

# Introduction

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# General Information on Substances in MWFs and Possible Health Effects

MWFs are an array of complex mixtures. Substances in MWFs vary with the MWF and there are thousands of formulations commercially available. Therefore, multiple suggestions were made regarding substances in MWFs and health effects associated with exposure to MWF. Examples include:

- “compelling evidence that occupational exposure to some metalworking fluid aerosols is associated with ~~caused by~~ ...” (p.25)
- Suggested addition of references to unintended substances in the MWF, e.g., Gordon, T., Metalworking fluid – the toxicity of a complex mixture, J. Toxicol. Environ. Health, Part 1, **67**, 209-219, 2004
- Suggested addition of short description of occupational levels of aerosol to MWF as opposed to experimental concentrations used in the present study. (Occupational levels typically 0.5 mg/m<sup>3</sup> or less.)
- Suggestion to clarify that a used MWF is not the same as a new MWF. (Augment discussion pp – 20 – 21.)
- DEA is not part of straight oils. (p.92; not in submitted comments.)

# Characterization of the Starting CIMSTAR 3800

The composition as determined analytically is not clearly stated and we believe a table of components with their percent in the MWFs, similar to that suggested (Dalbey comments, p.3) is needed in Appendix H and in the main text on p.32. Other comments/questions we recommend be clarified include:

- What was in the hexane extract?
- Why were tall oil fatty acids (the methyl esters of fatty acids) confused with mineral oil?
- A mineral oil was listed as an ingredient on the MSDS for the MWF, but not clearly identified in the report.
- A formaldehyde-condensate biocide was listed as an ingredient on the MSDS for the MWF, but the report states in different places that no biocide was present.
- What was the shelf-life of the MWF? Was there any evidence of bacterial or fungal growth? Were assays for bacterial endotoxin performed?