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An American National Standard

Standard Guide for Using Documents Related to Metalworking or Metal Removal Fluid Health and Safety[1]

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1. Scope

1.1 This guide covers information on how to use documents related to health and safety of metalworking and metal removal fluids. As such, this guide will provide the user with sufficient background information to effectively use the documents listed in Section 2. Documents referenced in this guide are grouped as applicable to producers, to users or to all.

1.2 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory requirements prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:* [2]

E 1302 Guide for Acute Animal Toxicity Testing of Water-Miscible Metalworking Fluids

E 1497 Practice for Safe Use of Water-Miscible Metal Removal Fluids

E 1687 Test Method for Determining Carcinogenic Potential of Virgin Base Oils in Metalworking Fluids

E 1972 Practice for Minimizing Effects of Aerosols in Wet Metal Removal Environment

E 2144 Practice for Personal Sampling and Analysis of Endotoxin in Metalworking Fluid Aerosols in Workplace Atmospheres

E 2169 Practice for Selecting Antimicrobial Pesticides for Use in Water-Miscible Metalworking Fluids

E 2250 Method for Determination of Endotoxin Concentration in Water Miscible Metalworking Fluids

PS 42 Method for Metal Removal Aerosol in Workplace Atmospheres[3]

2.2 *Other Documents:*

Management of the Metal Removal Fluid Environment: A Guide to Safe and Efficient Use of Metal Removal Fluids[4]

Criteria for a Recommended Standard: Occupational Exposure to Metalworking Fluids[5]

Metalworking Fluids: Safety and Health Best Practices Manual[6]

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *endotoxins*, *n*—lipopolysaccharides derived from the outer membranes of Gram-negative bacteria.

3.1.2 *metal removal fluids*, *n*—the subset of metalworking fluids that are used for wet machining or grinding to produce the finished part.

3.1.2.1 *Discussion*—Metal removal fluids addressed by this practice include straight or neat oils, not intended for further dilution with water, and water-miscible soluble oils, semisynthetics, and synthetics, which are intended to be diluted with water before use. Metal removal fluids become contaminated during use in the workplace with a variety of workplace substances including, but not limited to, abrasive particles, tramp oils, cleaners, dirt, metal fines and shavings, dissolved metal and hard water salts, bacteria, fungi, microbiological decay products, and waste. These contaminants can cause changes in the lubricity and cooling ability of the metal removal fluid as well as have the potential to adversely affect the health and welfare of employees in contact with the contaminated metal removal fluid.

3.1.3 *mutagenicity index*, *n*—the slope of the dose response curve for mutagenicity in the modified Ames test described in Test Method E 1687.

[1] This guide is under the jurisdiction of ASTM Committee E34 on Occupational Health and Safety and is the direct responsibility of Subcommittee E34.50 on Health and Safety Standards for Metal Working Fluids.

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For Annual Book of ASTM Standards volume information, refer to the standard's Document Summary page on the ASTM website.

[3] Withdrawn.

[4] Available from Organization Resources Counselors, Inc., 1910 Sunderland Place, NW, Washington DC 20036 or at http://www.orc-dc.com

[5] Available from U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, Cincinnati, OH 45226.

[6] Available from US Occupational Health and Safety Administration, 200 Constitution Avenue NW, Washington, DC 20210 or at http://www.osha.gov/SLTC/metalworkingfluids/metalworkingfluids_manual.html