



## Standard Terminology Relating to Occupational Health and Safety<sup>1</sup>

This standard is issued under the fixed designation E 1542; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

### 1. Scope

1.1 The terms in this standard are used in the fields of occupational health and of safety. The terms are used to describe the limits of exposure under different conditions, the meanings of terms used in describing events and the types of items measured. They will commonly be used to express the effect of an event or the limit of a chemical exposure on human beings.

### 2. Referenced Documents

#### 2.1 ASTM Standards:

- E 591 Practice for Safety and Health Requirements Relating to Occupational Exposure to Ozone<sup>2</sup>
- E 752 Practice for Safety and Health Requirements Relating to Occupational Exposure to Carbon Disulfide<sup>2</sup>
- E 848 Guide for Safety and Health Requirements Relating to Occupational Exposure to Water-Insoluble Chromates<sup>3</sup>
- E 849 Practice for Safety and Health Requirements Relating to Occupational Exposure to Asbestos<sup>2</sup>
- E 1132 Practice for Health Requirements Relating to Occupational Exposure to Quartz Dust<sup>2</sup>
- E 1156 Practice for Health Requirements for Occupational Exposure to Synthetic Amorphous Silica<sup>2</sup>

### 3. Terminology

#### 3.1 Generic Terms and their Definitions:

3.1.1 *ceiling limit*—an exposure which shall not be exceeded during any part of the workday. If instantaneous monitoring is not feasible, then the ceiling limit shall be assessed as a 15-min time-weighted average exposure which shall not be exceeded at any time over a working day except for substances which cause immediate irritation upon short exposure.

3.1.2 *occupational exposure limit XXXXX*, “generic”—the maximum time weighted average (TWA) concentration to which nearly all workers may be repeatedly subjected for a normal 8- to 10-h workday, 40-h workweek without known adverse health effects.

3.1.3 *short-term exposure limit (STEL)*—the 15-min time-weighted average exposure which shall not be exceeded at any time during a work day, even if the Occupational Exposure Limit is not exceeded. Exposures above the Occupational Exposure Limit up to the STEL should not be longer than 15 min and should not occur more than 4 times per day. The minimum interval between these exposures should be 60 min.

3.1.3.1 *Discussion*—The phrase “nearly all workers” only excludes those who are hyper-sensitive to substance exposure or who have known medical conditions which may be aggravated by substance exposure. Thus most workers are included in the group in which no adverse health effects are expected. The phrase “a normal 8 to 10 h workday, 40-h workweek” refers to the type of work being done, that is, what is usually done from one week to the next or one day to the next. It does not refer to length of working time as being the major consideration.

The following specified periods of time must be addressed either by determining a value or by stating the “time” is not addressed:

- a) workday (number of hours specified)
- b) workweek (number of hours specified)
- c) lifetime (that is, cumulative)
- d) very short term maximum (for example, short-term exposure limit, ceiling, etc.)

Other specified periods of time may be addressed.

#### 3.2 Terminology Based on Existing E-34 Standards:

3.2.1 *occupational exposure limit to asbestos*—the maximum time weighted average (TWA) number of asbestiform fibers to which nearly all workers may be repeatedly subjected over a normal day or a 40-h week and the peak number of asbestiform fibers to which an individual may be subjected during 15 min or less, without known adverse health effects. Lifetime exposure is based on 99 % probability of protecting all workers from acquiring clinically significant disease for a working life of 50 years.

**E 849**

3.2.2 *occupational exposure limit to carbon disulfide*—the maximum time weighted average (TWA) of carbon disulfide to which nearly all workers may be repeatedly subjected over a normal 8-h day or a 40-h week, the ceiling concentration of carbon disulfide or the maximum peak above ceiling concentration of carbon disulfide that cannot be exceeded, without known adverse health effects. Lifetime exposure is undefined.

**E 752**

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<sup>2</sup> *Annual Book of ASTM Standards*, Vol 11.03.

<sup>3</sup> *Annual Book of ASTM Standards*, Vol 06.01.

3.2.3 *occupational exposure limit to ozone*—the maximum time weighted average (TWA) of ozone to which nearly all workers may be repeatedly subjected over a normal 8-h day or a 40-h week or the ceiling limit of ozone that cannot be exceeded, without known adverse health effects. Lifetime exposure is undefined. **E 591**

3.2.4 *occupational exposure limit to quartz dust*—the maximum time weighted average (TWA) concentration of respirable quartz particles to which nearly all workers may be repeatedly subjected over a normal 10-h day or a 40-h week without known adverse health effects. Ceiling and lifetime exposures are undefined. **E 1132**

3.2.5 *occupational exposure limit to synthetic amorphous silica*—the maximum time weighted average (TWA) concentration of respirable synthetic amorphous silica to which nearly all workers may be repeatedly subjected over a normal 8-h day

or a 40-h week without known adverse health effects. Ceiling and lifetime exposures are undefined. **E 1156**

3.2.6 *occupational exposure limit to water-insoluble chromates*—the maximum time weighted average (TWA) concentration of water-insoluble chromates as chromium to which nearly all workers may be repeatedly subjected over a normal 8-h day or a 40-h week without known adverse health effects. Ceiling and lifetime exposures are undefined. **E 848**

#### **4. Bibliography**

Code of Federal Regulations (CFR)—29 CFR 1910.1000 (US) Threshold Limit Values and Biological Exposure Indices—American Conference of Governmental Industrial Hygienists

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