



**DEPARTMENT OF LICENSING AND REGULATORY AFFAIRS**  
**DIRECTOR'S OFFICE**  
**OCCUPATIONAL HEALTH STANDARDS**

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by sections 14 and 24 of 1974 PA 154, MCL 408.1001 to 408.1094,  
and Executive Reorganization Order Nos. 1996-1, 1996-2, 2003-1, 2008-4,  
and 2011-4, MCL 330.3101, 445.2001, 445.2011, 445.2025, and 445.2030.)

Rule 3406 of the Michigan Administrative Code is rescinded as follows:

**VENTILATION CONTROLS IN:**

- RULE 3401 APPLICABILITY**
- RULE 3402 PULP, PAPER, AND PAPERBOARD MILLS**
- RULE 3403 TEXTILES**
- RULE 3404 BAKERY EQUIPMENT**

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**RULE 3401 VENTILATION CONTROLS IN APPLICABILITY**

This Part supplements the general occupational health standards of this Chapter in the following industries:

- (1) Pulp, paper, and paperboard mills - Rule 3402. (See also Rule 5001.)
- (2) Textiles - Rule 3403. (See also Rule 5002.)
- (3) Bakery equipment - Rule 3404. (See also Rule 5003.)

(4) Laundry machinery and equipment – Rule 3405. (Rescinded – See General Industry Safety Standard Part 71 “Laundry and Dry Cleaning Machinery and Operations”)

(5) Sawmills - Rule 3406. (Rescinded – See General Industry Safety Standard Part 52 “Sawmills”)

**RULE 3402 VENTILATION CONTROLS IN PULP, PAPER, AND PAPERBOARD MILLS**

(1) Applicability. This rule applies only to those establishments covered by Rule 5001 and supplements general occupational health standards pursuant to Rule 1106(3).

(2) General incorporation of standards. Establishments subject to this section shall comply with the following standards of the American National Standards Institute: [1910.261(a)(3)]

(a) Safety Code for Ventilation and Operation of Open-Surface Tanks, Z9.1-1951. [1910.261(a)(3)(xix)]

(b) Fundamentals Governing the Design and Operation of Local Exhaust Systems, Z9.2-1960. [1910.261(a)(3)(xx)]

(c) Installation of Blower and Exhaust Systems for Dust, Stock, and Vapor Removal or Conveying, Z33.1-1961 [1910.261(a)(3)(xxiii)]

(d) Practices for Respiratory Protection, Z88.2-1969. [1910.261(a)(3)(xxvi)]

(3) Rag and old paper preparation.

(a) Shredders, cutters, and dusters. Hoods of cutters, shredders, and dusters shall have exhaust ventilation, in accordance with American National Standard Z9.2-1960. [1910.261(f)(2)(iv)]

(b) Dust. Measures for the control of dust shall be provided, in accordance with American National Standards Z33.1-1961, Z87.1-1968, and Z88.2-1969. [1910.261(f)(5)]

(4) Chemical processes of making pulp. [1910.261(g)]

(a) Sulfur burners.

(i) Sulfur-burner houses shall be safely and adequately ventilated, and every precaution shall be taken to guard against dust explosion hazards and fires, in accordance with American National Standards Z9.2-1960 and Z12.12-1968. [1910.261(g)(1)(i)]

(ii) Nonsparking tools and equipment shall be used in handling dry sulfur. [1910.261(g)(1)(ii)]

(iii) Sulfur storage bins shall be kept free of sulfur dust accumulation and buildings should be designed with explosion relief, in accordance with American National Standard Z9.2-1960. [1910.261(g)(1)(iii)]

(b) Inspecting and repairing digester. The concentration of lead dust in the air shall not exceed the limits specified in Chapter II. [1910.261(g)(15)(iv)]

(c) Insofar as the processes of the sulfate and soda operations are similar to those of the sulfite processes, paragraph (a) of this subsection shall apply. [1910.261(g)(18)]

(d) Furnace room. Exhaust ventilation shall be provided where niter cake is fed into a rotary furnace and shall be so designed and maintained as to keep the concentration of hydrogen sulfide gas below the parts per million listed in Chapter II. [1910.261(g)(20)]

(e) Inspection and repair of tanks. All piping leading to tanks shall be blanked off or valved and locked or tagged. Any lines to sewers shall be blanked off to protect workers from air contaminants. [1910.261(g)(21)]

(5) Bleaching.

(a) Bleach-mixing rooms.

(i) The room in which the bleach powder is mixed shall be provided with adequate exhaust ventilation, located at the floor level, in accordance with American National Standard Z9.1-1951. [1910.261(h)(2)(i)]

(ii) Chlorine gas shall be carried away from the work place and breathing area by an exhaust system. The gas shall be rendered neutral or harmless before being discharged into the atmosphere. The requirements of American National Standard Z9.2-1960 shall apply to this subdivision. [1910.261(h)(2)(ii)]

(b) Liquid chlorine. Tanks of liquid chlorine shall be stored in an adequately ventilated unoccupied room, where their possible leakage cannot affect workers. [1910.261(h)(3)(i)]

(6) Vessel entry. See Rule 3303(3) for specific vessel entry procedures supplementing the general procedures of Rules 3301 and 3302.

## **RULE 3403 VENTILATION CONTROLS IN TEXTILES**

(1) Applicability. This rule applies only to those establishments and processes subject to Rule 5002 and supplements the general occupational health standards pursuant to Rule 1106(3).

(2) Slashers.

(a) A "slasher" is a machine used for applying a size mixture to warp yarns. Essentially, it consists of a stand for holding section beams, a size box, one or more cylindrical dryers or an enclosed hot-air dryer, and a beaming end for finding the yarn on the loom beams. [1910.262(b)(34)]

(b) Cylinder dryers. Cylinder enclosure. When enclosures or hoods are used over cylinder drying rolls, such enclosures or hoods shall be provided with an exhaust system which will effectively prevent wet air and steam from escaping into the workroom. [1910.262(h)(1)(vi)]

(c) Enclosed hot-air dryer. Dryer enclosure. The dryer enclosure shall be provided with an exhaust system which will effectively prevent wet air and steam from escaping into the workroom. [1910.262(h)(2)(iii)]

(3) Continuous bleach range (cotton and rayon).

(a) Ranges (bleaching continuous). "Continuous bleaching ranges" are of several types and may be made for cloth in rope or open-width form. The goods, after wetting out, pass through a squeeze roll into a saturator containing a solution of caustic soda and then to an enclosed J-box. A V-shaped arrangement is attached to the front part of the J-box for uniform and rapid saturation of the cloth with steam before it is packed down in the J-box. The cloth, in a single strand rope form, passes over a guide roll down the first arm of the "V" and up the second.

Steam is injected into the "V" at the upper end of the second arm so that the cloth is rapidly saturated with steam at this point. The J-box capacity is such that cloth will remain hot for a sufficient time to complete the scouring action. It then passes a series of washers with a squeeze roll in between. The cloth then passes through a second set of saturator, J-box, and washer, where it is treated with the peroxide solution. By slight modification of the form of the unit, the same process can be applied to open-width cloth. [1910.262(b)(29)]

(b) J-box protection. Each valve controlling the flow of steam, injurious gases, or liquids into a J-box shall be equipped with a chain, lock, and key, so that any worker who enters the J-box can lock the valve and retain the key in his possession. Any other method which will prevent steam, injurious gases, or liquids from entering the J-box while the worker is in it will be acceptable. [1910.262(p)(1)]

(4) Kiers.

(a) A "kier" is a large metal vat, usually a pressure type, in which fabrics may be boiled out, bleached, etc. [1910.262(b)(17)]

(b) Kier valve protection. Each valve controlling the flow of steam, injurious gases, or liquids into a kier shall be equipped with a chain, lock, and key, so that any worker who enters the kier can lock the valve and retain the key in his possession. Any other method which will prevent steam, injurious gases, or liquids from entering the kier while the worker is in it will be acceptable.

(5) Workroom ventilation. In all workrooms in which potentially toxic substances are used, the maximum allowable concentrations listed in Chapter II shall be maintained. Open-surface tanks shall conform to the requirements of Rule 3220. [1910.262(rr)]

## **RULE 3404 VENTILATION CONTROLS IN BAKERY EQUIPMENT**

(1) Applicability. This rule applies to all equipment, processes and establishments subject to Rule 5003.

(2) Definitions applicable to this rule.

(a) Direct-fired ovens. Direct-fired ovens are ovens which burn fuel directly inside the baking chamber. [1910.263(b)(8)]

(b) Direct-recirculating ovens. Direct-recirculating ovens are ovens which have heating systems consisting of one or more heaters (located inside or outside the baking chamber), each heater being equipped with a burner, the products of combustion of which are mixed with spent gases returned from the oven. Combustion gases are circulated through the heater and oven chamber by a fan. An overflow or vent removes part of the spent combustion gases to compensate for fresh combustion gases added by the burner. [1910.263(b)(9)]

(c) Flue-type ovens. Flue-type ovens are ovens which burn fuel in a furnace which is connected through flues which carry the combustion gases to a stack. [1910.263(b)(10)]

(d) Indirect multiple-burner ovens. Indirect multiple-burner ovens are ovens which are heated by burners (usually gas) which are totally enclosed in such a way that unburned gases or products of combustion cannot enter the baking chamber. [1910.263(b)(11)]

(e) Steam-tube ovens. Steam-tube ovens are ovens which are heated by a group of tubes which are partially filled with liquid and sealed at both ends. A small part of each tube is exposed to the heat of a furnace and the larger part placed inside the baking chamber. Heat is transmitted by evaporating liquid in the furnace and of the tube. Steam thus formed travels to the other end of the tube where the steam condenses and returns to the furnace by gravity. [1910.263(b)(12)]

(f) Indirect-recirculating ovens. Indirect-recirculating ovens are ovens which are equipped with a gas-tight duct system, a furnace, and a circulating fan. Gases of combustion are circulated through this enclosed system and mixed with fresh combustion gases generated by the burner in the combustion chamber. A vent or overflow removes a portion of the gases to compensate for the fresh gases added by the burner. No unburned gases or products of combustion have access to the baking chamber. [1910.263(b)(13)]

(g) Electric ovens. Electric ovens are ovens which are heated entirely by passing an electric current through resistance elements. [1910.263(b)(14)]

(3) Flour-handling equipment.

(a) Dumpbin and blender. The term "dumpbin" and "blender" applies to those elements of a flour-handling system in which flour in bags is first emptied for distribution. [1910.263(b)(1)]

(b) All dumpbin and blender hoods shall be of sufficient capacity to prevent circulation of flour dust outside the hoods. [1910.263(d)(3)(v)]

(4) Miscellaneous equipment.

(a) Pan-washing tanks. Power-ventilated exhaust hoods shall be provided over the tanks. [1910.263(i)(15)(v)]

(b) Doughnut machines. Separate flues shall be provided.

(i) For venting vapors from the frying section, and [1910.263(i)(22)(i)]

(ii) For venting products of combustion from the combustion chamber used to heat the fat. [1910.263(i)(22)(ii)]

(5) Biscuit and cracker equipment. Sugar and spice pulverizers. All drive belts used in connection with sugar and spice pulverizers shall be grounded by means of metal combs or other effective means of removing static electricity. All pulverizing of sugar or spice grinding shall be done in accordance with NFPA 62-1967 (Standard for Dust Hazards of Sugar and Cocoa) and NFPA 656-1959 (Standard for Dust Hazards in Spice Grinding Plants). [1910.263(k)(2)]

**Rule 3405 Rescinded.**

**Rule 3406 Rescinded.**



Michigan Occupational Safety and Health Administration  
PO Box 30643  
Lansing, Michigan 48909-8143  
Ph: 517.322.1845

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