



Standard Guide for Risk Characterization of Acute and Irritant Effects of Short-Term Exposure to Volatile Organic Chemicals Emitted from Bedding Sets¹

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1. Scope

1.1 This guide provides guidance to individuals and organizations for conducting risk characterization of exposure to volatile organic chemicals (VOCs) emitted from bedding sets or an ensemble of a mattress and supporting box spring.

1.2 This guide is for risk characterization of short-term exposures to a new bedding set brought into a residential indoor environment. The risk characterization considerations presented in this guide are applicable to both the general population and sensitive subgroups, such as convalescing adults.

1.3 The risk characterization addressed in this guide is limited to acute health and irritation effects resulting from short-term exposure to VOCs in indoor air. Although certain procedures described in this guide may be applicable to assessing long-term exposure, the guide does not address cancer and other chronic health effects.

1.4 VOC emissions from bedding sets, as in the case of other household furnishings, usually are highest when the products are new. A used bedding set may also emit VOCs, either from the original materials or as a result of its use. The procedures presented in this guide also are applicable to used bedding sets.

1.5 Risk characterization procedures described in this guide should be carried out under the supervision of a qualified toxicologist or risk assessment specialist, or both.

1.6 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.7 *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 its use.*

¹ This guide is under the jurisdiction of ASTM Committee D22 on Air Quality and is the direct responsibility of Subcommittee D22.05 on Indoor Air.

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2. Referenced Documents

2.1 ASTM Standards:²

D1356 Terminology Relating to Sampling and Analysis of Atmospheres

D6177 Practice for Determining Emission Profiles of Volatile Organic Chemicals Emitted from Bedding Sets

D6178 Practice for Estimation of Short-term Inhalation Exposure to Volatile Organic Chemicals Emitted from Bedding Sets

E609 Terminology Relating to Pesticides

E943 Terminology Relating to Biological Effects and Environmental Fate

E1542 Terminology Relating to Occupational Health and Safety

2.2 Government Standards:³

EPA 600/R 92/047 Reference Guide to Odor Thresholds for Hazardous Air Pollution in the Clean Air Act Amendments of 1990

16 CFR 1500 Federal Hazardous Substances Act Regulations

29 CFR 1910 Safety and Health Standards for General Industry

3. Terminology

3.1 *Definitions*—For definitions of terms used in this guide, refer to Terminology D1356.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *acute exposure guideline levels (AEGs), n*—represent short-term threshold or ceiling exposure values intended for the protection of the general public, including susceptible or sensitive individuals, but not hypersusceptible or hypersensitive individuals (**1**).⁴

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 Available from U.S. Government Printing Office Superintendent of Documents, 732 N. Capitol St., NW, Mail Stop: SDE, Washington, DC 20401, <http://www.access.gpo.gov>.

⁴ The boldface numbers in parentheses refer to the list of references at the end of this standard.