To Be Rescinded

1301:7-7-19 Organic coatings.

(A) Section FM-1901.0 General

(1) FM-1901.1 Scope: All organic coating processes shall comply with this rule. An organic coating is a liquid mixture of binders such as alkyd, nitrocellulose, acrylic or oil, and flammable and combustible solvents such as hydrocarbon, ester, ketone or alcohol, which, when spread in a thin film, convert to a durable protective and decorative finish.

Exception: This rule shall not apply to processes manufacturing nonflammable or water-thinned coatings or operations applying coating materials.

(2) F-1901.2 ~~Permit~~ APPROVAL required: ~~A permit~~ APPROVAL shall be required for any organic coating manufacturing operation producing more than 1 gallon ~~(0.00379 m^3)~~ (4 L) of an organic coating in one day.

(B) Section FM-1902.0 Fire safety requirements

(1) FM-1902.1 General: Structures and their service equipment shall be maintained in a safe and sound condition in accordance with this code and NFPA 35 listed in rule 1301:7-7-44 of the Administrative Code.

(2) FM-1902.2 Fire protection systems: All fire protection systems shall be maintained, periodically inspected and tested in accordance with rule 1301:7-7-05 of the Administrative Code.

(3) F-1902.3 Portable fire extinguishers: At least one portable fire extinguisher with a minimum 40-B:C rating shall be located within 30 feet (9144 mm) of travel distance from the organic coating area.

(4) F-1902.4 Open flames: Open flames and direct-fired heating devices shall be prohibited in areas where flammable vapor-air mixtures exist.

(5) FM-1902.5 Smoking: Smoking shall be prohibited in accordance with paragraph (L)(F-312.0) of rule 1301:7-7-03 of the Administrative Code.

(6) F-1902.6 Access: Adequate aisles shall be maintained for the unobstructed movement of personnel and fire suppression equipment.

(7) F-1902.7 Power equipment: Power-operated equipment and industrial trucks shall be of a type approved for the location.

(8) F-1902.8 Maintenance: The cleaning of tanks and vessels that have contained flammable or combustible liquids shall be performed under the supervision of persons knowledgeable of the fire and explosion potential.

(a) F-1902.8.1 Repairs: Where necessary to make repairs involving hot work, the work shall be authorized by the responsible individual before the work begins.

(b) F-1902.8.2 Confined space entry: Where necessary to enter a tank, pit, manhole or other confined space, such entry shall be authorized by the responsible individual.

(c) F-1902.8.3 Empty containers: Empty flammable or combustible liquid containers shall be removed to a detached, outside location and, if not cleaned on the premises, the empty containers shall be removed from the plant as soon as practical.

(9) F-1902.9 Drainage: Drainage facilities shall be provided to direct flammable and combustible liquid leakage and fire protection water to a safe location away from the building, any other structure, storage area or adjoining premises.

F-1902.9.1 Traps: Emergency drainage systems containing flammable and combustible liquids connected to public sewers or that discharge into public waterways shall be equipped with traps or separator tanks.

(C) Section FM-1903.0 Electrical equipment and protection

(1) FM-1903.1 Wiring and equipment: Electrical wiring and equipment shall comply with this rule and shall be installed in accordance with NFPA 70 listed in rule 1301:7-7-44 of the Administrative Code.

(2) F-1903.2 Hazardous locations: Where class I liquids are exposed to the air, the design of equipment and ventilation of structures shall be ~~such~~ SO as to limit the class I, ~~Division~~ division 1, locations to the following:

(a) Pits.

(b) The interior of equipment~~.~~; AND

(c) The immediate vicinity of pumps or equipment locations, such as dispensing stations, open centrifuges, plate and frame filters, opened vacuum filters, change cans and the surfaces of open equipment. The immediate vicinity shall include a zone extending from the vapor liberation point 20 feet (6096 mm) horizontally in all directions and vertically from the floor to a level 6 feet (1829 mm) above the highest point of vapor liberation.

(i) FM-1903.2.1 Other locations: All locations WHERE CLASS I LIQUIDS ARE HANDLED, except locations indicated in paragraph (C)(2)(F-1903.2) of this rule, ~~where Class I liquids are handled~~ shall be class I, division 2.

Exception: Where the flash point of the liquid processed is higher than the ambient temperature and is at least 100 degrees F. (38 degrees C.), ordinary electrical equipment shall be permitted to be utilized where all of the electrical apparatus is located to prevent hot metal from falling into the open processing equipment.

(ii) F-1903.2.2 Ordinary equipment: Ordinary electrical equipment, including switch gear, is prohibited, except where installed in a room maintained under positive pressure with respect to the hazardous area, and the air or other media utilized for pressurization shall be obtained from a source that will not cause any amount or type of flammable vapor to be introduced into the room.

(3) F-1903.3 Bond: All equipment such as tanks, machinery and piping, shall be bonded and connected to a ground where an ignitable mixture is capable of being present. The electrically conductive path shall have a resistance of not more than 1,000,000 ohms.

(i) F-1903.3.1 Piping: Electrically isolated sections of metallic piping or equipment shall be grounded or bonded to the other portions of the system.

(ii) F-1903.3.2 Vehicles: Tank vehicles loaded or unloaded through open connections shall be grounded and bonded to the receiving system.

(iii) F-1903.3.3 Containers: Where a flammable mixture is transferred from one portable container to another, a bond shall be provided between the two containers.

(4) F-1903.4 Ground: Metal framing of buildings shall be grounded with resistance of not more than 5 ohms.

(D) Section FM-1904.0 Process structures

(1) FM-1904.1 Design: Process structures shall be designed and constructed in accordance with the building code listed in rule 1301:7-7-44 of the Administrative Code and without a basement or pit. The first floor shall be at or above grade.

(2) F-1904.2 Incidental occupancies: An organic coating manufacturing operation shall not be located in the same building with occupancies that are not incidental to or in connection with organic coating manufacturing.

(3) F-1904.3 Fire service access: Access to at least one side of organic coating manufacturing operations shall be provided for the purpose of fire control.

(4) FM-1904.4 Drainage: Drainage facilities shall be provided in accordance with paragraphs (B)(9)(F-1902.9) and (B)(9)(F-1902.9.1) of this rule where topographical conditions are such that flammable and combustible liquids are capable of flowing from the organic coating manufacturing

operation so as to constitute a fire hazard to premises of other persons.

(5) F-1904.5 Explosion vent: Structures in which class I liquids or finely divided flammable solids are processed shall be provided with explosion venting.

(6) F-1904.6 Ventilation: Enclosed structures in which class I liquids are processed or handled shall be ventilated at a rate of not less than ~~one-half~~ ½ cubic foot per minute per square foot (2537 $cm^3/s{\cdot}m^2$) of solid floor area. Ventilation shall be accomplished by exhaust fans that take suction at floor levels and discharge to a safe location outside the structure. Noncontaminated intake air shall be introduced in such a manner that all portions of solid floor areas are provided with continuous uniformly distributed air movement.

(7) FM-1904.7 Heating: Heating in hazardous areas, where provided, shall be provided by indirect means. Ignition sources such as open flames or electrical heating elements, except as where provided for in paragraph (C)(FM-1903.0) of this rule, shall not be permitted within the structure.

(E) Section F-1905.0 Process mills, mixers and kettles

(1) F-1905.1 Mills: Mills operating with close clearances and which process flammable and heat-sensitive materials, such as nitrocellulose, shall be located in a detached structure without other occupancies. The amount of nitrocellulose or other flammable material brought into the area shall not be more than the amount required for a batch.

(2) F-1905.2 Mixers: Mixers shall be of the enclosed type or, where of the open type, shall be provided with properly fitted covers. Where flow is by gravity, a shutoff valve shall be installed as close as practical to the mixer, and a control valve shall be provided near the end of the fill pipe.

(3) F-1905.3 Open kettles: Open kettles shall be located in an outside area, provided with a protective roof or in a separate structure of noncombustible construction or separated from other areas by a noncombustible wall having a fireresistance rating of at least 2 hours.

(4) F-1905.4 Closed kettles: Contact-heated kettles containing solvents shall be equipped with safety devices that, in case of a fire, will turn the process heat off, turn the cooling medium on and inject inert gas into the kettle.

(5) F-1905.5 Kettle controls: The kettle and thin-down tank shall be instrumented, controlled and interlocked so any failure of the controls will result in a safe condition. The kettle shall be provided with a pressure-rupture disc in addition to the primary vent. The vent piping from the PRESSURE-rupture disc shall be of minimum length and shall discharge to a safe location. The thin-down tank shall be adequately vented. Thinning operations shall be provided with an adequate vapor removal system.

(F) Section F1906.0 Process piping

(1) F-1906.1 Design: All piping, valves and fittings shall be designed for the working pressures and structural stresses to which the piping, valves and fittings will be subjected, and shall be of steel or other material approved for the service intended.

(2) F-1906.2 Valves: Valves shall be of an indicating type. Terminal valves on remote pumping systems shall be of the ~~dead-man~~ SPRING-LOADED, SELF-CLOSING type, shutting off both the pump and the flow of solvent.

(3) F-1906.3 Support: Piping systems shall be ~~supported~~ adequately SUPPORTED and protected against physical damage. Piping shall also be pitched to avoid unintentional trapping of liquids, or suitable drains shall be provided.

(4) F-1906.4 Connectors: Approved flexible connectors shall be installed where vibration exists or frequent movement is necessary. Hose at dispensing stations shall be of an approved type.

(5) F-1906.5 Tests: Before being placed in service, all piping shall be free of leaks when tested for a minimum of 30 minutes at not less than one and one-half times the working pressure or a minimum of 5 psig (~~34.48~~ 34.5 kPa) at the highest point in the system. The cost of all tests shall be paid by the owner.

(G) Section F-1907.0 Raw materials in process areas

(1) F-1907.1 Nitrocellulose quantity: The amount of nitrocellulose brought into the operating area shall not exceed the amount required for a work shift. Any nitrocellulose spillage shall be promptly swept up, placed into a pail of water, and removed at the end of the day or shift and disposed of by use or burning in the open at an approved detached location.

(2) F-1907.2 Organic peroxides quantity: Organic peroxides brought into the operating area shall be in the original shipping container and shall not exceed the quantity required for a work shift. When in the operating area, the peroxide shall not be placed in locations exposed to ignition sources, heat or mechanical shocks.

(H) Section F-1908.0 Transfer of flammable and combustible liquids in process areas

(1) F-1908.1 Pumps: The transfer of large quantities of flammable and combustible liquids shall be through piping by means of pumps. Compressed air as a transfer medium shall be prohibited.

F-1908.1.1 Type: Pumps shall be designed for the flammable and combustible liquid being transferred, the working pressures and the structural stresses to which the pumps will be subjected.

(2) F-1908.2 Switches: Where solvents are pumped from storage to points of use, approved switches shall be provided in the processing areas and at the pumps to shut the pumps down in case of a fire.

(3) F-1908.3 Container storage: Empty and filled containers shall be stored outside the filling area.

(I) Section FM-1909.0 Storage of raw materials and finished products

(1) FM-1909.1 General: The storage, handling and use of flammable and combustible liquids shall be in accordance with rule ~~1301:7-7-32~~ 1301:7-7-28 of the Administrative Code.

(2) F-1909.2 Tank storage: Tank storage for flammable and combustible liquids located inside of structures shall be limited to storage areas at or above grade which are separated from the processing area by a 2-hour fireresistance rated fire separation wall. Processing equipment containing flammable and combustible liquids and storage in quantities essential to the continuity of the operations shall not be prohibited in the processing area.

(3) F-1909.3 Tank vehicle: Tank car and tank vehicle loading and unloading stations for class I liquids shall be separated from the processing area, other plant structures, and adjoining lot lines by a minimum clear distance of 25 feet (7620 mm).

(a) FM-1909.3.1 Loading: Loading and unloading structures and platforms for flammable and combustible liquids shall be designed and installed in accordance with rule ~~1301:7-7-32~~ 1301:7-7-28 of the Administrative Code.

(b) FM-1909.3.2 Safety: Tank cars for flammable liquids shall be unloaded such that the safety to persons and property is ensured. Tank vehicles for flammable and combustible liquids shall be loaded and unloaded in accordance with paragraph ~~(J)~~(K)~~(F-3210.0)~~(FM-2811.0) of rule ~~1301:7-7-32~~ 1301:7-7-28 of the Administrative Code.

(4) FM-1909.4 Nitrocellulose storage: Nitrocellulose storage shall be located in a separate structure or a room separated with a 2-hour fireresistance rated fire separation wall. The nitrocellulose storage area shall not be utilized for any other purpose. Electrical wiring and equipment installed in such rooms or structures shall comply with paragraph (C)(FM-1903.0) of this rule.

(a) F-1909.4.1 Containers: Nitrocellulose shall be stored in closed containers. Barrels shall be stored on end and not more than two tiers high. Barrels or other containers of nitrocellulose shall not be opened in the main storage structure, but at the point of use or other location intended for that purpose.

(b) F-1909.4.2 Spills: Spilled nitrocellulose shall be promptly wetted with water and disposed of by use or burning in the open at an approved detached location.

(5) FM-1909.5 Organic peroxide storage: The storage of organic peroxides shall be in accordance with rule 1301:7-7-37 of the Administrative Code.

F-1909.5.1 Size: The size of the package containing organic peroxide shall be selected so, as nearly as practical, full packages are utilized at one time. Spilled peroxide shall be promptly cleaned up and disposed of as specified by the supplier.

(6) FM-1909.6 Finished products: Finished products which are flammable or combustible liquids shall be stored outside of structures, in a separate structure~~,~~ or in a room separated from the processing area by a wall having a fireresistance rating of at least 2 hours, and openings shall be protected with approved fire doors. The storage of finished products shall be in tanks or closed containers in accordance with rule ~~1301:7-7-32~~ 1301:7-7-28 of the Administrative Code.

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James J. McManus
Certification

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Date

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