

# MW5

## COSHH essentials for machining with metalworking fluids



This information will help employers (including the self-employed) comply with the Control of Substances Hazardous to Health

Regulations 2002 (COSHH), as amended, to control exposure and protect workers' health.

It is also useful for trade union safety representatives.

It covers the points you need to follow to reduce exposure.

It is important to follow all the points, or use equally effective measures.

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

See [www.hse.gov.uk/metalworking](http://www.hse.gov.uk/metalworking).

# Managing sumps and bacterial contamination

## Control approach 4 Special

### Equipment

- ✓ Cover sumps - keep them free from:
  - accumulations of swarf or fines; and
  - food, tea-bags, cigarette stubs 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 supplier's instructions.
- ✓ Measure the sump fluid temperature regularly. Consider cooling the sump fluid.
- ✓ Test the fluid regularly.
- ✓ Eliminate any dead end lines in the fluid system.

### Maintenance examination and testing

#### *Fluid quality of water-mix fluids*

- ✓ Check input water quality - you may need to use de-ionised water.
- ✓ Check for bacteria. Dip slide testing once a week is one way of doing this - see below.
- ✓ Monitor the fluid appearance, odour and colour daily.
- ✓ Regularly check that tramp oil is below 2%, and that 'fines' are kept below 100 mg per litre of fluid ('100 ppm').
- ✓ Measure the fluid concentration (refractometer) and pH every week.
- ✓ Follow your suppliers' recommended levels of fluid concentration.
- ✓ Measure the biocide concentration using the method and frequency recommended by your supplier.
- ✓ Add biocide at a point with high turbulence.

**Caution: Never overdose with biocide for routine use.**

#### *Dip slides*

- ✓ 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.

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### Results from dip slides

- ✓ If you find only reasonable or poor control, investigate and take action. Control is defined as:
  - Good control - less than  $10^3$  CFU/ml (1 000 colony-forming units per millilitre of fluid). No further action is required now.
  - Reasonable control - between  $10^3$  and  $10^6$  CFU/ml. You may need to clean the system, or change your biocide regime. Get advice.
  - Poor control - more than  $10^6$  CFU/ml. Act immediately. This normally means draining and cleaning.

### 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 page three.

### Further information

- *Optimising the Use of Metalworking Fluids* GG199 Envirowise. Register to get this publication on [www.envirowise.gov.uk](http://www.envirowise.gov.uk)

### Useful links

- Your fluid supplier as a member of the United Kingdom Lubricants Association (UKLA) can advise you on safe application of metalworking fluids. The UKLA can be found at [www.blf.org.uk/static](http://www.blf.org.uk/static).
- HSE priced and free publications are available from HSE Books  
Tel: 01787 881165 Website: [www.hsebooks.co.uk](http://www.hsebooks.co.uk).
- See [www.hse.gov.uk/metalworking](http://www.hse.gov.uk/metalworking).
- For information about health and safety ring HSE's Infoline Tel: 0845 345 0055 Textphone: 0845 408 9577 e-mail: [hse.infoline@natbrit.com](mailto:hse.infoline@natbrit.com).
- Contact the British Occupational Hygiene Society (BOHS) on 01332 298101 or at [www.bohs.org](http://www.bohs.org) for lists of qualified hygienists who can help you.
- Look in the Yellow Pages under 'Health and safety consultants' and 'Health authorities and services' for 'occupational health'.
- Also see [www.nhsplus.nhs.uk](http://www.nhsplus.nhs.uk).

This guidance is issued by the Health and Safety Executive. Following the guidance is not compulsory 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 as illustrating good practice.



### Dip slide records

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

