DEPARTMENT OF LABOR AND ECONOMIC GROWTH

DIRECTOR'S OFFICE

OCCUPATIONAL HEALTH STANDARDS

(By authority conferred on the director of the department of labor and economic growth by sections 14 and 24 of 1974 PA 154 and Executive Reorganization Order Nos. 1996-1, 1996-2, and 2003-18, MCL 408.1014, 408.1024, 330.3101, 445.2001, and 445.2011)

PART 520. VENTILATION CONTROL

R 325.52001 Scope; applicability; replacement of O.H. rules.

Rule 1. (1) These rules apply to all processes and places of employment.

(2) These rules replace O.H. rule 3101.

History: 2005 AACS.

R 325.52002 Reference of standards.

Rule 2. The following Michigan occupational safety and health standards are referenced in these rules. Up to 5 copies of these standards may be obtained at no charge from the Michigan Department of Labor and Economic Growth, MIOSHA Standards Section, 7150 Harris Drive, P.O. Box 30643,

Lansing, Michigan,48909-8143 or via the internet at web-site:www.michigan.gov/mioshastandards. For quantities greater than 5, the cost, at the time of adoption of these rules, is 4 cents per page.

(a) Part 301. Air Contaminants, R 325.51101 et seq.

(b) Part 526. Open Surface Tanks, Rule 3220 et seq.

(c) Part 528. Spray Finishing Operations, Rule 3235 et seq.

History: 2005 AACS.

R 325.52003 Definitions.

Rule 3. As used in these rules:

(a) "Aerosol" means particulate matter suspended in air.

(b) "Contaminant" means an airborne material capable of causing occupational disease or significant physiological disturbances to a person, and includes but is not limited to, the substances listed in Part 301. Air Contaminants, R 325.51101 et seq.

(c) "Control" means the limitation of worker exposure to contaminant levels not exceeding the exposure limits as set forth in Part 301. Air Contaminants, R 325.51101 et seq.

(d) "Controlled process" means an arrangement of equipment to control the contaminant by means of suitable design measures.

(e) "Enclosure" means a room, booth, or exhaust hood that confines contaminants at their sources.

(f) "Gas" means a normally formless fluid which occupies a space or enclosure and which can be changed to the liquid or solid state by the effect of increased pressure or decreased temperature, or both.

(g) "General ventilation" means the supply and removal of air from a space to dilute or remove contaminants.

(h) "Local exhaust ventilation system" means an arrangement of exhaust hoods, ducts, and fans that removes air to control a contaminant at its source.

(i) "Mg/m3" means milligrams of particulate per cubic meter of air.

(j) "Mppcf" means millions of particulates per cubic foot of air based on impinger samples counted by light field microscopic techniques.

(k) "Ppm" means parts of vapor or gas per million parts of air by volume at 25 degrees Celsius and 760 millimeters of mercury pressure.

(l) "Permissible exposure limits" means the exposure limits as set forth in Part 301. Air Contaminants, R 325.51101 et seq.

(m) "Process space" means a tunnel, process equipment, shaft, or enclosed space.

(n) "Source" means a process or equipment which releases a contaminant into the air in concentrations exceeding the permissible exposure limits.

(o) "Supply ventilation system" means an arrangement of inlet openings or equipment to introduce outside air into the working environment.

(p) "Vapor" means the gaseous state of a substance.

History: 2005 AACS.

R 325.52004 Control methods for enclosures and controlled processes.

Rule 4. (1) An employer shall ensure that an enclosure is provided at a stationary source unless the omission of the enclosure does not impair control.

(2) A controlled process shall be designed and regulated to prevent the creation of a hazard to health or life. If the director determines that there may be an immediate danger to health or life due to the failure of the process design or regulatory device, then he or she may require that the process fail-safe in such manner to avert the hazard.

History: 2005 AACS.

R 325.52005 Supply ventilation systems.

Rule 5. (1) A supply ventilation system shall be provided to ensure a flow of air into the working environment to equally replace the volume of air exhausted.

(2) A mechanical air supply system shall be provided if its absence will result in building negative pressures sufficient to cause backdrafting of vents from fuel-fired equipment or ineffective control.

(3) Mechanical air supply volumes shall be heated to maintain a minimum air temperature of 65 degrees Fahrenheit measured at the point of air discharge to the space. Exceptions to this requirement are refrigerated storage rooms, special process rooms, and similar locations where low air

temperatures are essential to the preservation of the product or service, or, if in the opinion of the director, a lower air temperature will not be harmful to the health of the persons affected.

(4) Make-up air for spray-finishing operations shall be as prescribed in Part 528. Spray-Finishing Operations, O.H. rule 3235(9) Make-up air.

(5) Make-up air for open surface tanks shall be as prescribed in Part 526.Open-surface Tanks, O.H. rule 3220(8)(c).

History: 2005 AACS.

R 325.52006 Direct-fired air heaters.

Rule 6. (1) A direct-fired air heater, wherein combustion products are released in the supply air stream, may be installed in buildings of industrial occupancy, garages, laundries, and commercial kitchens. They shall not be installed in offices, schools, hospitals, and places of public assembly.

(2) A direct-fired air heater shall have an inlet duct connected directly to the out-of-doors. Room air shall not be circulated across the burner.

(3) A direct-fired air heater shall deliver air which contains not more than 10 ppm of carbon monoxide and is free from odors of combustion products. Permissible concentrations of other contaminants in the delivered air may be established by the director pursuant to their permissible exposure limits and the degree of exposure to a person.

(4) The air volume supplied to the building by a direct-fired air heater shall not exceed 110% of the total air volume exhausted. The director may require interlocking of a heater control system with an

exhaust ventilation system if necessary to ensure that the exhaust systems are operating.

(5) A direct-fired air heater shall have both of the following:

(a) A pre-ignition purge of fresh air.

(b) A positive fuel supply closure in the event of fuel supply failure, ignition failure, flame failure, power failure or interruption, or air flow reduction below 50% of its rated capacity.

History: 2005 AACS.

R 325.52007 Exhaust ventilation systems.

Rule 7. The minimum rate of exhaust ventilation for places of manufacturing, processing, assembling, maintenance and repair, or storage of material shall be 1 cubic foot of air per minute per square foot of floor area. This amount of exhaust ventilation may be provided by local exhaust, general exhaust, or both. The

director may permit a variance if contaminant control is accomplished at a lesser rate of ventilation.

History: 2005 AACS.

R 325.52008 Local exhaust ventilation.

Rule 8. (1) Local exhaust ventilation shall be provided at all stationary sources. The director may allow a variance from this subrule if control is accomplished with general ventilation.

(2) If a local exhaust system is used, then the exhaust air volume shall create an indraft air volume at an enclosure, hood, duct, or fan sufficient to control the contaminant.

(3) A local exhaust system shall be designed to capture and control the contaminant. Distribution of exhaust air between various exhaust points may be accomplished by balanced duct design. If balancing gates are used, they shall be locked permanently in place after final adjustment.

(4) The design and construction of a local exhaust ventilation system shall be adequate for the contaminant and conditions of service. A listing of practical ventilation texts and references shall be available from the director upon request. Technical information and experience regarding specific contaminants and control measures may be obtained from the director.

History: 2005 AACS.

R 325.52009 General ventilation systems.

Rule 9. A general ventilation system may be used for contaminant control. The ventilation air volume shall be sufficient to dilute the airborne contaminant to levels not exceeding the permissible exposure limits.

History: 2005 AACS.

R 325.52010 Exhaust system discharge locations.

Rule 10. The discharge locations of local exhaust or general exhaust systems shall not permit exhausted air to re-enter a workroom or other buildings directly, or indirectly, through air supply systems without substantial dilution.

History: 2005 AACS.

R 325.52011 Recirculation of air from exhaust systems.

Rule 11. (1) The recirculation of air containing a contaminant whose permissible exposure limit is equal to or exceeds 1000 ppm, 15 mg/m3, or 50 mppcf, shall be permitted if the exhaust ventilation system is equipped with an air-cleaning

device capable of reducing the contaminant concentrations to 10% or less of their permissible exposure limits in the returned air.

(2) The director may allow the recirculation of air containing a contaminant whose permissible exposure limit is less than 1000 ppm, 15 mg/m3, or 50 mppcf, if the toxicity of the contaminant and the degree of air cleaning to be achieved create an environment which will not impair the health of the workers, and if the contaminant concentrations in the return air shall not exceed 10% of its permissible exposure limits.

(3) A recirculation system shall include an alternate air duct connection to discharge the return air outside of the building if necessary to protect the workers' health.

(4) Spray-finishing operations using flammable and combustible materials shall be as prescribed in Part 528. Spray-Finishing Operations, O.H. rule 3235(6)(j) Air exhaust.

History: 2005 AACS.

R 325.52012 Air pollution control.

Rule 12. A local exhaust and general exhaust ventilation system shall comply with rules adopted by the Michigan Department of Environmental Quality, R 336.1101 to R 336.1910.

History: 2005 AACS.