



Standard Guide for Acute Animal Toxicity Testing of Water-Miscible Metalworking Fluids¹

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1. Scope

1.1 This guide defines acute animal toxicity tests and sets forth the references for procedures to assess the acute toxicity of water-miscible metalworking fluids as manufactured.

1.2 Although water-miscible metalworking fluids are typically used at high dilution, dilution rates vary widely. Additionally, there is potential for exposure to the metalworking fluid as manufactured.

1.3 *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 limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

E 758 Test Method for Mammalian Acute Percutaneous Toxicity²

E 981 Test Method for Estimating Sensory Irritancy of Airborne Chemicals²

E 993 Test Method for Evaluation of Delayed Contact Hypersensitivity²

E 1103 Test Method for Determining Subchronic Dermal Toxicity²

2.2 CPSC Standards:³

16 CFR Part 1500

16 CFR Part 1500.3

16 CFR Part 1500.40

16 CFR Part 1500.41

16 CFR Part 1500.42

2.3 DOT Standards:³

49 CFR Part 173, Appendix A

49 CFR Part 173.343a1

49 CFR Part 173.343a2

49 CFR Part 173.343a3

2.4 EPA–TSCA Standards:³

40 CFR 792

40 CFR 870.1100

40 CFR 870.1200

40 CFR 870.1300

40 CFR 870.2400

40 CFR 870.2500

40 CFR 870.2600

2.5 OSHA Standards:³

29 CFR 1910.1200

29 CFR 1910.1200 Appendix A, 3(a) and 6(a)

29 CFR 1910.1200 Appendix A, 3(b) and 6(b)

29 CFR 1910.1200 Appendix A, 3(c) and 6(c)

29 CFR 1910.1200 Appendix A, 4

3. Significance and Use

3.1 Application of this guide will provide information on the acute toxicity of water-miscible metalworking fluids and will assist the user in evaluating the potential health hazards of the fluid and developing appropriate work practices. A water-miscible metalworking fluid is a concentrate designed to be diluted in water for use.

3.2 Water-miscible metalworking fluids are complex chemical mixtures. The United States Occupational Safety and Health Administration (OSHA) Hazard Communication Standard (see A1.8) outlines procedures for the hazard determination of mixtures and states that if a mixture has not been tested as a whole, then the mixture shall be assumed to present the same hazards as do the components that comprise 1 % (by weight or volume) or greater of the mixture, except that the mixture shall be assumed to present a carcinogenic hazard if it contains a component in concentrations of 0.1 % or greater, which is considered to be a carcinogen (as defined in OSHA Standard 29 CFR 1910.1200). The determination of when to test a mixture as a whole and which toxicity tests are appropriate for the product must be made by a health professional, qualified in evaluating toxicological data.

3.3 Acute toxicology testing of water-miscible metalworking fluids consists of several individual tests including acute oral, dermal, or inhalation toxicity, eye irritation, skin irritation or corrosion, or both, skin sensitization, and sensory irritation. Certain protocols for acute oral, dermal, and inhalation toxicity

¹ This test method is under the jurisdiction of ASTM Committee E-34 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 *Annual Book of ASTM Standards*, Vol 11.05.

³ Available from Supt. of Documents, U. S. Government Printing Office, Washington, DC 20402.