



🔍 Regulations (Standards - 29 CFR) - Table of Contents

- **Part Number:** 1910
- **Part Title:** Occupational Safety and Health Standards
- **Subpart:** Z
- **Subpart Title:** Toxic and Hazardous Substances
- **Standard Number:** 1910.1043
- **Title:** Cotton dust.
- **Appendix:** A, B-I, B-II, B-III, C, D, E
- **GPO Source:** e-CFR

1910.1043(a)

Scope and application.

1910.1043(a)(1)

This section, in its entirety, applies to the control of employee exposure to cotton dust in all workplaces where employees engage in yarn manufacturing, engage in slashing and weaving operations, or work in waste houses for textile operations.

1910.1043(a)(2)

This section does not apply to the handling or processing of woven or knitted materials; to maritime operations covered by 29 CFR Parts 1915 and 1918; to harvesting or ginning of cotton; or to the construction industry.

1910.1043(a)(3)

Only paragraphs (h) Medical surveillance, (k)(2) through (4) Recordkeeping - Medical Records, and Appendices B, C and D of this section apply in all work places where employees exposed to cotton dust engage in cottonseed processing or waste processing operations.

1910.1043(a)(4)

This section applies to yarn manufacturing and slashing and weaving operations exclusively using washed cotton (as defined by paragraph (n) of this section) only to the extent specified by paragraph (n) of this section.

1910.1043(a)(5)

This section, in its entirety, applies to the control of all employees exposure to the cotton dust generated in the preparation of washed cotton from opening until the cotton is thoroughly wetted.

1910.1043(a)(6)

This section does not apply to knitting, classing or warehousing operations except that employers with these operations, if requested by NIOSH, shall grant NIOSH access to their employees and workplaces for exposure monitoring and medical examinations for purposes of a health study to be performed by NIOSH on a sampling basis.

1910.1043(b)

Definitions. For the purpose of this section:

Assistant Secretary means the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or designee;

Blow down means the general cleaning of a room or a part of a room by the use of compressed air.

Blow off means the use of compressed air for cleaning of short duration and usually for a specific machine or any portion of a machine.

Cotton dust means dust present in the air during the handling or processing of cotton, which may contain a mixture of many substances including ground up plant matter, fiber, bacteria, fungi, soil, pesticides, non-cotton plant matter and other contaminants which may have accumulated with the cotton during the growing, harvesting and subsequent processing or storage periods. Any dust present during the handling and processing of cotton through the weaving or knitting of fabrics, and dust present in other operations or manufacturing processes using raw or waste cotton fibers or cotton fiber byproducts from textile mills are considered cotton dust within this definition. Lubricating oil mist associated with weaving operations is not considered cotton dust.

Director means the Director of the National Institute for Occupational Safety and Health (NIOSH), U.S. Department of Health and Human Services, or designee.

Equivalent Instrument means a cotton dust sampling device that meets the vertical elutriator equivalency requirements as described in paragraph (d)(1)(iii) of this section.

Lint-free respirable cotton dust means particles of cotton dust of approximately 15 micrometers or less aerodynamic equivalent diameter;

Vertical elutriator cotton dust sampler or *vertical elutriator* means a dust sampler which has a particle size cut-off at approximately 15 micrometers aerodynamic equivalent diameter when operating at the flow rate of 7.4 + or - 0.2 liters of air per minute;

Waste processing means waste recycling (sorting, blending, cleaning and willowing) and garnetting.

Yarn manufacturing means all textile mill operations from opening to, but not including, slashing and weaving.

1910.1043(c)

Permissible exposure limits and action levels -

1910.1043(c)(1)

Permissible exposure limits (PEL).

1910.1043(c)(1)(i)

The employer shall assure that no employee who is exposed to cotton dust in yarn manufacturing and cotton washing operations is exposed to airborne concentrations of lint-free respirable cotton dust greater than 200 ug/m³ mean concentration, averaged over an eight-hour period, as measured by a vertical elutriator or an equivalent instrument.

1910.1043(c)(1)(ii)

The employer shall assure that no employee who is exposed to cotton dust in textile mill waste house operations or is exposed in yarn manufacturing to dust from "lower grade washed cotton" as defined in paragraph (n)(5) of this section is exposed to airborne concentrations of lint-free respirable cotton dust greater than 500 ug/m³ mean concentration, averaged over an eight-hour period, as measured by a vertical elutriator or an equivalent instrument.

1910.1043(c)(1)(iii)

The employer shall assure that no employee who is exposed to cotton dust in the textile processes known as slashing and weaving is exposed to airborne concentrations of lint-free respirable cotton dust greater than 750 ug/m³ mean concentration, averaged over an eight hour period, as measured by a vertical elutriator or an equivalent instrument.

1910.1043(c)(2)

Action levels.

1910.1043(c)(2)(i)

The action level for yarn manufacturing and cotton washing operations is an airborne concentration of lint-free respirable cotton dust of 100 ug/m³ mean concentration, averaged over an eight-hour period, as measured by a vertical elutriator or an equivalent instrument.

1910.1043(c)(2)(ii)

The action level for waste houses for textile operations is an airborne concentration of lint-free respirable cotton dust of 250 ug/m³ mean concentration, averaged over an eight-hour period, as measured by a vertical elutriator or an equivalent instrument.

1910.1043(c)(2)(iii)

The action level for the textile processes known as slashing and weaving is an airborne concentration of lint-free respirable cotton dust of 375 ug/m³ mean concentration, averaged over an eight-hour period, as measured by a vertical elutriator or an equivalent instrument.

1910.1043(d)

Exposure monitoring and measurement -

1910.1043(d)(1)

General.

1910.1043(d)(1)(i)

For the purposes of this section, employee exposure is that exposure which would occur if the employee were not using a respirator.

1910.1043(d)(1)(ii)

The sampling device to be used shall be either the vertical elutriator cotton dust sampler or an equivalent instrument.

1910.1043(d)(1)(iii)

If an alternative to the vertical elutriator cotton dust sampler is used, the employer shall establish equivalency by reference to an OSHA opinion or by documenting, based on data developed by the employer or supplied by the manufacturer, that the alternative sampling devices meets the following criteria:

1910.1043(d)(1)(iii)(A)

It collects respirable particulates in the same range as the vertical elutriator (approximately 15 microns);

1910.1043(d)(1)(iii)(B)

Replicate exposure data used to establish equivalency are collected in side-by-side field and laboratory comparisons; and

1910.1043(d)(1)(iii)(C)

A minimum of 100 samples over the range of 0.5 to 2 times the permissible exposure limit are collected, and 90% of these samples have an accuracy range of plus or minus 25 per cent of the vertical elutriator reading with a 95% confidence level as demonstrated by a statistically valid protocol. (An acceptable protocol for demonstrating equivalency is described in Appendix E of this section.)

1910.1043(d)(1)(iv)

OSHA will issue a written opinion stating that an instrument is equivalent to a vertical elutriator cotton dust sampler if

1910.1043(d)(1)(iv)(A)

A manufacturer or employer requests an opinion in writing and supplies the following information:

1910.1043(d)(1)(iv)(A)(1)

Sufficient test data to demonstrate that the instrument meets the requirements specified in this paragraph and the protocol specified in Appendix E of this section;

1910.1043(d)(1)(iv)(A)(2)

Any other relevant information about the instrument and its testing requested by OSHA; and

1910.1043(d)(1)(iv)(A)(3)

A certification by the manufacturer or employer that the information supplied is accurate, and

1910.1043(d)(1)(iv)(B)

if OSHA finds, based on information submitted about the instrument, that the instrument meets the requirements for equivalency specified by paragraph (d) of this section.

1910.1043(d)(2)

Initial monitoring. Each employer who has a place of employment within the scope of paragraph (a)(1), (a)(4), or (a)(5) of this section shall conduct monitoring by obtaining measurements which are representative of the exposure of all employees to airborne concentrations of lint-free respirable cotton dust over an eight-hour period. The sampling program shall include at least one determination during each shift for each work area.

1910.1043(d)(3)

Periodic monitoring.

1910.1043(d)(3)(i)

If the initial monitoring required by paragraph (d)(2) of this section or any subsequent monitoring reveals employee exposure to be at or below the permissible exposure limit, the employer shall repeat the monitoring for those employees at least annually.

1910.1043(d)(3)(ii)

If the initial monitoring required by paragraph (d)(2) of this section or any subsequent monitoring reveals employee exposure to be above the PEL, the employer shall repeat the monitoring for those employees at least every six months.

1910.1043(d)(3)(iii)

Whenever there has been a production, process, or control change which may result in new or additional exposure to cotton dust, or whenever the employer has any other reason to suspect an increase in employee exposure, the employer shall repeat the monitoring and measurements for those employees affected by the change or increase.

1910.1043(d)(4)

Employee notification.

1910.1043(d)(4)(i)

The employer must, within 15 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to employees.

1910.1043(d)(4)(ii)

Whenever the results indicate that the employee's exposure exceeds the applicable permissible exposure limit specified in paragraph (c) of this section, the employer shall include in the written notice a statement that the permissible exposure limit was exceeded and a description of the corrective action taken to reduce exposure below the permissible exposure limit.

1910.1043(e)

Methods of compliance -

1910.1043(e)(1)

Engineering and work practice controls. The employer shall institute engineering and work practice controls to reduce and maintain employee exposure to cotton dust at or below the permissible exposure limit specified in paragraph (c) of this section, except to the extent that the employer can establish that such controls are not feasible.

1910.1043(e)(2)

Whenever feasible engineering and work practice controls are not sufficient to reduce employee exposure to or below the permissible exposure limit, the employer shall nonetheless institute these controls to reduce exposure to the lowest feasible level, and shall supplement these controls with the use of respirators which shall comply with the provisions of paragraph (f) of this section.

1910.1043(e)(3)

Compliance program.

1910.1043(e)(3)(i)

Where the most recent exposure monitoring data indicates that any employee is exposed to cotton dust levels greater than the permissible exposure limit, the employer shall establish and implement a written program sufficient to reduce exposures to or below the permissible exposure limit solely by means of engineering controls and work practices as required by paragraph (e)(1) of this section.

1910.1043(e)(3)(ii)

The written program shall include at least the following:

1910.1043(e)(3)(ii)(A)

A description of each operation or process resulting in employee exposure to cotton dust at levels greater than the PEL;

1910.1043(e)(3)(ii)(B)

Engineering plans and other studies used to determine the controls for each process;

1910.1043(e)(3)(ii)(C)

A report of the technology considered in meeting the permissible exposure limit;

1910.1043(e)(3)(ii)(D)

Monitoring data obtained in accordance with paragraph (d) of this section;

1910.1043(e)(3)(ii)(E)

A detailed schedule for development and implementation of engineering and work practice controls, including exposure levels projected to be achieved by such controls;

1910.1043(e)(3)(ii)(F)

Work practice program; and

1910.1043(e)(3)(ii)(G)

Other relevant information.

1910.1043(e)(3)(iii)

The employer's schedule as set forth in the compliance program, shall project completion of the implementation of the compliance program no later than March 27, 1984 or as soon as possible if monitoring after March 27, 1984 reveals exposures over the PEL, except as provided in paragraph (m)(2)(ii)(B) of this section.

1910.1043(e)(3)(iv)

The employer shall complete the steps set forth in his program by the dates in the schedule.

1910.1043(e)(3)(v)

Written programs shall be submitted, upon request, to the Assistant Secretary and the Director, and shall be available at the worksite for examination and copying by the Assistant Secretary, the Director, and any affected employee or their designated representatives.

1910.1043(e)(3)(vi)

The written program required under paragraph (e)(3) of this section shall be revised and updated when necessary to reflect the current status of the program and current exposure levels.

1910.1043(e)(4)

Mechanical ventilation. When mechanical ventilation is used to control exposure, measurements which demonstrate the effectiveness of the system to control exposure, such as capture velocity, duct velocity, or static pressure shall be made at reasonable intervals.

1910.1043(f)

Respiratory protection.

1910.1043(f)(1)

General. For employees who are required to use respirators by this section, the employer must provide each employee an appropriate respirator that complies with the requirements of this paragraph. Respirators must be used during:

1910.1043(f)(1)(i)

Periods necessary to install or implement feasible engineering and work-practice controls.

1910.1043(f)(1)(ii)

Maintenance and repair activities for which engineering and work-practice controls are not feasible.

1910.1043(f)(1)(iii)

Work operations for which feasible engineering and work-practice controls are not yet sufficient to reduce employee exposure to or below the permissible exposure limits.

1910.1043(f)(1)(iv)

Work operations specified under paragraph (g)(1) of this section.

1910.1043(f)(1)(v)

Periods for which an employee requests a respirator.

1910.1043(f)(2)

Respirator program.

1910.1043(f)(2)(i)

The employer must implement a respiratory protection program in accordance with § 1910.134(b) through (d) (except (d)(1)(iii)), and (f) through (m), which covers each employee required by this section to use a respirator.

1910.1043(f)(2)(ii)

Whenever a physician determines that an employee who works in an area in which the cotton-dust concentration exceeds the PEL is unable to use a respirator, including a powered air-purifying respirator, the employee must be given the opportunity to transfer to an available position, or to a position that becomes available later, that has a cotton-dust concentration at or below the PEL. The employer must ensure that such employees retain their current wage rate or other benefits as a result of the transfer.

1910.1043(f)(3)

Respirator selection.

1910.1043(f)(3)(i)

Employers must:

1910.1043(f)(3)(i)(A)

Select, and provide to employees, the appropriate respirators specified in paragraph (d)(3)(i)(A) of 29 CFR 1910.134; however, employers must not select or use filtering facepieces for protection against cotton dust concentrations greater than five times (5 x) the PEL.:

1910.1043(f)(3)(i)(B)

Provide HEPA filters for powered and non-powered air-purifying respirators used at cotton dust concentrations greater than ten times (10 x) the PEL.

1910.1043(f)(3)(ii)

Employers must provide an employee with a powered air-purifying respirator (PAPR) instead of a non-powered air-purifying respirator selected according to paragraph (f)(3)(i) of this standard when the employee chooses to use a PAPR and it provides adequate protection to the employee as specified by paragraph (f)(3)(i) of this standard.

1910.1043(g)

Work practices. Each employer shall, regardless of the level of employee exposure, immediately establish and implement a written program of work practices which shall minimize cotton dust exposure. The following shall be included where applicable:

1910.1043(g)(1)

Compressed air "blow down" cleaning shall be prohibited where alternative means are feasible. Where compressed air is used for cleaning, the employees performing the "blow down" or "blow off" shall wear suitable respirators. Employees whose presence is not required to perform "blow down" or "blow off" shall be required to leave the area affected by the "blow down" or "blow off" during this cleaning operation.

1910.1043(g)(2)

Cleaning of clothing or floors with compressed air shall be prohibited.

1910.1043(g)(3)

Floor sweeping shall be performed with a vacuum or with methods designed to minimize dispersal of dust.

1910.1043(g)(4)

In areas where employees are exposed to concentrations of cotton dust greater than the permissible exposure limit, cotton and cotton waste shall be stacked, sorted, baled, dumped, removed or otherwise handled by mechanical means, except where the employer can show that it is infeasible to do so. Where infeasible, the method used for handling cotton and cotton waste shall be the method which reduces exposure to the lowest level feasible.

1910.1043(h)

Medical surveillance -

1910.1043(h)(1)

General.

1910.1043(h)(1)(i)

Each employer covered by the standard shall institute a program of medical surveillance for all employees exposed to cotton dust.

1910.1043(h)(1)(ii)

The employer shall assure that all medical examinations and procedures are performed by or under the supervision of a licensed physician and are provided without cost to the employee.

1910.1043(h)(1)(iii)

Persons other than licensed physicians, who administer the pulmonary function testing required by this section shall have completed a NIOSH-approved training course in spirometry.

1910.1043(h)(2)

Initial examinations. The employer shall provide medical surveillance to each employee who is or may be exposed to cotton dust. For new employees, this examination shall be provided prior to initial assignment. The medical surveillance shall include at least the following:

1910.1043(h)(2)(i)

A medical history;

1910.1043(h)(2)(ii)

The standardized questionnaire contained in Appendix B; and

1910.1043(h)(2)(iii)

A pulmonary function measurement, including a determination of forced vital capacity (FVC) and forced expiratory volume in one second (FEV(1)), the FEV(1)/FVC ratio, and the percentage that the measured values of FEV(1) and FVC differ from the predicted values, using the standard tables in Appendix C. These determinations shall be made for each employee before the employee enters the workplace on the first day of the work week, preceded by at least 35 hours of no exposure to cotton dust. The tests shall be repeated during the shift, no less than 4 and no more than 10 hours after the beginning of the work shift; and, in any event, no more than one hour after cessation of exposure. Such exposure shall be typical of the employee's usual workplace exposure. The predicted FEV(1) and FVC for blacks shall be multiplied by 0.85 to adjust for ethnic differences.

1910.1043(h)(2)(iv)

Based upon the questionnaire results, each employee shall be graded according to Schilling's byssinosis classification system.

1910.1043(h)(3)

Periodic examinations.

1910.1043(h)(3)(i)

The employer shall provide at least annual medical surveillance for all employees exposed to cotton dust above the action level in yarn manufacturing, slashing and weaving, cotton washing and waste house operations. The employer shall provide medical surveillance at least every two years for all employees exposed to cotton dust at or below the action level, for all employees exposed to cotton dust from washed cotton (except from washed cotton defined in paragraph (n)(3) of this section), and for all employees exposed to cotton dust in cottonseed processing and waste processing operations. Periodic medical surveillance shall include at least an update of the medical history, standardized questionnaire (App. B-111), Schilling byssinosis grade, and the pulmonary function measurements in paragraph (h)(2)(iii) of this section.

1910.1043(h)(3)(ii)

Medical surveillance as required in paragraph (h)(3)(i) of this section shall be provided every six months for all employees in the following categories:

1910.1043(h)(3)(ii)(A)

An FEV(1) of greater than 80 percent of the predicted value, but with an FEV(1) decrement of 5 percent or 200 ml. on a first working day;

1910.1043(h)(3)(ii)(B)

An FEV(1) of less than 80 percent of the predicted value; or

1910.1043(h)(3)(ii)(C)

Where, in the opinion of the physician, any significant change in questionnaire findings, pulmonary function results, or other diagnostic tests have occurred.

1910.1043(h)(3)(iii)

An employee whose FEV(1) is less than 60 percent of the predicted value shall be referred to a physician for a detailed pulmonary examination.

1910.1043(h)(3)(iv)

A comparison shall be made between the current examination results and those of previous examinations and a determination made by the physician as to whether there has been a significant change.

1910.1043(h)(4)

Information provided to the physician. The employer shall provide the following information to the examination physician:

1910.1043(h)(4)(i)

A copy of this regulation and its Appendices:

1910.1043(h)(4)(ii)

A description of the affected employee's duties as they relate to the employee's exposure;

1910.1043(h)(4)(iii)

The employee's exposure level or anticipated exposure level;

1910.1043(h)(4)(iv)

A description of any personal protective equipment used or to be used; and

1910.1043(h)(4)(v)

Information from previous medical examinations of the affected employee which is not readily available to the examining physician.

1910.1043(h)(5)

Physician's written opinion.

1910.1043(h)(5)(i)

The employer shall obtain and furnish the employee with a copy of a written opinion from the examining physician containing the following:

1910.1043(h)(5)(i)(A)

The results of the medical examination and tests including the FEV(1), FVC, AND FEV(1)/FVC ratio;

1910.1043(h)(5)(i)(B)

The physician's opinion as to whether the employee has any detected medical conditions which would place the employee at increased risk of material impairment of the employee's health from exposure to cotton dust;

1910.1043(h)(5)(i)(C)

The physician's recommended limitations upon the employee's exposure to cotton dust or upon the employee's use of respirators including a determination of whether an employee can wear a negative pressure respirator, and where the employee cannot, a determination of the employee's ability to wear a powered air purifying respirator; and,

1910.1043(h)(5)(i)(D)

A statement that the employee has been informed by the physician of the results of the medical examination and any medical conditions which require further examination or treatment.

1910.1043(h)(5)(ii)

The written opinion obtained by the employer shall not reveal specific findings or diagnoses unrelated to occupational exposure.

1910.1043(i)

Employee education and training -

1910.1043(i)(1)

Training program.

1910.1043(i)(1)(i)

The employer shall train each employee exposed to cotton dust in accordance with the requirements of this section. The employer shall institute a training program and ensure employee participation in the program.

1910.1043(i)(1)(i)(A)

The acute and long term health hazards associated with exposure to cotton dust;

1910.1043(i)(1)(i)(B)

The names and descriptions of jobs and processes which could result in exposure to cotton dust at or above the PEL.

1910.1043(i)(1)(i)(C)

The measures, including work practices required by paragraph (g) of this section, necessary to protect the employee from exposures in excess of the permissible exposure limit;

1910.1043(i)(1)(i)(D)

The purpose, proper use and limitations of respirators required by paragraph (f) of this section;

1910.1043(i)(1)(i)(E)

The purpose for and a description of the medical surveillance program required by paragraph (h) of this section and other information which will aid exposed employees in understanding the hazards of cotton dust exposure; and

1910.1043(i)(1)(i)(F)

The contents of this standard and its appendices.

1910.1043(i)(1)(ii)

The training program shall be provided prior to initial assignment and shall be repeated annually for each employee exposed to cotton dust, when job assignments or work processes change and when employee performance indicates a need for retraining.

1910.1043(i)(2)

Access to training materials.

1910.1043(i)(2)(i)

Each employer shall post a copy of this section with its appendices in a public location at the workplace, and shall, upon request, make copies available to employees.

1910.1043(i)(2)(ii)

The employer shall provide all materials relating to the employee training and information program to the Assistant Secretary and the Director upon request.

1910.1043(j)

Signs.

1910.1043(j)(1)

The employer shall post the following warning sign in each work area where the permissible exposure limit for cotton dust is exceeded:

DANGER
COTTON DUST
CAUSES DAMAGE TO LUNGS
(BYSSINOSIS)
WEAR RESPIRATORY PROTECTION IN THIS AREA

1910.1043(j)(2)

Prior to June 1, 2016, employers may use the following legend in lieu of that specified in paragraph (j)(1) of this section:

WARNING
COTTON DUST WORK AREA
MAY CAUSE ACUTE OR DELAYED
LUNG INJURY
(BYSSINOSIS)
RESPIRATORS
REQUIRED IN THIS AREA

1910.1043(k)

Recordkeeping -

1910.1043(k)(1)

Exposure measurements.

1910.1043(k)(1)(i)

The employer shall establish and maintain an accurate record of all measurements required by paragraph (d) of this section.

1910.1043(k)(1)(ii)

The record shall include:

1910.1043(k)(1)(ii)(A)

A log containing the items listed in paragraph IV (a) of Appendix A, and the dates, number, duration, and results of each of the samples taken, including a description of the procedure used to determine representative employee exposure;

1910.1043(k)(1)(ii)(B)

The type of protective devices worn, if any, and length of time worn; and

1910.1043(k)(1)(ii)(C)

The names, social security numbers, job classifications, and exposure levels of employees whose exposure the measurement is intended to represent.

1910.1043(k)(1)(iii)

The employer shall maintain this record for at least 20 years.

1910.1043(k)(2)

Medical surveillance.

1910.1043(k)(2)(i)

The employer shall establish and maintain an accurate medical record for each employee subject to medical surveillance required by paragraph (h) of this section.

1910.1043(k)(2)(ii)

The record shall include:

1910.1043(k)(2)(ii)(A)

The name and social security number and description of the duties of the employee;

1910.1043(k)(2)(ii)(B)

A copy of the medical examination results including the medical history, questionnaire response, results of all tests, and the physician's recommendation;

1910.1043(k)(2)(ii)(C)

A copy of the physician's written opinion;

1910.1043(k)(2)(ii)(D)

Any employee medical complaints related to exposure to cotton dust;

1910.1043(k)(2)(ii)(E)

A copy of this standard and its appendices, except that the employer may keep one copy of the standard and the appendices for all employees, provided that he references the standard and appendices in the medical surveillance record of each employee; and

1910.1043(k)(2)(ii)(F)

A copy of the information provided to the physician as required by paragraph (h)(4) of this section.

1910.1043(k)(2)(iii)

The employer shall maintain this record for at least 20 years.

1910.1043(k)(3)

Availability.

1910.1043(k)(3)(i)

The employer shall make all records required to be maintained by paragraph (k) of this section available to the Assistant Secretary and the Director for examination and copying.

1910.1043(k)(3)(ii)

Employee exposure measurement records and employee medical records required by this paragraph shall be provided upon request to employees, designated representatives, and the Assistant Secretary in accordance with 29 CFR 1910.1020(a) through (e) and (g) through (i).

1910.1043(k)(4)

Transfer of records.

1910.1043(k)(4)(i)

Whenever the employer ceases to do business, the successor employer shall receive and retain all records required to be maintained by paragraph (k) of this section.

1910.1043(k)(4)(ii)

The employer shall also comply with any additional requirements involving transfer of records set forth in 29 CFR 1910.1020(h).

1910.1043(l)

Observation of monitoring.

1910.1043(l)(1)

The employer shall provide affected employees or their designated representatives an opportunity to observe any measuring or monitoring of employee exposure to cotton dust conducted pursuant to paragraph (d) of this section.

1910.1043(l)(2)

Whenever observation of the measuring or monitoring of employee exposure to cotton dust requires entry into an area where the use of personal protective equipment is required, the employer shall provide the observer with and assure the use of such equipment and shall require the observer to comply with all other applicable safety and health procedures.

1910.1043(l)(3)

Without interfering with the measurement, observers shall be entitled to:

1910.1043(l)(3)(i)

An explanation of the measurement procedures:

1910.1043(l)(3)(ii)

An opportunity to observe all steps related to the measurement of airborne concentrations of cotton dust performed at the place of exposure; and

1910.1043(l)(3)(iii)

An opportunity to record the results obtained.

1910.1043(m)

Effective date -

1910.1043(m)(1)

General. This section is effective March 27, 1980, except as otherwise provided below.

1910.1043(m)(2)

Startup dates -

1910.1043(m)(2)(i)

Initial monitoring. The initial monitoring required by paragraph (d)(2) of this section shall be completed as soon as possible but no later than March 27, 1980.

1910.1043(m)(2)(ii)

Methods of compliance: engineering and work practice controls.

1910.1043(m)(2)(ii)(A)

The engineering and work practice controls required by paragraph (e) of this section shall be implemented no later than March 27, 1984 except as set forth in paragraph (m)(2)(ii)(B) of this section.

1910.1043(m)(2)(ii)(B)

The engineering and work practice controls required by paragraph (e) of this section shall be implemented no later than March 27, 1986, for ring spinning operations (including only ring spinning and winding, twisting, spooling, beaming and warping following ring spinning) where the operations meet the following criteria:

1910.1043(m)(2)(ii)(B)(1)

The weight of the yarn being run is 100 percent cotton and the average yarn count by weight is 18 or below;

1910.1043(m)(2)(ii)(B)(2)

The average weight of the yarn run is 80 percent or more cotton and the average yarn count by weight is 16 or below; or

1910.1043(m)(2)(ii)(B)(3)

The average weight of the yarn being run is 50 percent or more cotton and the average yarn count by weight is 14 or below:

1910.1043(m)(2)(ii)(C)

When the provisions of paragraph (m)(2)(ii)(B) of this section are being relied upon, the following definitions shall apply:

1910.1043(m)(2)(ii)(C)(1)

The average cotton content shall be determined by dividing the total weight of cotton in the yarns being run by the total weight of all the yarns being run in the relevant work area.

1910.1043(m)(2)(ii)(C)(2)

The average yarn count shall be determined by multiplying the yarn count times the pounds of each particular yarn being run to get the "total hank" for each of the yarns being run in the relevant area. The "total hank" values for all of the yarns being run should then be summed and divided by the total pounds of yarn being run, to produce the average yarn count number for all the yarns being run in the relevant work area.

1910.1043(m)(2)(ii)(D)

Where the provisions of paragraph (m)(2)(ii)(B) of this section are being relied upon, the employer shall update the employer's compliance plan no later than February 13, 1986 to indicate the steps being taken to reduce cotton dust levels to 200 ug/m³ through the use of engineering and work practice controls by March 27, 1986.

1910.1043(m)(2)(ii)(E)

Where the provisions of paragraph (m)(2)(ii)(B) of the section are being relied upon, the employer shall maintain airborne concentrations of cotton dust below 1000 ug/m³ mean concentration averaged over an eight-hour period measured by a vertical elutriator or an equivalent instrument with engineering accuracy and precision with engineering and work practice controls and shall maintain the permissible exposure limit specified by paragraph (c)(1)(i) of this section with any combination of engineering controls, work practice controls and respirators.

1910.1043(m)(2)(iii)

Compliance program. The compliance program required by paragraph (e)(3) of this section shall be established no later than March 27, 1981.

1910.1043(m)(2)(iv)

Respirators. The respirators required by paragraph (f) of this section shall be provided no later than April 27, 1980.

1910.1043(m)(2)(v)

Work practices. The work practices required by paragraph (g) of this section shall be implemented no later than June 27, 1980.

1910.1043(m)(2)(vi)

Medical surveillance. The medical surveillance required by paragraph (h) of this section shall be completed no later than March 27, 1981 for the textile industry and no later than June 13, 1986 for the cotton seed processing and waste processing industry.

1910.1043(m)(2)(vii)

Employee education and training. The initial education and training required by paragraph (i) of this section shall be completed as soon as possible but no later than June 27, 1980.

1910.1043(m)(3)

Amendments. The amendments to this section published on December 13, 1985 become effective on February 11, 1986. If the amendments are not in effect because of stays of enforcement or judicial decisions, the provisions published in 29 CFR 1910.1043 as of July 1, 1985 are effective.

1910.1043(n)

Washed Cotton -

1910.1043(n)(1)

Exemptions. Cotton, after it has been washed by the processes described in this paragraph, is exempt from all or parts of this section as specified if the requirements of this paragraph are met.

1910.1043(n)(2)

Initial requirements.

1910.1043(n)(2)(i)

In order for an employer to qualify as exempt or partially exempt from this standard for operations using washed cotton, the employer must demonstrate that the cotton was washed in a facility which is open to inspection by the Assistant Secretary and the employer must provide sufficient accurate documentary evidence to demonstrate that the washing methods utilized meet the requirements of this paragraph.

1910.1043(n)(2)(ii)

An employer who handles or processes cotton which has been washed in a facility not under the employer's control and claims an exemption or partial exemption under this paragraph, must obtain from the cotton washer and make available at the worksite, to the Assistant Secretary, to any affected employee, or to their designated representative the following:

1910.1043(n)(2)(ii)(A)

A certification by the washer of the cotton of the grade of cotton, the type of washing process, and that the batch meets the requirements of this paragraph;

1910.1043(n)(2)(ii)(B)

Sufficient accurate documentation by the washer of the cotton grades and washing process; and

1910.1043(n)(2)(ii)(C)

An authorization by the washer that the Assistant Secretary or the Director may inspect the washer's washing facilities and documentation of the process.

1910.1043(n)(3)

Medical and dyed cotton. Medical grade (USP) cotton, cotton that has been scoured, bleached and dyed, and mercerized yarn shall be exempt from all provisions of this standard.

1910.1043(n)(4)

Higher grade washed cotton. The handling or processing of cotton classed as "low middling light spotted or better" (color grade 52 or better and leaf grade code 5 or better according to the 1993 USDA classification system) shall be exempt from all provisions of the standard except the requirements of paragraphs (h) medical surveillance, (k)(2) through (4) recordkeeping -- medical records, and Appendices B, C, and D of this section, if they have been washed on one of the following systems:

1910.1043(n)(4)(i)

On a continuous batt system or a rayon rinse system including the following conditions:

1910.1043(n)(4)(i)(A)

With water;

1910.1043(n)(4)(i)(B)

At a temperature of no less than 60 °C;

1910.1043(n)(4)(i)(C)

With a water-to-fiber ratio of no less than 40:1; and

1910.1043(n)(4)(i)(D)

With the bacterial levels in the wash water controlled to limit bacterial contamination of the cotton.

1910.1043(n)(4)(ii)

On a batch kier washing system including the following conditions:

1910.1043(n)(4)(ii)(A)

With water;

1910.1043(n)(4)(ii)(B)

With cotton fiber mechanically opened and thoroughly prewetted before forming the cake;

1910.1043(n)(4)(ii)(C)

For low-temperature processing, at a temperature of no less than 60 °C with a water-to-fiber ratio of no less than 40:1; or, for high-temperature processing, at a temperature of no less than 93 °C with a water-to-fiber ratio of no less than 15:1;

1910.1043(n)(4)(ii)(D)

With a minimum of one wash cycle followed by two rinse cycles for each batch, using fresh water in each cycle, and

1910.1043(n)(4)(ii)(E)

With bacterial levels in the wash water controlled to limit bacterial contamination of the cotton.

1910.1043(n)(4)(iii)

At a temperature of no less than 60 °C,

1910.1043(n)(4)(iv)

With a water-to-fiber ratio of no less than 40:1, and

1910.1043(n)(4)(v)

With bacterial levels in the wash water controlled to limit bacterial contamination of the cotton, shall be exempt from all provisions of the standard except the requirements of paragraphs (h) Medical Surveillance, (k)(2) through (4) Recordkeeping - Medical Records, and Appendices B, C, and D of this section.

1910.1043(n)(5)

Lower grade washed cotton. The handling and processing of cotton of grades lower than "low middling light spotted," that has been washed as specified in paragraph (n)(4) of this section and has also been bleached, shall be exempt from all provisions of the standard except the requirements of paragraphs (c) (1)(ii) Permissible Exposure Limit, (d) Exposure Monitoring, (h) Medical Surveillance, (k) Recordkeeping, and Appendices B, C and D of this section.

1910.1043(n)(6)

Mixed grades of washed cotton. If more than one grade of washed cotton is being handled or processed together, the requirements of the grade with the most stringent exposure limit, medical and monitoring requirements shall be followed.

1910.1043(o)

Appendices.

1910.1043(o)(1)

Appendices B, C, and D of this section are incorporated as part of this section and the contents of these appendices are mandatory.

1910.1043(o)(2)

Appendix A of this section contains information which is not intended to create any additional obligations not otherwise imposed or to detract from any existing obligations.

1910.1043(o)(3)

Appendix E of this section is a protocol which may be followed in the validation of alternative measuring devices as equivalent to the vertical elutriator cotton dust sampler. Other protocols may be used if it is demonstrated that they are statistically valid, meet the requirements in paragraph (d)(l)(iii) of this section, and are appropriate for demonstrating equivalency.

[61 FR 5507, Feb. 13, 1996; 63 FR 1152, Jan. 8, 1998; 65 FR 76567, Dec. 7, 2000; 70 FR 1142, Jan. 5, 2005; 71 FR 16672, April 3, 2006; 71 FR 50189, August 24, 2006; 73 FR 75586, Dec. 12, 2008; 76 FR 33609, June 8, 2011; 77 FR 17782, March 26, 2012]

➤ [Next Standard \(1910.1043 App A\)](#)

➤ [Regulations \(Standards - 29 CFR\) - Table of Contents](#)