

The background of the slide is a close-up photograph of a metalworking process, likely a lathe or mill, showing a metal part being machined. The scene is dark and industrial, with metallic surfaces and some fluid spray. A thick, bright blue line graphic starts from the left edge, curves around the text, and extends towards the right edge.

Guide to safe handling,

maintenance and disposal of

metalworking fluids



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"Our aim is to create a safer and more efficient workplace environment, helping to reduce downtime and improve production and ultimately, profitability."

Stewart Coull
MANAGING DIRECTOR

Metalworking fluids are the lifeblood of machining. When they're properly managed, they protect tools, improve finishes, and keep production running smoothly. But when neglected, they can quickly become a risk to both your productivity and your people.

At Jemtech, we believe fluid management isn't just about keeping machines topped up - it's about safeguarding health, ensuring compliance, and making your shop floor as efficient as possible.

That's why we've written this guide.

Drawing on HSE recommendations, industry best practice, and our own experience with systems such as Oracle, Auto Fill Plus, and CleanMist, this document sets out how to keep your metalworking fluids in peak condition, while keeping your operators safe.

Legal requirements & health surveillance

- ✓ Under COSHH (2002), risk assessments must minimise skin contact and inhalation of MWF mist to ALARP standards through engineering controls and PPE.
- ✓ Maintain records of checks and health surveillance in line with Jemtech's digital analytics systems and consultation with occupational health professionals.

Understanding the risks

Metalworking fluids can affect operators in two main ways: through skin contact and through inhalation of fluid mist. If left uncontrolled, these exposures can lead to health problems like dermatitis, occupational asthma, or even hypersensitivity pneumonitis.

Preventing these issues doesn't require guesswork. It comes down to consistent housekeeping, good equipment, and making sure operators know what to look out for. Simple actions - like wearing the right gloves, cleaning up spills, using bioconcept cutting fluids, or automated fill systems - can drastically reduce the chance of fluid-related illness. Likewise, effective mist extraction and regular health surveillance ensure you catch problems long before they escalate.

Key points



Skin Disease (Dermatitis)

- Reduce contact through tools (e.g., swarf hooks, brushes), automated filling systems, splash guards, and proper gloves.
- Promote skin care hygiene and use Jemtech's training materials to help operators spot early signs.



Lung Disease (Asthma, OHP)

- Install and maintain effective LEV and mist extraction.
- Monitor for symptoms via health surveillance supported by forms and digital tracking.



Storing and mixing fluids the right way

Good practice starts long before the fluid even reaches a machine. Concentrates should be stored indoors, at a steady temperature, away from direct sunlight and frost. Labels must remain legible, and old stock should be used first.

When it's time to mix, always add concentrate to water, not the other way around. This isn't just tradition - it's chemistry. By using systems like Auto Fill Plus or Oracle, you take the guesswork out of dilution, ensuring your concentration is right every time. Water quality also matters - too hard or too soft, and your emulsion could suffer. That's why we track and record every fill, giving you a clear picture of your fluid health.



Storage guidelines

Store concentrates indoors (5 - 40°C), rotate stock, and observe expiry dates.

Clearly label and shield from environmental extremes.



Mixing & water quality

Use automated dosing systems.

Always add concentrate to water, not vice versa.

Monitor water quality; aim for hardness of 80 - 200 ppm and avoid microbial contamination.

Record dilution data via fluid analytics software.





Keeping fluids healthy day-to-day

Looking after your metalworking fluids is like maintaining a car. A little attention, done regularly, avoids big problems later. pH levels, concentration, bacterial growth, tramp oil, and metal fines all need monitoring. The good news? Most of these checks take minutes - and our systems make them even easier.

If you spot tramp oil building up, remove it with skimmers or vacuums. If bacteria creeps in, you can often treat the fluid before it becomes unusable. And if the fluid temperature is running high, it might be time to review your machine cooling or airflow.

By recording these checks digitally, you don't just stay compliant - you can also see trends. That way, you can act early, before problems affect part quality or operator health.

MWF maintenance overview

Monitor and adjust:

1

pH

Maintain within supplier's range using test strips or digital meters.

2

Concentration

Use refractometers; record in digital logs.

3

Tramp oil

Keep below 2%, remove using skimmers or vacuum systems.

4

Microbial growth

Use dipslides; treat if $>10^4$ CFU/ml, replace fluid if $>10^6$ CFU/ml.

5

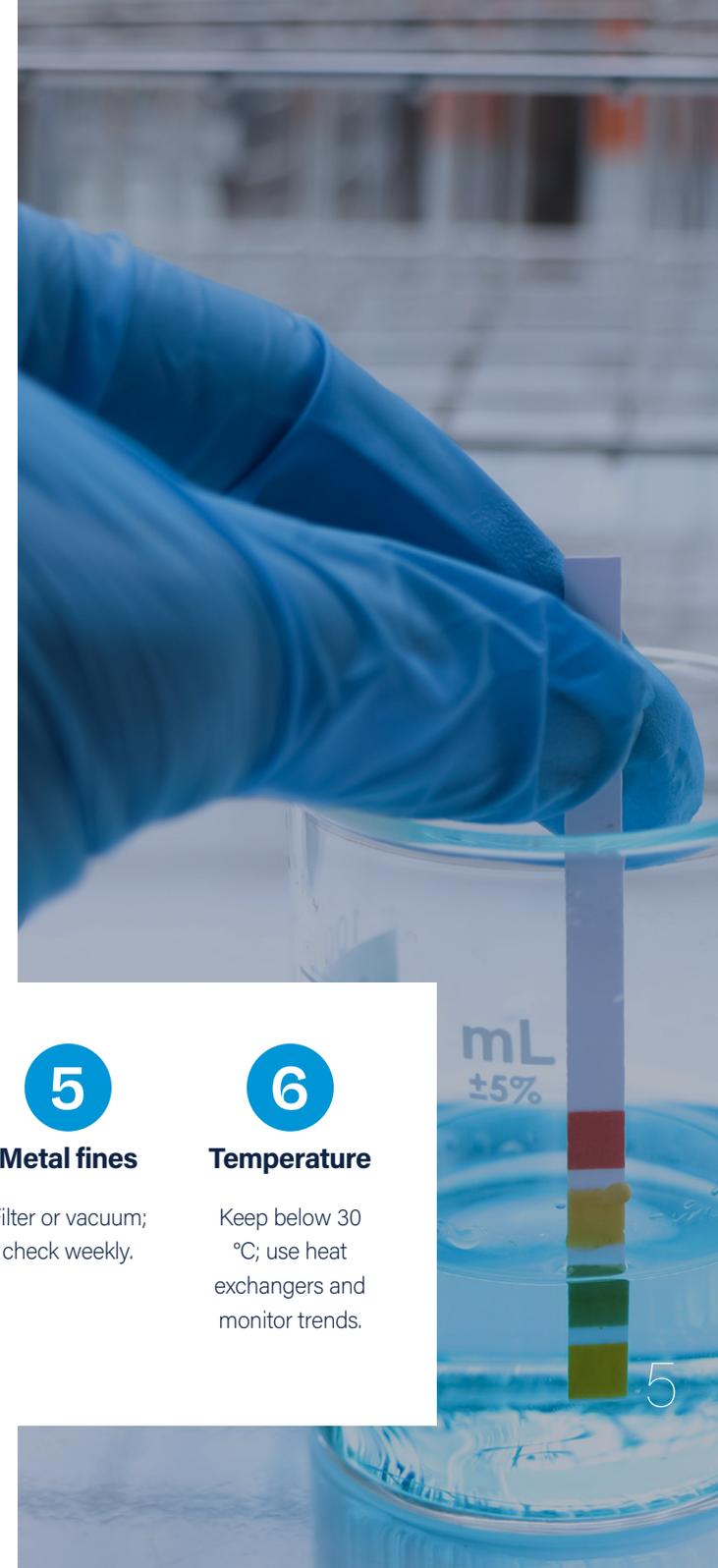
Metal fines

Filter or vacuum; check weekly.

6

Temperature

Keep below 30 °C; use heat exchangers and monitor trends.



Controlling mist and protecting operators

Metalworking fluid mist is invisible most of the time, but it's one of the biggest exposure risks on the shop floor. Using properly maintained mist extraction systems - such as CleanMist - keeps airborne concentrations low. Machines should stay enclosed during cutting, and enclosures should be opened only after the mist has settled.

Compressed airlines should be used with caution, because they can stir up fluid mist. And while PPE such as FFP3 masks or nitrile gloves provides a final line of defence, the real goal is to stop the exposure at its source through engineering controls.

Cleaning and changing fluids

Even the best fluids need to be changed eventually. If you notice a sour smell, unstable emulsion, or heavy bacterial contamination, it's time to clean the system. Cleaning should be done carefully - using wet vacuums rather than high-pressure hoses to avoid aerosolising the fluid. Always wear gloves and respiratory protection when cleaning and flush the machine thoroughly before refilling.

When the system is refilled, it's vital to check the new fluid after a week to make sure it's settled into its correct operating range. With Oracle and Jemtech's fluid management services, you can have full visibility over these start-up checks.



Clean when bacterial contamination is high, emulsion unstable, or visible biofilm.



Use wet vacuums and avoid high-pressure hoses when possible.



Wear appropriate PPE and RPE when mist is generated.



After cleaning, flush system, refill via Oracle or manual mixing, and test fluid after one week.

Disposal and spill control

Eventually, used fluid has to go. Disposal must always follow environmental regulations and be handled by licensed waste contractors. Jemtech can advise on the best way to recover or recycle waste fluid where possible, reducing your costs and impact.

If there's a spill, clean it up straight away using appropriate kits, barriers and signage - and always record the incident. This isn't just red tape, it helps identify recurring issues and prevent them in future.



Use spill kits and barrier signage; always wear suitable PPE.



Document spill incidents in line with company procedures.



Engage licensed waste contractors and adhere to legal and environmental protocols.

Jemtech can support waste fluid recovery and recycling strategies.

Training, records and ongoing support

Safe fluid handling is not a one-off task - it's a culture. Keeping good records of fluid checks, extraction maintenance, and health surveillance doesn't just tick a compliance box - it gives you confidence your systems are working. And operators who understand why these steps matter are far more likely to do them well.

Jemtech offers training, on-site audits, and full support packages that take fluid management off your to-do list. With our Advanced Fluid Management systems, you'll always know your shop floor is running at peak performance - safely, efficiently, and with full HSE compliance.

Ready to take control of your metalworking fluids?

With Jemtech's Advanced Fluid Management systems, you'll spend less time firefighting and more time machining. Whether you need on-site training, fluid monitoring, or a complete turnkey solution, our experts are here to keep your shop floor running safely, efficiently, and in full compliance.

Call us now on 01825 767640 or sales@jemtech.co.uk Find out more on our website and follow us on LinkedIn for all the latest news and developments.

Talk to Jemtech today – and turn fluid management into a competitive advantage.



Product range



Fluid management

The intelligent and automated fluid management systems designed for your cutting fluid of choice



Mist extraction

Air purification filters from CNC to full factory solutions



Cutting fluids

Reduce costs, increase efficiency and provide quality where it counts.



Industrial vacuums

Coolant / neat oil industrial vacuum units.

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