

MW5

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.

Managing sumps and bacterial contamination

Control approach 4 Special

What this sheet covers

This sheet describes good control practice to manage sumps and bacterial contamination.

It covers the points you need to follow to manage sumps. Follow all the points, or use equally effective measures.

Hazards

- ✓ Fluid systems that contain water or water mixes can become highly contaminated with harmful bacteria.
- ✓ Mists from highly contaminated systems are more likely to lead to asthma and other lung diseases.

Access to work area

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

Equipment and procedures

- ✓ Cover sumps – keep them free from:
 - accumulations of swarf or fines; and
 - food, tea-bags and urine etc.
- ✓ Minimise leaks of tramp oil (hydraulic, lubricant, gearbox oil) into the sump. Remove tramp oil by skimming, by coalescers, or manually.
- ✓ Maintain and clean the system in accordance with the machine tool supplier's instructions. You may also need fluid specific advice from your supplier.
- ✓ Measure the sump fluid temperature regularly and record your findings.
- ✓ Consider cooling the fluid if its temperature rises significantly above the workroom temperature.
- ✓ Eliminate any dead end lines in the fluid system.

Maintenance examination and testing

Fluid quality of water-mix fluids

- ✓ Check input water quality.
- ✓ Check for bacteria. One way of doing this is dip slide testing.
- ✓ Every day check the fluid appearance. Are there any reports of an unusual odour?
- ✓ Regularly check that tramp oil is less than 2%. Get advice from your fluid supplier on a suitable measurement method.
- ✓ Keep fines and dissolved metals within control limits. Well managed sumps typically have fines below 100 mg per litre of fluid – (100ppm).

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- ✓ Get advice on condition monitoring from your fluid supplier.
 - ✓ Measure the fluid concentration (refractometer) and pH every week.
 - ✓ Follow your suppliers' recommended levels of fluid concentration and pH.
 - ✓ Ask your supplier for advice regarding measurement of biocide concentration.
 - ✓ If you need to add biocide, choose a point of high turbulence to ensure complete mixing.
 - ✓ Decide what precautions you need to take before approaching machinery and for handling biocides.

Caution: Never overdose with biocide for routine use.

Dip slides

- ✓ Take dip slides once a week.
- ✓ If you want to reduce the frequency you need to demonstrate that your controls are effective. This includes:
 - dip slide test records; and
 - concentration and pH test records.
- ✓ Only a 'competent person' can advise on changes and recommend new testing intervals, eg priority being given to more vulnerable systems.
- ✓ Stir the sump before testing, to avoid tramp oil coating the slide.
- ✓ Use a slide incubator to keep the temperature for developing slides the same all year round.
- ✓ Incubate the slide at 25°C for 48 hours, or follow the slide supplier's instructions.

Results from dip slides

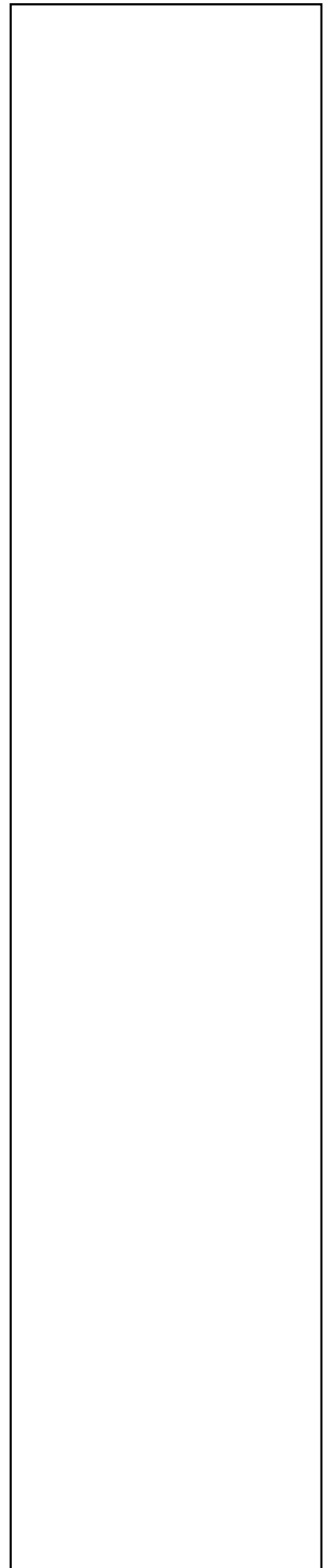
- ✓ Monitoring should be used to confirm your standard of control, as well as to alert you to increased levels of bacteria at an early stage:
 - **Less than 10³ CFU/ml (1 000 colony-forming units per millilitre of fluid).** Effective control, bacteria are being maintained at low levels. No further action is required now.
 - **Between 103 and 106 CFU/ml.** Reasonable control. Review control measures to ensure bacteria remain under control. You may need to clean the system, or change your biocide regime. If biocides are used, get advice and monitor the concentration of the biocides.
 - **More than 106 CFU/ml.** Poor control. Act immediately. This normally means draining and cleaning or take any other measures which are equally effective.

Records

- ✓ Keep records of all tests for at least five years.
- ✓ Keep dip slide records in graph form. This makes it easy to spot gradual changes and to put in place systems to help you dose when necessary (see example on last page).

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



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

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

Guidance on permit-to-work systems: A guide for the petroleum, chemical and allied industries HSG250 HSE Books 2005
www.hse.gov.uk/pubns/books/hsg250.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?
- 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.
- Co-operate 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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Dip slide records

Keep your dip slide records in graph form to help you spot gradual changes and dose when necessary - see example below

