

MANAGING THE HEALTH RISKS ASSOCIATED WITH COOLANT

XYZ does not claim to be an expert on this subject, but offers the following information, in good faith, to help our customers in recognising and dealing with the Health risks from (water based) Metal Working Fluids (coolant).

Because the use of coolant is application specific, we see the risks as a residual risk in the design of the machine. Responsibility for controlling these risks falls to the machine controller/operator as part of their general H&S responsibilities and, in particular, the PUWER (Provision and Use of Work Equipment Regulations) assessment process.

To assist you in identifying the risks, we provide information in the safety section of our manuals concerning coolant (and other safety aspects, of course). This document goes further; providing you with sources of information on the nature of the risks and how to manage them. We do not claim this to be an exhaustive list, other sources of information may exist.

There are real hazards to the machine operator's health from skin contact with coolants and, more seriously, inhaling coolant mists, so it is important to understand and manage the risks.

Potential, harmful effects include:

- Dermatitis from skin contact,
- Lung disease from inhalation of coolant contaminated with harmful bacteria.

The HSE has a lot of helpful information and guidance on all the health and safety issues surrounding Metalworking fluids (MWF), and we strongly recommend you start here:

<http://www.hse.gov.uk/metalworking/about.htm>

We recommend you look especially at the COSHH material relating to MWFs, here:

<http://www.hse.gov.uk/metalworking/ecoshh.htm>

This page has a link to a number of information sheets. Please look especially at MW1 ("CNC Machining"):

<https://www.hse.gov.uk/pubns/guidance/mw1.pdf>

This talks about the use of mist extraction/exhaust ventilation to reduce inhalation of mist. This is to address the most serious problem of inhalation of harmful bacteria in the coolant mist, which can lead to lung disease. More information on bacteria in coolant is available here (including how to use microbiological dip slides to monitor bacterial contamination levels):

<http://www.hse.gov.uk/metalworking/bacterial.htm>

Mist extraction is becoming more commonplace and is a very popular solution with the HSE, however, there is an alternative to mist extraction; namely Bioconcept fluids.

This is the type of cutting fluid we use in our showrooms. Providing it is properly looked after (so you must monitor pH, concentration and tramp oil regularly), there can be no harmful bacteria and so no risk of ill-health from breathing in the mist.

As far as we are aware, there is only one manufacturer of Bioconcept MWF's, which is Blaser Swisslube. They have done a lot of testing to back up their claims of no harmful bacteria. The bioconcept cutting fluid is Blasocut. It can be bought from the UK distributor, Jemtech:

<https://www.jemtech.co.uk/products/cutting-fluids/water-miscible-coolants/>

Please make sure you speak to Jemtech about how to look after the Bioconcept MWF properly. This is essential if the coolant mist is to remain harmless.

See also the original manufacturer's website:

https://www.blaser.com/en_GB/our-solutions/water-miscible-coolants

especially the following information leaflet:

<https://www.blaser.com/download/8af5eb16-8782-43b9-a93f-a56c0d4686ba>

Using bioconcept fluids should negate the need for mist extraction/LEV and bacterial monitoring. So, although the fluid is more expensive, the overall cost can be less. Remember, contact with Bioconcept MWFs still needs to be minimised from a dermatitis point of view and you should still try to minimise coolant mist in the workplace (see MW1 for good practice) in the interests of a pleasant working environment.

You must also continue to manage the other risks from coolants, such as slip hazards from spillage.

When using Bioconcept fluids, **DO NOT** use biocides, which are designed to kill harmful bacteria, as it will kill off the "good" bacteria".

If you want to look at mist extraction, you should talk to one of our partners, please refer to the following companies:

<https://www.jemtech.co.uk/products/mist-extraction/>

<http://www.filtermist.co.uk/>

https://ins-europe.com/product-filter/?product_cat=air-filtration-systems (Fox WS2)

Whenever possible, we will allow these companies to install your mist extraction system in our factory, before your machine is delivered. Please mention any potential mist extraction requirements to your XYZ salesmen. However, please remember that the specification, ordering and payment for the mist extraction system is solely your responsibility.

Although mist extraction is not a cheap solution to setup, many of the systems (e.g. those using centrifugal separation techniques), allow for recovery of coolant back to the machine. It will also lead to a cleaner workshop with less deposits of coolant on floors and other surfaces. The savings from these benefits will go some way to offset the initial cost.

Once thing to watch is sometimes a mist is formed by the tramp oil in the coolant getting hot. This is another reason to keep tramp oil down to a minimum (as well as helping to keep your coolant healthy). XYZ can supply an integrated, oil skimmer for the Siemens range of machines. Simpler solutions are also available from suppliers such as Jemtech.

Finally, here is some information for employees concerning metal working fluid safety:

<http://www.hse.gov.uk/pubns/indg365.pdf>