



Working Safely with Metalworking Fluids Webinar

Wednesday 5th July 2023



Rebecca Crosland
SHEP Chair
(Head of Health & Safety at BESA)

So what is / who is, SHEP?

For too long, the HSE has been regarded
as a form of police force; an
enforcement agency actively seeking
out those failing to meet the latest set
of H&S regulations



So what is / who is, SHEP?

In reality, the last thing that the HSE wishes to do is prosecute organisations and individuals with whom they could have engaged with long before the situation reached litigation.



*The HSE is about protecting lives and improving our working environment. Indeed, this mission is manifest in their strategy document **“Helping GB Work-well.”***

So what is / who is, SHEP?

HSE cannot achieve this objective alone. It requires the co-operation and support of the whole of British industry. It requires an on-going dialogue between the two parties; a partnership; hence the creation of the Safety & Health in Engineering Partnership or “SHEP”





<https://youtu.be/QsLo0h1KXxQ>

Purpose of today's webinar?

This webinar will summarise the new UKLA guidance films and provide information and advice on how to monitor and manage metalworking fluids in order to reduce the risks of ill-health associated with exposure to neat and soluble oils used in machining operations.

The webinar will also look at simple engineering best practice tips which can increase coolant and tool life, optimise machining performance to improve productivity, reduce machine maintenance and downtime, and ultimately provide a cost saving for businesses.

Questions to be placed in the Question box please!

AGENDA

Daryl Yeates
Health, Safety & Environment Business Partner
CERTAS Lubricant Solutions

Fiona McGarry, HSE Inspector
Q&A Session

Certas Lubricants Solutions

Working safely with metalworking Fluids

SHEP Event 05th July 2023

Daryl Yeates

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What are metal-working fluids (MWF's)?

A blend of base fluids & additives designed to aid the removal and shaping of metal

Soluble metalworking fluids

- Oil / base fluid
- Water
- Emulsifying & wetting agents
- Lubricity & extreme pressure additives
- Corrosion Inhibitors
- Passivators
- Biocides
- Anti-foam

Neat cutting oils

- Oil (mineral, vegetable, synthetic)
- Lubricity additives & extreme pressure additives
- Wetting agents
- Inhibitors
- Anti-foam
- Anti-mist





LUBRICANT SOLUTIONS

The health hazards associated with the use of MWF's



Health hazards



Inhalation

Fluid mists or
their components

Exposure to MWF mist can result in long term health conditions and disease, primarily;

- **Occupational Asthma (OA) or**
- **Occupational Hypersensitivity Pneumonitis (OHP)**



Mist & inhalation hazards

MWF's in use can contain chemical & biological components that are hazardous by inhalation.

Mist may form in machining operations due to;

- High-pressure delivery
- High-speed machining
- High MWF and machining temperatures

High exposures are more likely;

- When opening CNC enclosure doors
- When using compressed air

How far the airborne particles get in the respiratory system depends on the size, shape, and density of the particle. The impact on your health depends on the chemical and toxic properties of the material.

From 1996 to 2015, data shows an increase from 2% to 45% in reported cases of OHP related to exposure to MWF's.



Health hazards



Bodily Contact

Repeated and/or
prolonged
contact of MWFs
with the skin

*Also think about accidental
ingestion or injection of MWF'S



Cause;

- Exposure to metalworking fluid
- A reaction to one or more additives used in the fluid
- Contamination of the fluid (bacteria, tramp oil, metals)
- Exposure to cleaning agents and personal care products
- Allergic reactions eg latex gloves/metals



Symptoms;

- Redness
- Swelling
- Blistering
- Flaking and/or cracking
- Itching, bleeding and puss formation

COSHH

The Control of Substances Hazardous to Health Regulations 2002 (COSHH) require employers to ensure that MWF exposure is prevented or, where this is not reasonably practicable, adequately controlled.

Keep records of inspections and checks that relate to MWF control measures for 5 years.

A suitable health surveillance programme should be provided where there is a reasonable likelihood of disease occurring in the workplace - for work with MWF this should cover both skin and lung disease

Employee health records, and records of personal exposure should be kept and retained for 40 years.

Adequate control can be achieved by applying COSHH principles and MWF best practice.



Health surveillance


COSHH requires that employers provide a suitable health surveillance programme where required.

Consult your occupational health professional if your employees report any of the following symptoms:

- recurring sore or watering eyes,
- recurring blocked or running nose,
- bouts of coughing,
- chest tightness,
- wheezing,
- persistent history of chest problems.

You may need to be referred to a specialist in work-related skin or chest problems.

Respiratory checks


Health and Safety Executive

G402

**COSHH essentials:
General guidance**

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.

The sheet describes specialist advice on health surveillance for occupational asthma.

It sets out what you should expect from a health surveillance provider.

Tell your occupational health professional, or if appropriate, your designated responsible person if workers have any of the following symptoms:

- recurring sore or watering eyes;
- recurring blocked or running nose;
- bouts of coughing;
- chest tightness;
- wheezing; or
- any persistent history of chest problems.

Do the symptoms improve at weekends or during holidays?

If workers smoke, help them to cut down or stop.

Note: irritating substances may make existing asthma worse.

Health surveillance for occupational asthma

Control approach 4 Special

Introduction

- ✓ Your work involves a substance that can cause occupational asthma. Occupational asthma is a major occupational health problem.
- ✓ If you detect an employee's symptoms early enough and reduce their exposure, you will reduce their risk of developing full-blown asthma.

Main causes

- ✓ Isocyanates (eg two-pack spray paints), flour dust, grain dust, glutaraldehyde, wood dust, latex (powdered natural rubber latex gloves), rosin-core solder fume, laboratory animals or glues and resins can all cause occupational asthma.

Occupations

- ✓ Bakeries and food processors, beauty services, cleaning services, healthcare services, painters, repairers (including electronics), welders and woodworkers (including forestry) are all associated with occupational asthma.

Planning and preparation

- ✓ Plan what you are going to do if a worker shows signs of lung problems and make sure your employees are aware of your plans.


What is health surveillance?

- ✓ Health surveillance is collecting and using information about workers' health, related to the substances they use. It helps prevent asthma developing by detecting the early signs.
- ✓ Consider using higher-level health surveillance first.
- ✓ Health surveillance is never an alternative to the proper control of exposure. It is not the same as health screening or health promotion.

Higher-level health surveillance?

- ✓ Higher-level health surveillance is required for any or your workers who:
 - are exposed to substances in the main causes (above), or substances and processes where occupational asthma is a known problem;
 - are working with products labelled R42 'May cause sensitization by inhalation' (may lead to asthma), or R42/43 'May cause sensitisation by inhalation and skin contact'; or
 - have a confirmed case of asthma.

Skin checks:


Health and Safety Executive

G403

**COSHH essentials:
General guidance**

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.

The sheet describes specialist advice on health surveillance for occupational skin disease, which includes dermatitis. It applies to certain processes, and whenever a product is labelled R43 'May cause sensitisation by skin contact'.

It sets out what you should expect from a health surveillance provider.

Tell your occupational health

Health surveillance for occupational dermatitis

Control approach 4 Special

Introduction

- ✓ Occupational skin disease is important and a common health problem. Repeated skin irritation or skin sensitisation can lead to dermatitis.
- ✓ If you detect the signs of dermatitis early enough, and reduce workers' exposure to the substances responsible, you will reduce or cure the disease. But if left untreated, dermatitis can become irreversible. If skin becomes sensitised, a small amount can trigger a bad reaction.

Substances

- ✓ Epoxy resins, latex, rubber chemicals, soaps and cleaners, metalworking fluids, cement, wet work, enzymes and wood can all cause dermatitis. Corrosive and irritating chemicals also lead to dermatitis. Solvents on the skin make other chemicals more likely to cause skin damage.

Occupations

- ✓ Construction work, health service work, rubber making, printing, paint spraying, agriculture, horticulture, electroplating, cleaning, catering, hairdressing and florists are all associated with dermatitis.

Wet-work

- ✓ Hand immersion, particularly multiple short-term immersion using soap

The law and regulatory bodies

The Health and Safety Executive (HSE) is actively targeting fabricated metal businesses across the UK to ensure they are managing and complying with the guidance around the risks of welding fumes and metalworking fluids.

If they call on your premises, they will review and audit the management of your MWF's by looking at;

- **Compliance with the legal requirements of COSHH**
- **Suitable and sufficient risk assessments**
- **Working practices liable to increase exposure**
- **Control measures to reduce exposure**
- **Records of an adequate control testing regime**
- **Any requirement to provide health surveillance**

Metalworking fluids - Hazards and Controls

HSE & UKLA Metal Working Fluid Guidance

Essential

- Visual & odour check
- Check for surface oil, surface creaming & water layers
- Concentration check by refractometer
- Monitor pH levels
- Monitor bacteria & fungal contamination
- Check operational MWF temperature
- Record data
- Follow up on actions / recommendations

Less Frequent

- Water hardness
- Foaming
- Conductivity



Coolant sump Capacity: 300,000 Product: Certas MWF GP

Last Clean-out: 5 weeks ago Last Test: 1 week ago

Legend: Actions Observations Bacterial growth (CFU/ml) Concentration Fluid Satisfactory (Y/N) Fungi pH Temperature Tramp Oil

Summary Test Charts Sample History Usage History

Test Date	Actions	Bacterial growth (CFU/ml)	Concentration	Fluid Satisfactory (Y/N)	Fungi	Observations	Temperature	Tramp Oil	pH
Specification Parameters			[2.5 - 15]						[8.4 - 9.8]
17/03/2023	Satisfactory	10 ⁴ 3	10.8	Yes	Clear	Satisfactory	-	Moderate	8.9
21/02/2023	No action required	Clear (<10 ⁴ 3)	8.4	Yes	Clear	Satisfactory	26	Clear	9.1
20/02/2023	Satisfactory	10 ⁴ 3	7.2	Yes	Clear	Satisfactory	24	Clear	9.2
17/02/2023	-	10 ⁴ 3	9.6	Yes	Clear	Satisfactory	-	Light	8.8
16/02/2023	-	10 ⁴ 4	6	Yes	Clear	Satisfactory	-	Light	9.1
15/02/2023	Replenish with fresh coolant	10 ⁴ 5	6	No	Clear	Satisfactory	28	-	8.4

HSE & UKLA Metal Working Fluid Guidance

To ensure optimum fluid performance and best working conditions, your MWF needs to be correctly managed and controlled.

Measurement	How	Frequency
Fluid appearance	Visual and odour	Daily
Concentration	Refractometer	Minimum weekly
pH	pH meter pH strips	Minimum weekly
Microbiological contamination	Dipslides	Weekly unless consistently < 10 ⁴ CFU/ml
Tramp oil	Measuring cylinder or visual check	Minimum weekly
Temperature	Digital thermometer	Minimum weekly
Fines	Measuring cylinder or visual check	Minimum weekly



Refractometer

- Determines the concentration of the metalworking fluid (remember to calibrate)



pH indicator strips

- Measures pH level (acidity / alkalinity) on a scale of 1-14

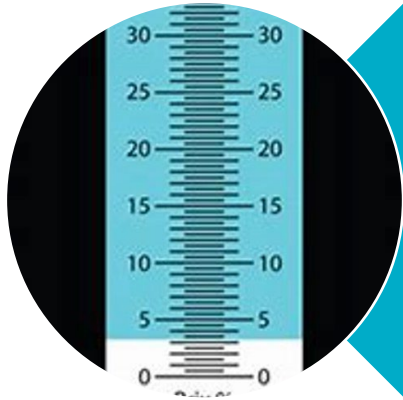


Dipslides

- The most frequently used method of measuring microbial activity

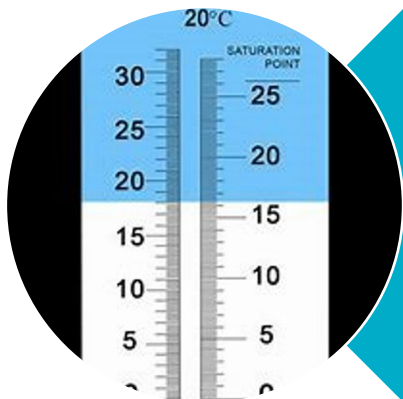
Concentration of the MWF

Check the product datasheet for the correct concentration range or speak to your supplier



Consequences of Low concentration

- Decrease in tool-life
- Corrosion of machine tool and components
- Potential for microorganism development
- Short sump life and need for chemical additions
- Increase in downtime and cost of clean out /refill



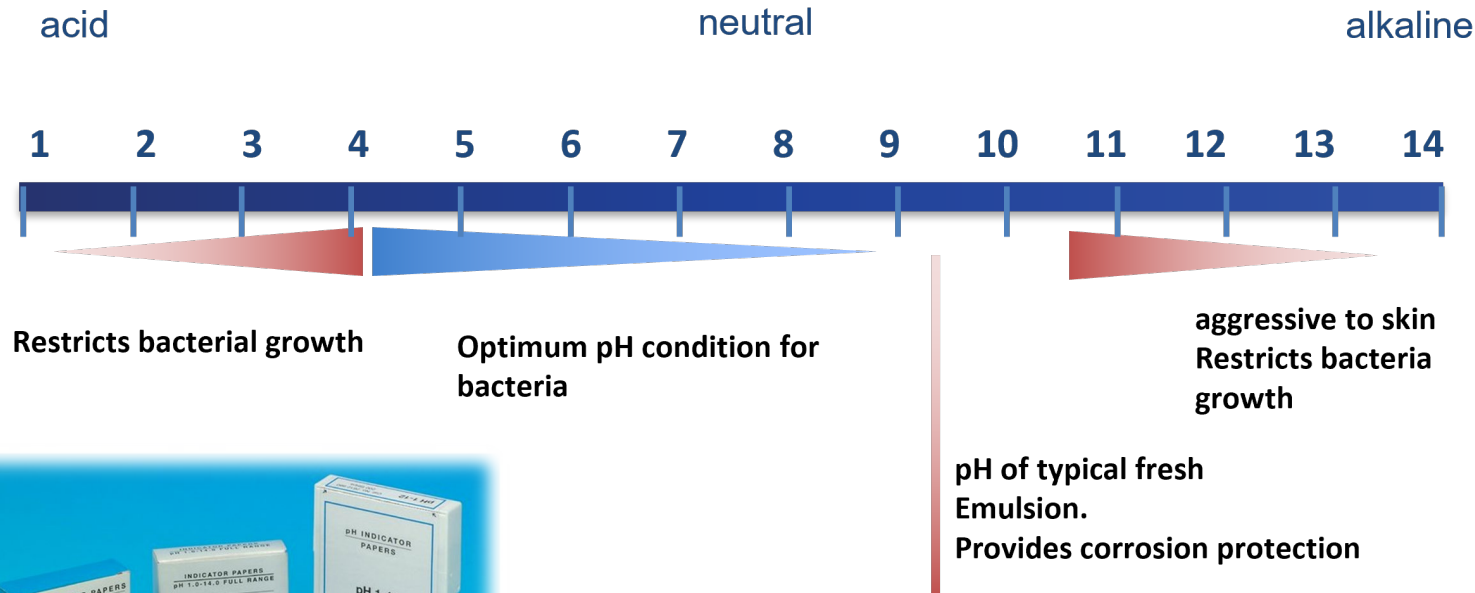
Consequences of high concentration

- Excessive usage and costs
- Fluid instability such as foaming and misting
- Filtration issues
- Skin irritation
- Issues with machining tolerance and tool life



Measuring the pH

The pH scale



keep between pH 8 to pH 9.5

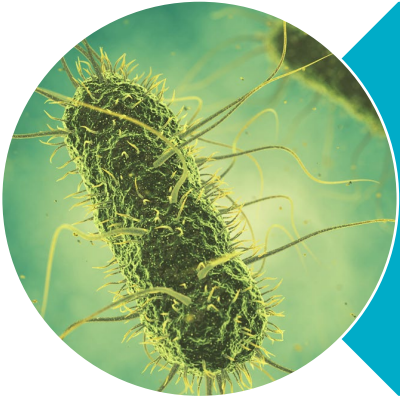
pH measurements give an indication of fluid quality and should always be within the supplier's recommended range.

A sharp drop in pH may indicate high bacteria levels and a sharp increase in pH may indicate possible chemical contamination.

Corrosion and microbial growth can occur when the pH drops below the recommended range (becomes more acidic).

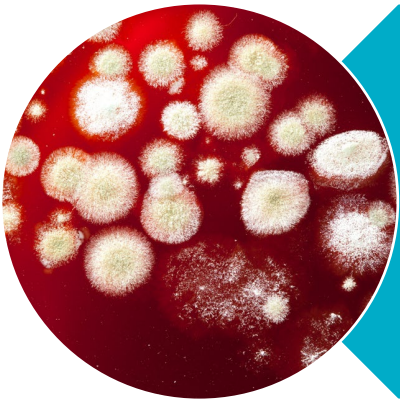
If the MWF pH increases too much there is an increased risk of skin irritation (becomes more alkaline)

Bacteria and Fungi in MWF's



Bacterial contamination

- Failure to maintain the MWF according to the supplier's recommendations may cause the MWF to deteriorate and become contaminated with bacteria and/or fungi
- Increased risk of ill-health
- Changes in appearance and odour (e.g. a rotten eggs smell).



Fungal contamination

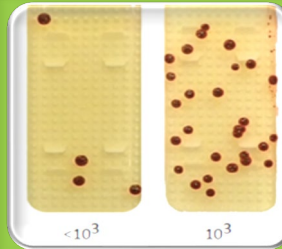
- Fungal growth can be found on the inner and outer surfaces of MWF systems and sumps
- Over longer periods, a visible biofilm can form on the inner surfaces of MWF systems
- Fungal colonies can also block filtration and delivery systems



Microbiological testing

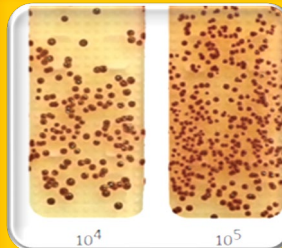
New HSE guidance will focus on demonstrating control to confirm the effectiveness of your controls, as well as indicating increased levels of bacteria and fungi at an early stage

Follow the dip-slide supplier's instructions for incubation which tell you the correct temperature and duration the slides should spend inside the incubator.



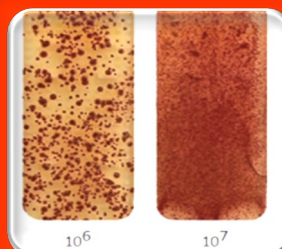
<10⁴ (cfu/cm³)- Good Control

- Continue regular checks to maintain fluid quality.



10⁴ - 10⁵ (cfu/cm³)- Caution deteriorating fluid quality.

- Take action to check the MWF fluid parameters such as concentration, tramp oil.
- Biocide addition maybe be recommended.



>10⁶ (cfu/cm³)- Immediate action required.

- Biocide addition maybe recommended or a system cleanout and fluid disposal where practical.
- Consider both bacteria & fungal infections, with physical removal of fungal slimes and growths.

* CFU – Colony forming units per gram or cm³

Tramp Oil Contamination

Tramp oil has a significant impact on the quality of the emulsion !

Consequences of excess tramp oil

- Suffocates and prevents access to oxygen.
- Promotes microbial growth.
- Effects air quality through smoking / fuming during machining.
- Can increase the risk of skin irritation.
- Can cause the MWF to become discoloured and to separate and foam which may increase the release of mist
- Can increase the likelihood of component staining.
- Can increase the suspension of particles which reduces the filtration efficiency
- Affects machining tolerance limits and tool life

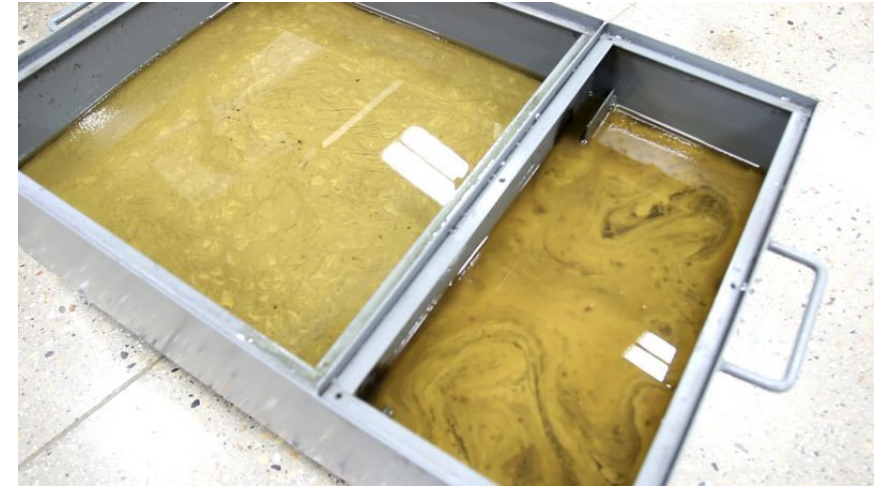


Tramp Oil Contamination

Tramp oil has a significant impact on the quality of the emulsion !

Measuring and Removal

- Tramp oil contamination should always be kept to a minimum level (below 2%).
- Undertake 24-hour stability tests or visual assessments.
- A hazy line on the refractometer can be indicative of tramp oil contamination in the MWF.
- Tramp oil is easily removed by employing skimming units, coolant coalescers or vacuum systems.



MWF Temperature

Measuring and Control

- Operating MWF at a temperature above 30 °C creates optimal conditions for microbial growth, increases MWF concentration through evaporation and affects machining performance and stability.
- With neat oil the operating temperature can affect the viscosity and cooling properties.
- For larger sumps and newer machines, a heat exchanger may be used to manage the fluid temperature.



Measuring and Control

- Poor management and filtration will leave residual contaminants in a MWF such as swarf, metal fines and dissolved metals.
- Metal fines and swarf increase the risk of skin abrasion, cuts and the risk of dermatitis.
- Allowing metal contaminants to increase causes poor cutting performance
- Reduces the sump volume, increases temperature and evaporation and promotes microbial growth
- Increases machine downtime and disposal/refill costs.
- Remove fines using centrifuges, filtration systems or magnetic separators (for ferrous materials).



If you have concerns about health risks caused by sensitising metals, seek specialist medical advice from an occupational health provider.

Best Practice MWF Controls

MWF Best Practice – Water Quality

- Consult the MWF supplier about suitable water quality requirements (hardness and pH) and for bacteria, yeast or fungi.
- The use of stored water (rather than direct mains) may increase the risk for bacterial contamination of the MWF.
- The ideal hardness of water ranges from 80 to 150 ppm.
- If the water hardness is too soft this can cause an increase in foaming and issues with machining and filtration
- If it is too hard this can cause the MWF to split and insoluble soaps to form blocking the delivery system and filters.

The quality of the water used in MWF is important to ensure stability and performance.

MWF Best Practice – Product Selection

- Consider your MWF selection based on the water make-up, machining process and material to be machined.
- Always mix and keep water-soluble MWF's within the supplier's recommended parameters.
- Remember that in use, water-mix MWF's evaporate and become more concentrated.
- Top up the MWF system "little and often" to refresh the MWF additive package in order to maintain optimum machining performance.
- The general rule of thumb is to top-up your MWF at 50% of the operational concentration – so ideally you would top-up 8% MWF at 4%

The suitability of the MWF product selected is critical to machining performance and sump life.

MWF Best Practice – Circulation

Maintain circulation of the MWF daily as this discourages the growth of anaerobic bacteria and the formation of noxious gases.

- Consider your MWF's during preventative maintenance and shutdown periods.
- Try to avoid dead-ends and dead-legs where MWF may stagnate and remove them where it is reasonably practicable to do so
- Undertake sump cleaning regularly based on either PPM or condition monitoring.
- Check, replace and/or flush all system filters regularly and replace when the MWF sump is cleaned out and refilled

Regular circulation of the MWF will help control bacterial growth and prolong the sump life.



MWF Best Practice - Mixing the MWF

- Always refer to the supplier's SDS which contains information about hazards and safe handling.
- Always mix and keep water-soluble MWF's within the supplier's recommended parameters.
- The preferred method is to use a mixing (dosing) unit to prepare MWF's - seek supplier advice.
- Always add the concentrate to water to ensure that the emulsion is formed correctly.
- Prepare MWF in a designated and well-ventilated area to avoid potential inhalation of respiratory irritants.

Correctly mixing the MWF is critical to ensuring the products optimum quality and performance

MWF Best Practice – Limiting Skin Contact

- Always try to prevent or minimise contact with MWF.
- Enclose machines ALARP or reduce splash risks by using properly designed splash-guards - not rags.
- Keep work surfaces clean to minimise contact with MWF.
- Ensure leaks/spills are contained and cleaned immediately
- Wear PPE where contact is possible or unavoidable
- Don't remove swarf and fines from the sump by hand.
- Provide clean facilities for washing and taking refreshment, away from all machining activities.



The reduction of MWF skin contact is critical to controlling the hazard and reducing the risk

MWF Best Practice – Control of Mist

- Mist produced inside the CNC enclosure during machining can escape through gaps in the enclosure and when the enclosure doors are opened shortly after machining stops.
- Apply MWF at the lowest pressure and flow for adequate lubrication, cooling and swarf removal.
- Apply MWF at the cutting interface to minimise mist generation from contact with other rotating parts.
- Stop MWF delivery when not cutting parts.
- Enclose or seal any gaps in the machine enclosure
- Observe a time delay between the machine stopping and opening the enclosure doors, so that when the operator opens the doors, no mist is present in their breathing zone (the area within 20-30 cm of the nose and mouth).

The reduction of MWF mist is critical to controlling the hazard and reducing the risk

MWF Best Practice – LEV

- Consider the MWF flow rate, extraction point locations, enclosure dimensions and the level of mist generated from machining, as these will all affect the time taken for the mist to be extracted.
- Extracted air must discharge safely outside the building away from doors, windows and inlets.
- Recirculated air must filter through a suitable high efficiency air cleaning device.
- Never empty LEV drain containers back into the MWF system – they will be contaminated!
- Provide an easy way of checking the LEV is working, eg. airflow indicator or equivalent
- Competent person to thoroughly examine and test LEV at least once every 14 months



The HSE state that it is of paramount importance to provide adequate LEV to remove MWF mist from CNC machine enclosures.

MWF Best Practice - Compressed Air

- Always consider using alternative methods such as vacuum guns, absorbent materials, low pressure coolant guns, spindle mounted fans or automatic compressed air hoses (operated with CNC enclosure doors shut).
- Where there is no practical alternative reduce the pressure to as low a level as practicable (as a guide 30psi/2.1bar is effective)
- Different nozzle designs allow guns to be operated at a lower pressure which reduces risk from MWF mist, ejected swarf and noise.
- Consider using compressed air guns with longer lances and protective deflection plates to keep the mist away from the operator.
- If you must blow down components, do this inside the machine enclosure, blowing away from the operator and with the LEV operating.

The reduction of MWF mist is critical to controlling the hazard and reducing the risk

MWF Best Practice – Using Biocides

The incorrect use of biocides may lead to the development of biocide resistant organisms and may be harmful to the operator.

- Only use biocide when all control measures have been undertaken but bacteria are still present in the MWF.
- You must use add biocide at the recommended dosage rates and wear suitable PPE– this is critical to safe use.
- Choose a point of high turbulence and agitation to ensure complete dispersion of biocide in the MWF.
- High biocide concentrations may increase the risk of skin irritations and disease

The correct use/addition of biocide/fungicide is critical to reducing the risk of ill-health

MWF Best Practice - Keeping the MWF clean

- Stop leaks of tramp oil into the sump - hydraulic, lubricating or gearbox oil.
- Check that the slideway oil is correctly set at a flow rate for effective lubrication and minimal loss.
- Remove tramp oil by mechanical skimmers, mobile oil coalescers or vacuum systems.
- Remove fines using centrifuges, filtration systems or magnetic separators (for ferrous materials).
- Top-up the system little and often
- Avoid points of low or no flow (stagnation).
- Maintain and clean the machine sump and MWF system in accordance with the supplier's instructions.
- **Never empty and refill a sump without following the correct cleaning procedure!**



MWF Best Practice - PPE

Prevent skin contact with MWF but where this is not practicable, wear suitable PPE

- The MWF SDS will provide guidance on suitable PPE.
- Provide gloves that are suitable for controlling skin exposure to MWFs - single use, nitrile gloves are typically acceptable.
- Select the correct glove for the product and process – right glove and right size
- Make sure you “don and doff” gloves correctly
- Make suitable arrangements for maintenance, storage and replacement of PPE.
- No glove gives indefinite protection - replace gloves at recommended intervals and discard damaged gloves immediately.
- Provide additional PPE where required – goggles/ safety glasses, face visor, chemical apron etc



MWF Best Practice – Personal Hygiene

- Immediately remove clothing contaminated with MWF to reduce skin contact.
- Wash hands after contact with MWF.
- Provide warm water, mild skin cleansers, and soft paper or fabric towels for drying.
- Avoid abrasive cleansers.
- Provide after-work creams to restore the natural moisture content of the skin.
- Caution: Pre-work or 'barrier' creams are not 'liquid gloves' and do not provide a full protective barrier.

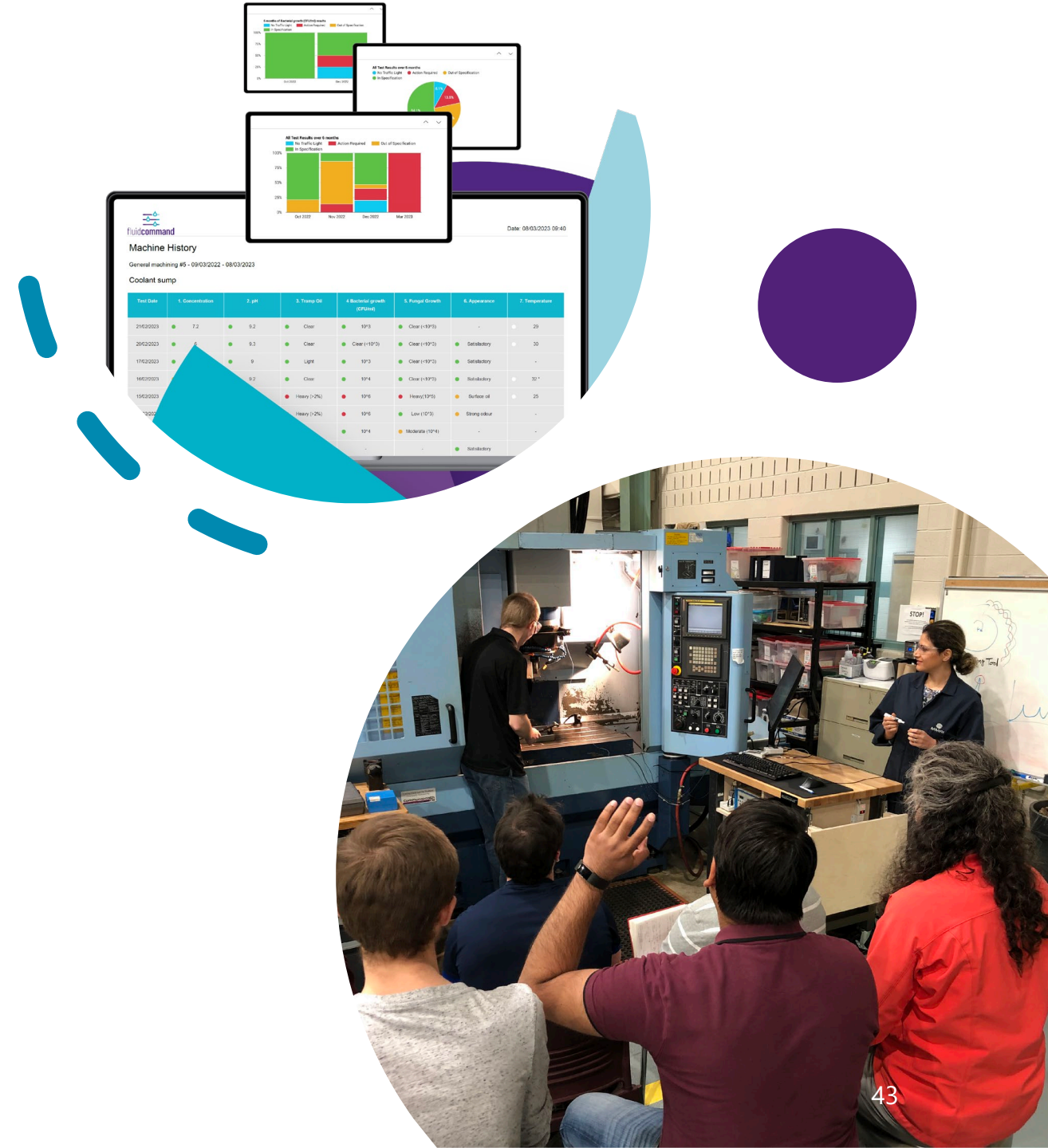
MWF Best Practice – Product Storage

It is important to manage the environmental storage of MWF's to maintain quality and performance.

- Refer to the product SDS.
- MWF concentrate should generally be stored indoors (between 5 °C and 40 °C).
- If stored outside, containers should be covered as a minimal precaution to avoid temperature extremes.
- Rotating the stock ensures that concentrates are not stored longer than recommended by the supplier.
- Do not use MWF concentrate beyond the expiry date set by the supplier.
- Ensure that hazard warning labels are always visible on all storage containers – **including decanting containers of the same product.**

MWF Best Practice – Records & Action

- If a 3rd party undertakes the checks make sure you review the results and note the actions.
- Always undertake recommended remedial actions ASAP and never ignore guidance from your supplier
- Keep records in a table/graph to make it easy to see trends and act quickly to maintain the MWF quality.



MWF Best Practice – Information, Instruction and Training

- Understand the health risks and symptoms associated with exposure to MWFs and the controls in place to prevent or reduce exposure.
- Know how to report any suspected symptoms as soon as possible.
- Understand the checks required, how to interpret the results, and how to safely undertake remedial actions.

Summary

MWF's Good Practice Summary

- *Metalworking fluids contain chemical components that may be hazardous by inhalation and when in contact with the skin.*
- *Contamination of the fluid with bacteria, tramp oil, sensitising metals can significantly increase this risk.*

General

- ✓ Refer to the SDS & conduct a risk & COSHH assessment.
- ✓ Regularly check for dermatitis and respiratory problems and report symptoms promptly.
- ✓ Use PPE when handling MWF's and when cleaning out machines.
- ✓ Follow manufacturers guidelines when using MWF's, Biocides, system cleaners etc.
- ✓ Ensure operators are trained and competent in the use of MWF

Machine Operation

- ✓ Provide and maintain local exhaust ventilation.
- ✓ Select the right MWF for the water and machining application/metal
- ✓ Allow a time delay before opening machine enclosures.
- ✓ Ensure correct MWF flow and delivery.
- ✓ Use machine guards and spray covers properly.
- ✓ Observe good personal & environmental hygiene.
- ✓ Avoid using compressed air.

Fluid & Machine Maintenance

- ✓ Conduct regular monitoring of MWFs.
- ✓ Check MWF visually every day.
- ✓ Mix MWFs and top-up concentrations correctly.
- ✓ Top-up sumps "little and often".
- ✓ Circulate MWF regularly.
- ✓ Use filters to remove swarf and fines.
- ✓ Remove tramp oil regularly using appropriate equipment.
- ✓ Clean out sumps based on PPM or test results as appropriate.

| Help & Support

Further information and support



- Your metalworking fluid supplier
 - The UKLA
 - The HSE
 - BoHS

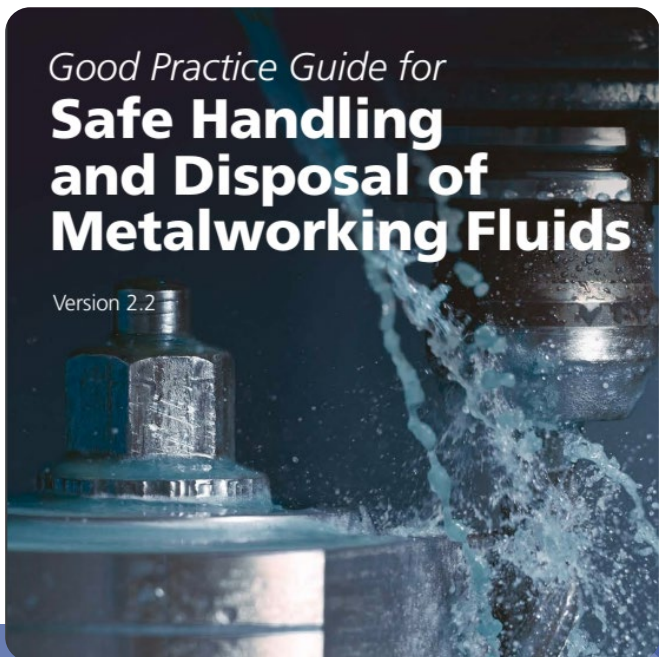
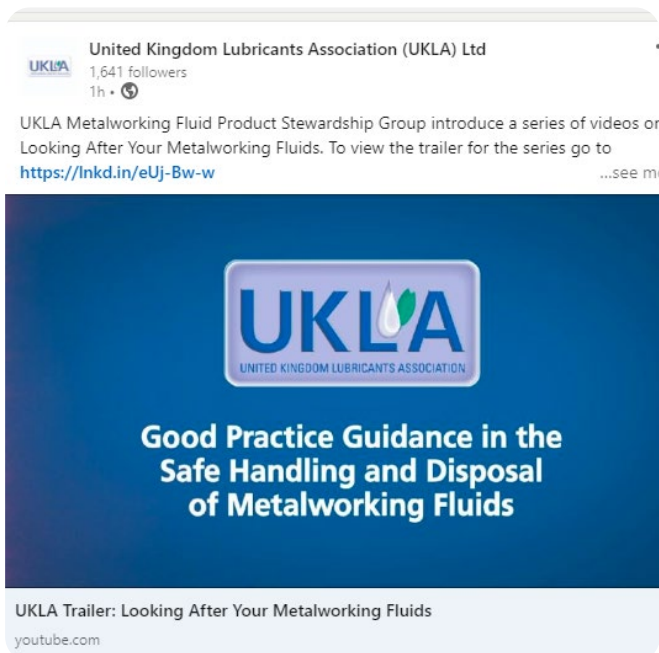
Further information and support

UKLA

- Good practice guide <http://www.ukla.org.uk/wp-content/uploads/UKLA-HSE-Good-Practice-Guide-for-Safe-Handling-and-Disposal-of-Metalworking-Fluids.pdf>
- UKLA good practice video launch <https://www.youtube.com/@UKLAMetalworkingFluidGroup/videos>

HSE

- COSHH Essentials for Machining with Metalworking fluids www.hse.gov.uk/metalworking/ecoshh.htm
- Working Safely with MWF: A Guide for Employees www.hse.gov.uk/pubns/indg365.pdf
- Working with Hazardous Substances: A Brief Guide www.hse.gov.uk/pubns/indg136.htm
- Controlling Airborne Contaminants at Work www.hse.gov.uk/pubns/priced/hsg258.pdf



| Any Questions?

View the UKLA films here:

<https://www.youtube.com/@UKLAMetalworkingFluidGroup/videos>

Thank you!



WEBINAR CLOSE

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David Frise [CEO] and Charlie Pierpoint – the BESA