



Standard Guide for Medical Surveillance Program for Workers with Occupational Exposure to Respirable Silicon Carbide Whiskers¹

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1. Scope

1.1 This guide covers a recommended medical surveillance program for workers with potential for routine occupational exposure to airborne respirable silicon carbide (SiC) whiskers at or above the exposure limits specified in Practices E 1435 and E 1437. Airborne respirable SiC whiskers are considered a potential health hazard.

1.2 The examinations recommended in this guide are not intended to replace existing medical examinations offered by an employer, but should supplement existing examinations in order to evaluate pulmonary function and disease.

1.3 The medical surveillance program is intended to establish baseline values prior to occupational exposure to airborne respirable silicon carbide whiskers and to establish periodic monitoring.

1.4 Application of this guide may be superseded by future governmental regulations.

1.5 *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 1435 Practice for Handling Densified Articles of Aluminum Oxide Reinforced with Silicon Carbide Whiskers²

E 1437 Practice for Handling Respirable Silicon Carbide Whiskers²

2.2 Other Documents:

U. S. Code of Federal Regulations (CFR), 29 CFR 1910.1001, Appendix D, Appendix E Occupational Safety and Health Standard for Asbestos³

Centers for Disease Control/National Institute for Occupa-

tional Safety and Health(CDC/NIOSH) CDC/NIOSH (M) 2.8 form⁴

International Labor Organization (ILO) ILO-U/C International Classification of Radiographs for Pneumoconioses, 1980⁵

3. Terminology

3.1 Definitions:

3.1.1 *aspect ratio, n*—ratio of whisker length to whisker diameter

3.1.2 *respirable silicon carbide whiskers, n*—a crystalline silicon carbide fiber, approximately cylindrical in shape, with a diameter less than 3.0 μm and an aspect ratio equal to or greater than 5:1.

4. Significance and Use

4.1 Workers may be exposed to respirable SiC whiskers during handling, processing, or use of SiC whiskers or powdered blends containing SiC whiskers. Exposure may also occur during (re)finishing of consolidated or densified articles when respirable SiC whiskers are released.

4.2 Workers with occupational exposure at or above the exposure limits specified in Practices E 1435 and E 1437 should be included in an ongoing medical surveillance program to ascertain what, if any, health effects may have occurred due to this exposure.

4.3 This guide provides recommendations for preplacement, periodic, and exit medical examinations for exposed workers. It also provides guidance for producing both initial and periodic medical questionnaires.

4.4 This guide is intended for use by human resources personnel as well as health and safety professionals who establish medical surveillance programs.

5. Medical Surveillance Program

5.1 A medical surveillance program should be established to determine what, if any, health effects a worker may have incurred due to occupational exposure to respirable SiC whiskers.

¹ This guide is under the jurisdiction of ASTM Committee E-34 on Occupational Health and Safety and is the direct responsibility of Subcommittee E34.70 on Single Crystal Ceramic Whiskers. Originally published as E 1576 - 93. Last previous edition E 1576- 94.

² *Annual Book of ASTM Standards*, Vol 11.03.

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

⁴ Available from U.S. HHS Centers for Disease Control/National Institute for Occupational Safety and Health, Cincinnati, OH.

⁵ Available from International Labour Office, Geneva, Switzerland.

