective and efficient working order, follow instructions in maintenance manuals.
- ✓ Monitor fluid quality and change fluids as frequently as necessary.
- ✓ Minimise leaks of tramp oil into the sump.
- ✓ Check all filters regularly for blockages and slime formation.
- ✓ Regularly remove fines from the fluid. Paper-roller filters are effective and efficient.

Caution: Don't remove fines from the sump by hand (with or without protective gloves).

Fluid quality: Neat oil

- ✓ Daily, check the oil appearance and colour.
- ✓ Regularly measure the sump fluid temperature. It should not rise significantly above the workroom temperature.



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- ✓ Keep fines and dissolved metals within control limits. Well managed sumps typically have fines below 100 mg per litre of fluid (100ppm). Get advice on condition monitoring from your fluid supplier.

Fluid quality: Water-mix fluids

- ✓ For full details on how to maintain water-mix fluid quality see sheet MW5. Make sure you cover the following points:
 - input water quality.
 - Every day, check the fluid appearance. Are there any reports of an unusual odour?
 - Regularly check tramp oil levels. Ask your fluid supplier for advice on a suitable method.
 - Check for bacteria.
 - Measure fluid concentration and pH at least once a week.
 - You may need to measure biocide concentration. Ask your fluid supplier for advice.

Records

- ✓ Keep records in a graph form. This makes it easier to spot gradual changes.

Cleaning and housekeeping

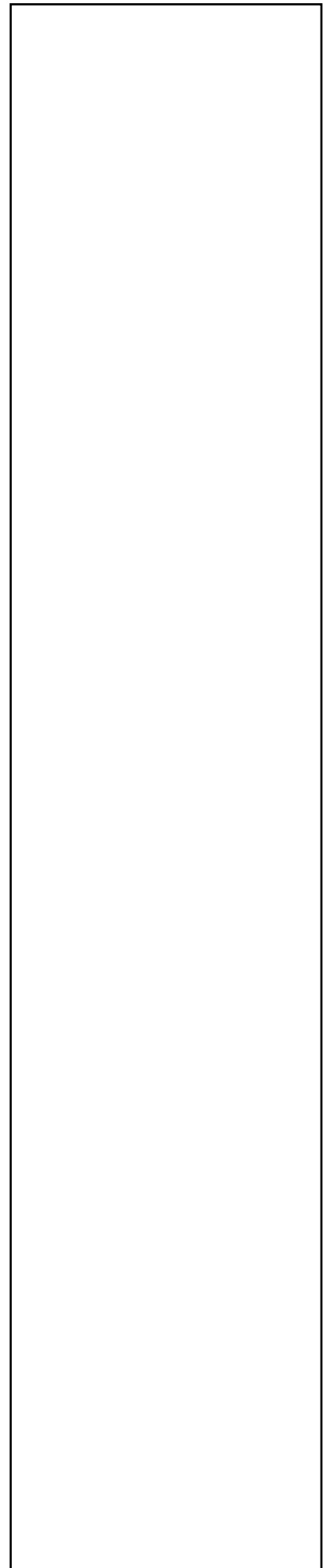
- ✓ Deal with spillages immediately. Contain them with a 'pig sock'. Use a vacuum system and soak up the residues with suitable absorbent materials. Your fluid supplier will advise you on this.
- ✓ Dispose of spilt fluid safely. Returning it to the machine contaminates the system and reduces the fluid's operational life.
- ✓ For cleaning water-mix sumps see sheet MW3.
- ✓ For cleaning oil-based fluid sumps see sheet MW4.
- ✓ There are a range of devices to clean away excess fluid and swarf from machined parts. Avoid using compressed air.
- ✓ Ensure contaminated overalls are laundered before re use.
- ✓ Provide clean facilities for washing and taking refreshment, away from all machining activities.

Health surveillance

- ✓ Provide health surveillance for dermatitis where there is a reasonable likelihood that dermatitis may occur in your workplace. See G403.

Training and supervision

- ✓ Provide supervision – ensure that safe work procedures are followed.
- ✓ Tell workers about the hazards associated with their work and how to recognise early signs of dermatitis.
- ✓ Provide workers with training on:
 - working safely with hazardous substances;
 - when and how to use controls;
 - how to check they are working;
 - what to do if something goes wrong.
- ✓ Consider keeping training records.
- ✓ Have a procedure to check that control measures are in place and being followed.
- ✓ Involve managers and supervisors in health and safety training.



- ✓ Working in the right way and using the controls correctly is important for exposure control. Train and supervise workers.

Essential information

COSHH essentials for machining with metalworking fluids: Advice for managers COSHH Guidance Sheet MW0 HSE 2006
www.hse.gov.uk/pubns/guidance/mw00.pdf

Mist control: inhalation risks COSHH Guidance Sheet MW1 HSE 2015
www.hse.gov.uk/pubns/guidance/mw01.pdf

Sump cleaning: water-mix fluids COSHH Guidance Sheet MW3 HSE 2015
www.hse.gov.uk/pubns/guidance/mw03.pdf

Sump cleaning: neat oils COSHH Guidance Sheet MW4 HSE 2015
www.hse.gov.uk/pubns/guidance/mw04.pdf

Managing sumps and bacterial contamination COSHH Guidance Sheet MW5 HSE 2015
www.hse.gov.uk/pubns/guidance/mw05.pdf

Further information

Health surveillance web page: www.hse.gov.uk/health-surveillance/index.htm

Working safely with metalworking fluids: A guide for employees Leaflet INDG365(rev1) HSE 2013
www.hse.gov.uk/pubns/indg365.pdf

Managing risks from skin exposure at work HSG262(Second edition) HSE Books 2015
www.hse.gov.uk/pubns/books/hsg262.htm

You can find the full COSHH essentials series at
www.hse.gov.uk/coshh/essentials/index.htm

Occupational Safety and Health Consultants Register www.oshcr.org/

For information about health and safety, or to report inconsistencies or inaccuracies in this guidance, visit www.hse.gov.uk/. You can view HSE guidance online and order priced publications from the website. HSE priced publications are also available from bookshops.

Employee checklist

- Are you clear about the procedures for doing the job?
- Remember that gloves increase the risk of entanglement at moving machinery.
- Always follow the standard operating procedure.
- Make sure you know what to do if there is a fluid spill.
- Use, maintain and store your PPE in accordance with instructions.
- If you find any problems tell your supervisor. Don't just carry on working.
- Cooperate with health surveillance.
- Wash your hands before eating, drinking, smoking or using the lavatory.
- Check your skin regularly for dryness or soreness – tell your supervisor if these symptoms appear.
- Use skin creams provided as instructed.

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