



Standard Guide for Using Documents Related to Metalworking or Metal Removal Fluid Health and Safety¹

This standard is issued under the fixed designation E2148; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

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

- D7049 Test Method for Metal Removal Fluid Aerosol in Workplace Atmospheres
- E1302 Guide for Acute Animal Toxicity Testing of Water-Miscible Metalworking Fluids
- E1497 Practice for Selection and Safe Use of Water-Miscible and Straight Oil Metal Removal Fluids
- E1687 Test Method for Determining Carcinogenic Potential of Virgin Base Oils in Metalworking Fluids
- E1972 Practice for Minimizing Effects of Aerosols in the Wet Metal Removal Environment
- E2144 Practice for Personal Sampling and Analysis of Endotoxin in Metalworking Fluid Aerosols in Workplace Atmospheres
- E2169 Practice for Selecting Antimicrobial Pesticides for Use in Water-Miscible Metalworking Fluids
- E2250 Method for Determination of Endotoxin Concentra-

tion in Water Miscible Metal Working Fluids³

2.2 Other Documents:

- Management of the Metal Removal Fluid Environment: A Guide to Safe and Efficient Use of Metal Removal Fluids⁴
- Criteria for a Recommended Standard: Occupational Exposure to Metalworking Fluids⁵
- Metalworking Fluids: Safety and Health Best Practices Manual⁶

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.

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.

Current edition approved Oct. 1, 2006. Published October 2006. Originally approved in 2001. Last previous edition approved in 2003 as E2148 - 03. DOI: 10.1520/E2148-06.

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. The last approved version of this historical standard is referenced on www.astm.org.

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