

CHAPTER 35. PAINTS

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Subchapter A. PAINT GRINDING, PAINT AND VARNISH MANUFACTURING

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Authority

The provisions of this Subchapter A issued under act of May 18, 1937 (P. L. 654, No. 174)(43 P. S. §§ 25-1—25-15), unless otherwise noted.

Source

The provisions of this Subchapter A adopted August 1, 1917; amended through January 15, 1966, unless otherwise noted.

Cross References

This subchapter cited in 34 Pa. Code § 11.85 (relating to applicable provisions of other regulations).

GENERAL PROVISIONS**§ 35.1. Scope.**

(a) This subchapter sets forth rules to safeguard the lives, limbs and health of workers engaged in the occupations of paint grinding and paint and varnish manufacturing, including the making of mixes of dry lead compounds in the form of lead carbonate, basic lead sulphate, lead oxides, lead chromate and other lead compounds.

(b) Both employer and employe are responsible for complying with this subchapter.

Cross References

This section cited in 34 Pa. Code § 35.2 (relating to workrooms); 34 Pa. Code § 35.4 (relating to mall employes); 34 Pa. Code § 35.23 (relating to report of lead poisoning); and 34 Pa. Code § 35.31 (relating to applicability).

§ 35.2. Workrooms.

(a) *Lighting.* All employers shall provide and maintain adequately lighted workrooms for employes engaged in the activities specified in § 35.1 (relating to scope).

(b) *Ventilation.* All employers shall provide and maintain workrooms with good natural ventilation wherever employes are engaged in the activities specified in § 35.1. The employer shall remove all toxic and noxious dusts which may, in the judgment of the Department, be disseminated in such quantities in areas where persons are employed as to injure the health of employes or create other dangerous conditions. If it is impractical to remove them at the point of origin, all persons subjected to these hazards shall wear respirators.

§ 35.3. Physical examination—age.

Persons engaged in occupations involving exposure to lead dusts, lead fumes or lead solutions in any volume shall be at least 18 years of age and shall be physically examined at the expense of the employer by a licensed physician at

least once every 30 days. Records of the examination shall be kept on file and shall be available to inspectors of the Department.

Source

The provisions of this § 35.3 amended through June 10, 1977, 7 Pa.B. 1592. Immediately preceding text appears at serial page (13419).

§ 35.4. Employes.

Employes who engage in any of the activities specified in § 35.1 (relating to scope) shall be at least 18 years of age.

Source

The provisions of this § 35.4 amended June 10, 1977, 7 Pa.B. 1592. Immediately preceding text appears at serial page (13419).

§ 35.5. Use of alcohol and chewing tobacco.

Because their use undermines the health and predisposes to lead poisoning and industrial accidents, it is recommended that employers exclude from employment in any capacity persons who habitually use either alcoholic liquors or chewing tobacco.

§ 35.6. General safety requirements.

(a) All power transmission machinery, railings and toeboards, stationary steam engines, boilers, ladders, fire prevention, elevators and artificial lighting shall conform with the applicable provisions of this subpart.

(b) Where a respirator is required by this subchapter, the employer shall provide and renew when necessary an approved type of respirator, which the employe shall keep clean and use at all times while at work.

(c) Where employes, due to the nature of their employment, are subject to injury from corrosive or poisonous substances, acids or caustics, the employer shall provide, without cost to the employe, goggles, gloves, leggings and other personal protective devices.

§ 35.7. Penalty.

Any person who violates any of the provisions of this subchapter or any regulations of the Department or who interferes with the Department or its authorized representative in the enforcement of the provisions or regulations shall be penalized under section 15 of act of May 18, 1937 (P. L. 654, No. 174)(43 P. S. § 25-15).

SANITARY PROVISIONS**§ 35.11. Applicability.**

Sections 35.11—35.17 (relating to sanitary provisions) apply to employes engaged in mixing dry lead or dry compounds containing lead in excess of 10%.

§ 35.12. Washrooms.

(a) The employer shall provide a washroom, or rooms, which shall be separate and apart from the workrooms, and which shall be kept clean. These rooms shall be equipped with one of the following:

(1) At least one lavatory basin for every five employes, fitted with waste pipes and two spigots conveying hot and cold water.

(2) Basins placed in troughs fitted with waste pipes and for each basin two spigots conveying hot and cold water, with at least one basin for every five employes.

(3) Troughs of enamel or similar smooth impervious material, fitted with waste pipes and for 2 feet of trough length two spigots conveying hot and cold water, with at least 2 feet of trough for every five employes.

(4) Troughs of enamel or similar smooth impervious material fitted with waste pipes without plugs, and a continuous spray of warm water.

(b) The employer shall also furnish nail brushes and soap, and shall provide at least three clean fabric towels per week for each employe, or a sufficient number of sanitary paper towels.

(c) A time allowance of 10 minutes, at the expense of the employer, shall be made to each employe for the use of the washrooms before the lunch hour and at the close of the work day.

(d) It shall be the duty of all employes to use the washing facilities furnished by the employer.

Cross References

This section cited in 34 Pa. Code § 35.11 (relating to applicability).

§ 35.13. Shower baths.

The employer is urged to provide at least one shower bath for every ten employes. The baths shall be approached by wooden runways, be provided with movable wooden floor gratings, be supplied with hot and cold water controlled within each individual bath, and be kept clean. Where shower baths are provided the following shall be provided:

(1) The employer shall also provide soap and at least two clean towels per week for each employe.

(2) An additional time allowance of 10 minutes, at the expense of the employer, shall be made to each employe for baths at least twice a week at the close of each work day.

Cross References

This section cited in 34 Pa. Code § 35.11 (relating to applicability).

§ 35.14. Urinals and water closets.

Urinals and water closets shall be provided in accordance with the requirements of Chapter 41 (relating to sanitation).

Cross References

This section cited in 34 Pa. Code § 35.11 (relating to applicability).

§ 35.15. Dressing rooms.

The employer shall provide a dressing room or rooms, which shall be adequately heated when necessary, be kept clean and sanitary, and be separate from the workrooms. These dressing rooms shall be furnished with one of the following:

- (1) A double sanitary locker or two single sanitary lockers for each employe.
- (2) Wire baskets, which shall be attached to a rope passed through a pulley and shall be pulled up to the ceiling when containing clothing.

Cross References

This section cited in 34 Pa. Code § 35.11 (relating to applicability).

§ 35.16. Food and drink.

(a) The employer shall provide and maintain a sufficient number of sanitary drinking fountains, readily accessible, for the use of all employes, or shall provide individual drinking cups.

(b) No employe or other person shall take or be permitted to take any food or drink of any kind into any workroom, nor shall any employe remain or be permitted to remain in any workroom during the time allowed for meals.

(c) The employer shall provide in all new construction an eating room or eating rooms which shall be separate from the workrooms, be furnished with a sufficient number of tables and seats, and be kept clean.

Cross References

This section cited in 34 Pa. Code § 35.11 (relating to applicability).

§ 35.17. Uniforms.

The employer shall provide, upon request of the employe, at least one pair of overalls and one jumper for each employe, and repair and renew such clothing when necessary and wash the same at least once each week, all without cost to the employe.

Cross References

This section cited in 34 Pa. Code § 35.11 (relating to applicability).

PHYSICAL EXAMINATIONS**§ 35.21. Applicability.**

Sections 35.21—35.23 (relating to physical examinations) apply to employes engaged in the mixing or in the continual handling of dry lead in the form of lead carbonate, lead sulphate, lead oxides, lead chromate or other lead compounds in products where the mixture contains lead in excess of 50%.

Cross References

This section cited in 34 Pa. Code § 35.22 (relating to requirement of examinations).

§ 35.22. Requirement of examinations.

(a) Employers shall cause every employe engaged in the activities specified in § 35.21 (relating to applicability) to be physically examined at least once a month by a licensed physician for the purpose of ascertaining if symptoms of lead poisoning appear in any employe.

(b) The employe shall submit himself to the monthly examination, and to examination at such other times and places as he may reasonably be requested by the employer. The employe shall fully and truly answer all questions in regard to his physical condition asked him by the examining physician.

(c) These examinations shall be made by a licensed physician designated and paid by the employer, and shall be made during the working hours. A time allowance at the expense of the employer shall be made to each employe so examined.

Cross References

This section cited in 34 Pa. Code § 35.21 (relating to applicability).

§ 35.23. Report of lead poisoning.

(a) *Employer record book.* The employer record book shall comply with the following:

(1) Where the physician finds what he believes to be symptoms of lead poisoning, he shall enter, in a book he kept for that purpose in the office of the employer, a record of the examination. The record shall contain the following:

(i) The name and address of the examined employe.

- (ii) The particular work or process in which he is engaged.
- (iii) The date, place and finding of the examination, including in each case the directions given by the physician.
- (2) The record shall be open to inspection at all reasonable times by inspectors of the Department.
- (b) *Written notification.* If the examining physician believes that lead poisoning is present, he shall send within 48 hours all of the following:
 - (1) A report in duplicate to the Department.
 - (2) A report to the Department of Health of this Commonwealth.
 - (3) A report of the examination and finding to the employer. Upon receipt of this report, the employer shall not continue the employe in any work or process where he may be exposed to lead dust, lead fumes, or lead solutions specified in § 35.1 (relating to scope).

Cross References

This section cited in 34 Pa. Code § 35.21 (relating to applicability).

MIXING AND DRY PACKING

§ 35.31. Applicability.

Sections 35.31—35.34 (relating to mixing and dry packing) apply to the mixing and dry packing of the materials specified in § 35.1 (relating to scope).

§ 35.32. Dry compounds of lead.

(a) Whenever a dry compound of lead is mixed or otherwise manipulated in mixtures containing more than 10% lead, such activity shall be conducted in apparatus closed so as to prevent the escape of dust or provided with mechanical exhaust ventilation whose efficiency shall be approved by the Department or its authorized representative.

(b) Change can mixers are exempt from the provisions of subsection (a).

Cross References

This section cited in 34 Pa. Code § 35.31 (relating to applicability).

§ 35.33. Packages over 100 pounds in weight.

The following shall be carried on by means of an approved type of enclosed packing machine:

(1) All packing of lead carbonate, basic lead sulphate, lead oxides, lead chromate, or other lead compounds where the mixture contains more than 10% of such lead compounds in packages over 100 pounds in weight.

(2) All packing of any dry substance containing arsenic in packages over 100 pounds in weight.

Cross References

This section cited in 34 Pa. Code § 35.31 (relating to applicability).

§ 35.34. Packages of less than 100 pounds in weight.

(a) All packages of less than 100 pounds in weight may be packed by hand under a hood equipped with an efficient air exhaust which shall be connected with an efficient dust collect system. The dust collect system shall be regulated by the discharge of air from a fan, pump or other apparatus through an enclosed cloth dust collector.

(b) Cloth dust collectors shall conform with the following requirements:

(1) Each shall have an area of not less than one square foot of cloth to every cubic foot of air passing through it per minute.

(2) If not of the portable type, it shall be placed in a separate room, or in a permanent dust house equipped with baffles or such other apparatus to adequately take care of all dust which it may receive.

(3) Each shall be provided with adequate means, so that the dust may be removed by an employe or employes who are outside the room or dust house.

(c) No employe shall be required or allowed to enter such room or dust house except for the making of essential repairs, and then only when the dust collecting machinery is not in operation.

Cross References

This section cited in 34 Pa. Code § 35.31 (relating to applicability).

Subchapter B. SPRAY COATING**GENERAL PROVISIONS**

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Authority

The provisions of this Subchapter B issued under section 1 of the act of June 2, 1913 (P. L. 396, No. 267) (71 P. S. § 1441); and the act of May 18, 1937 (P. L. 654, No. 174) (43 P. S. §§ 25-1—25-15), unless otherwise noted.

Source

The provisions of this Subchapter B adopted August 16, 1929; amended through August 1, 1968, unless otherwise noted.

GENERAL PROVISIONS

§ 35.51. Definitions.

The following words and terms, when used in this subchapter, have the following meanings, unless the context clearly indicates otherwise:

Booth—A compartment within a room or section of an establishment, which shall be equipped for the coating of objects by the spray method. This term includes cabinet booths and tunnel booths.

Harmful materials—aterials used in spray coating except those that have been definitely proved to the Department not to be harmful under the particular conditions of use.

Respiratory protector—A device approved by the Board for giving an individual adequate protection against the inhalation of harmful materials.

Room booth—A room which is built or set apart for spray coating and equipment with exhaust ventilation, and which may be closed off entirely from the rest of the building.

Spray coating—The application of paints, stains, varnishes, lacquers, enamels, metals or similar materials by the spray method.

Spray method—The application of atomized paints, stains, varnishes, lacquers, enamels, metals or similar materials delivered through or by a spray gun or similar device by compressed air or other means.

Structure—Buildings, walls, bridges, ships (when not under maritime jurisdiction) or other fabricated units.

§ 35.52. Scope.

(a) This subchapter sets forth rules to safeguard the lives, limbs and health of workers engaged in spray coating operations.

(b) Both employer and employe are responsible for complying with this subchapter.

(c) The Department may require additional protections not specified in this subchapter if it or its authorized representative believes sufficient hazard exists to warrant the action.

§ 35.53. Applicability of fire protection provisions.

Nothing in this subchapter referring solely to fire protection shall be construed as applying to the spraying of materials in which water or other noncombustible liquid is used as the vehicle.

§ 35.54. Age requirement.

A person under 17 years of age or under may not be required or permitted to spray coat objects with substances containing lead, benzol or ground siliceous materials.

§ 35.55. Eating restrictions.

A person may not eat or bring food inside a room booth nor eat their meals while spraying is being done within a radius of 25 feet of the spraying. The distance of 25 feet may be reduced to 15 feet if the exhaust system has been kept in operation for at least 5 minutes after spraying has been stopped.

§ 35.56. Penalty.

A person who violates this subchapter or any regulations of the Department or who interferes with the Department or its authorized representative in the enforcement of the provisions or regulations shall be penalized under section 15 of act of May 18, 1937 (P. L. 654, No. 174) (43 P. S. § 25-15).

APPLICATION

§ 35.61. Exceptions to booth requirements.

(a) All spray coating with harmful materials shall be done in booths or room booths, except under the following conditions, in which cases the sprayer shall be provided with and shall use an approved respiratory protector:

- (1) The spray coating of interiors or exteriors of buildings or other structures.
- (2) The spray coating of objects in the open air or in sheds open on at least two opposite sides.
- (3) The spray coating of large castings, forgings, structural members, parts of machinery or other large objects, if not readily subjected to booth treatment.
- (4) The spray coating of exceptionally large objects, such as railroad cars, trolley cars, automobiles or trucks.
- (5) The retouching of automobile parts after repairs or similar minor or intermittent use.
- (6) Other conditions when permission is granted by the Board.

(b) Unless natural or artificial ventilation is provided, the exceptions enumerated in subsection (a) are not applicable to indoor spraying when more than one pint of material to each 1,000 cubic feet of air space is sprayed per hour.

(c) Unless artificial ventilation equivalent to five air changes an hour is maintained, the exceptions enumerated in subsection (a) are applicable to the interior coating of vaults, cellars, shafts, tanks or similar confined and unventilated spaces.

Cross References

This section cited in 34 Pa. Code § 35.62 (relating to respiratory protectors).

§ 35.62. Respiratory protectors.

(a) *Use.* When a sprayer working at a booth or in a room booth is exposed to deposits of sprayed material he shall be provided with, and shall wear, an approved respiratory protector.

(b) *Maintenance.* Respiratory protectors shall be maintained in a sanitary condition. The filtering and the absorbent or adsorbent materials shall be changed as often as necessary to provide the wearer with adequate protection.

(c) *Type of protector.* Under approved conditions for use of respiratory protectors as specified in § 35.61 (relating to exceptions to booth requirements), various types of respiratory protectors shall be used pursuant to the following requirements:

(1) When health hazardous substances used in spray coating are in the particulate form, the respiratory protectors used shall be of the filter type.

(2) When health hazardous substances are in the form of gas or vapor the respiratory protector shall contain gas or vapor absorbents or adsorbents such as activated charcoal.

(3) When health hazardous substances are in the form of both particulate matter and gases or vapors, the respiratory protector shall contain both a mechanical filter and an absorbent or adsorbent.

(4) A positive pressure air respirator may be substituted for any of the respiratory protectors specified in paragraphs (1)—(3).

§ 35.63. Brushing excess enamel.

Where vitreous enamel or other siliceous materials are being sprayed, the brushing off of excess enamel shall be carried on at such a point that the dust produced by the operation does not get into the fresh air supply of the sprayer. This should be done preferably in connection with an exhaust ventilating duct.

§ 35.64. Protection of workmen.

All workmen exposed to the material being sprayed or vapors of such material shall be protected in a manner equal to that afforded the sprayers. Where it is impracticable for such workmen to wear respiratory protectors, that portion of the

room used for spraying shall be separated by fire-resistive walls from the remainder of the room where the other workmen are employed, except that the walls need not be of fire-resistive material when so determined by the Board.

§ 35.65. Eye protection.

Where it is necessary to protect workers against eye hazards, approved eye protection shall be provided.

BOOTHS AND ROOM BOOTHS

§ 35.71. Size.

Booths shall be large enough to contain all objects to be coated in such booths, with the following exceptions:

- (1) Objects that are too large for any one booth may be coated by placing first one end in the booth and then the other end, the end to be sprayed being in the booth.
- (2) If the material being used for spraying is of such nature as to make impracticable the foregoing method, it is permissible to extend one side of the booth, and the roof a distance equal to the smallest dimension of the cross section of the booth. Material used for the extension of the side and the roof shall be of the same general character as that used for the construction of the original booth.

§ 35.72. Construction.

(a) *New structures.* Booths and room booths shall be constructed of noncombustible material. If the booths contain windows or glass panels, wire glass shall be used if the face area of the booth is more than 4 square feet. Unless the floor outside the booth is constructed of noncombustible materials, such floor shall be protected with nonsparking metal for a distance of 2 feet from the face of the booth, except in the case of small booths having bottoms 2 feet or more above the building floor. Floors in front of booths shall be so constructed and maintained that they are not a slipping hazard.

(b) *Wooden structures.* All existing wooden booths, with the exception of those having a working face area of 4 square feet or less, shall be replaced by booths constructed in accordance with subsection (a); unless, in the judgment of the Department, the hazard warrants the immediate discontinuance of such booths, or when they have been satisfactorily lined with noncombustible material.

§ 35.73. Location.

(a) Booths or room booths shall not be located in basements or below the grade floor of a building, except under the following conditions:

- (1) Where the basement has at least two means of egress (elevators not included).

(2) Where the booths or room booths are located a sufficient distance from the means of egress so that access to at least one of them shall not be cut off in case of fire.

(3) Where there is either one exhaust duct at the floor level of the booth or room booth equipped with an exhaust fan, or the booths are equipped with baffles or distributing plates so as to insure comparatively uniform exhaust from all points of operation in the booth.

(b) Booths and room booths shall be located and operated so as to insure an adequate amount of pure clean air to replace the air removed by the exhaust system.

§ 35.74. Metal curtains.

Booths three feet or more in width (measured along the floor or bottom of face) shall be equipped along the outer and upper edge of the face with a fixed metal curtain not less than 2 1/2 inches nor more than five inches in depth.

§ 35.75. Sprinklers.

(a) *Quantity required.* Booths 3 feet or more in width (measured along the floor or bottom of face), or having a face area of more than 16 square feet, shall be equipped with one or more approved automatic sprinklers. At least one automatic sprinkler shall be installed in booths between 3 feet and 8 feet in width, and one automatic sprinkler for each additional width of 8 feet or fraction thereof.

(b) *Location in booths.* Sprinklers shall be so located at the top of the booth that they do not readily become coated with paint or other materials, and in such position that they afford protection to some of the area outside and immediately adjacent to the face of the booth. No sprinklers shall be located less than 4 inches from the edge or the top of any booth. Each room booth shall be equipped with one approved automatic sprinkler for each 160 square foot unit of floor area or fraction thereof.

(c) *Maintenance.* The accumulated deposits of sprayed materials shall be cleaned from the sprinkler heads at frequent intervals with sufficient care to avoid injury to the sprinkler head.

§ 35.76. Special types of booths.

Special designs of installations of spray booths not contemplated by this subchapter shall be of an approved type. All specifications for construction, electrical equipment, lighting and fireproofing shall be in accordance with this Subchapter insofar as applicable. In no case shall the exhaust performances be less than those required by this subchapter.

EXHAUST SYSTEMS**§ 35.81. General requirements.**

(a) *Booths.* Booths shall be equipped with exhaust systems which will normally protect the operators from deposits or inhalation of the material discharged from the spray gun.

(b) *Room booths.* When objects are sprayed in room booths the exhaust system shall be kept in operation constantly while spraying is being carried on, and shall effect not less than 20 changes of air per hour. To maintain adequate ventilation, cross currents of air shall be avoided. While spraying is being carried on, currents of air shall not be permitted from windows or from other sources that will interfere with the required velocity of the exhaust system.

§ 35.82. Exhaust ducts.

(a) Exhaust ducts shall be as short as possible. They shall terminate at a point where the discharge will least endanger health or property, and at such height above the sidewalks or passageways as to make it unlikely that lighted matches or other open flames might be dropped into the ducts or come in dangerous proximity to the discharge from the duct opening. All outlets shall be protected if located where fire or sparks might enter the exhaust ducts and set fire to the spraying or other equipment.

(b) Exhaust ducts shall be constructed so as to be easily inspected and cleaned.

(c) Ducts shall be constructed of noncombustible material.

§ 35.83. Electric motors.

Electric motors shall be installed outside of ventilating ducts. This provision shall not apply to electric motors operating fans in wall or window openings of spray rooms, if the motors are of the two or three phase alternating current type and are shielded to prevent residue or flyings from accumulating on the motor.

§ 35.84. Fans.

(a) Fans shall be constructed of noncombustible material. Fan blades shall be constructed of material which does not create sparks when struck by other objects.

(b) It is recommended that fans be capable of moving the air at all times past the working face of the booth toward the fan at a speed of not less than 100 lineal feet per minute for conventional spray and 60 feet per minute for electrostatic spray, as measured by a vane anemometer.

Source

The provisions of this § 35.84 amended August 31, 1979, effective September 1, 1979, 9 Pa.B. 2935. Immediately preceding text appears at serial page (8658).

MAINTENANCE**§ 35.91. Cleaning of booths, room booths, exhaust equipment, and spraying equipment—general.**

(a) The use of flammable substances as cleaning agents shall be restricted to kerosene or similar high flash point oils.

(b) Implements used for cleaning shall be composed of nonsparking material.

§ 35.92. Booths and room booths.

(a) Booths and room booths used for spray coating shall be kept clean and free from accumulations of sprayed materials.

(b) The practice of covering the booth floor with sawdust, shavings or similar loose litter for the purpose of catching the drippings is prohibited.

(c) Combustible linings of booths and room booths which have been removed in the course of cleaning, and rags, waste or other material used for wiping or cleaning, shall not be permitted to remain in any booth or room booth, but shall be deposited in metal containers with gravity closing covers provided for that purpose. This material shall be disposed of by burning at some safe place immediately upon completion of cleaning operations.

(d) The alternate spraying of pyroxylin lacquers and paints or varnishes in the same booth is prohibited unless special permission is granted by the Board or the booth has been thoroughly cleaned before the spraying of either type of material.

§ 35.93. Spray guns.

Before spray guns are disassembled for cleaning, the compressed air supply to them shall be shut off. Under no circumstances shall the gun be pointed toward the face of the operator or other person unless the air is shut off.

§ 35.94. Fans and ducts.

(a) Where fans are equipped with baffles that produce four or more 180 degree turns in the direction of the exhaust air, and where spraying is continuous, fans and exhaust ducts shall be examined at least weekly. They shall be kept clean and free from the accumulation of sprayed materials.

(b) Where there are no baffles nor distributing plates in front of fans, all fans and exhaust ducts shall be examined daily, and shall be kept clean and free from accumulation of sprayed materials.

(c) No employe shall enter exhaust ducts for the purpose of examining, cleaning, or repairing until the ducts are free from flammable vapors.

(d) Nothing in this Subchapter shall be construed to require the frequent cleaning of fans in installations using the induced draft principle.

CONTAINERS FOR SPRAY MATERIALS**§ 35.101. Storage of containers.**

(a) Storage supplies of flammable materials used for spraying, when kept in rooms in which spray operations are being carried on, shall be kept in tightly closed containers. Each liquid supply tank shall be provided with a metal cover which shall be kept in place at all times except when removed for filling or cleaning.

(b) The amount of flammable spraying materials kept in rooms in which spray operations are being carried on shall not exceed an amount necessary for one workday, unless material is sprayed directly from original drum containers.

(c) Empty drums or other containers shall be promptly removed from all booths and room booths and areas immediately adjacent to them.

§ 35.102. Use of containers.

(a) *Support.* Tanks or other containers used in connection with spraying operations shall be constructed, located and operated so as to minimize the possibility of their being upset and the contents spilled. Gravity tanks shall be supported by noncombustible materials. Gravity tanks supported by wire cables or chains shall not exceed 10 gallons in capacity.

(b) *Limitations on pressure.* If materials are sprayed from original drum containers, pressure in excess of 10 pounds per square inch shall not be used to force the materials from their containers.

ELECTRICAL EQUIPMENT**§ 35.111. General requirements.**

All electrical equipment shall conform to the provisions of Chapter 39, Subchapter B (relating to electric safety).

§ 35.112. Wiring.

Except for the purpose of cleaning or making repairs or other adjustments, all electrical wiring in booths or room booths shall be of a permanent character. Portable lamps shall be incased in vapor-proof globes with suitable mechanical guards. Permanent electrical wiring in booths or room booths shall be installed in rigid or flexible metal conduits or raceways. All wiring within 30 feet of the face of the booth, in rooms in which booths are located, shall be installed in rigid or flexible metal conduits or raceways.

§ 35.113. Switches, fuses and circuit breakers.

Switches, fuses or circuit breakers shall be located outside booths and room booths.

§ 35.114. Grounding for static.

Metal parts of any apparatus used in exhaust systems for the removal of flammable vapors, such as fans, ducts and similar equipment, as well as shafting used in connection with the equipment, shall be electrically grounded in such manner as to permit frequent grounding tests.

FIRE PROTECTION**§ 35.121. Extinguishers.**

Soda and acid, foam type, liquid carbon dioxide or other acceptable types of fire extinguishers, as listed by the Underwriters Laboratories, Inc., shall be provided at all booths or room booths, regardless of whether they are equipped with sprinkler systems.

§ 35.122. Heaters.

Both steam and electric heaters are acceptable for heating spraying materials. Electric heaters shall be so designed that the heating coils are fully protected from contact with flammable fumes, gases or vapors, and that the temperature is always below the flash point of the material being sprayed.

§ 35.123. Open fire or sparks.

(a) Fired pressure vessels, internal combustion engines, electric motors except those of the nonsparking or wholly enclosed type, or those operating storage battery trucks, shall not be operated within 25 feet of any booth, room booth, or other space in active use for spraying operations, except under the following conditions:

- (1) When nonflammable materials are used.
- (2) When the apparatus is separated from the spraying area by a wall or partition. All doors and windows in such walls or partitions shall be kept closed at all times except for the passage of persons or vehicles.

(b) Vehicles to be spray coated shall have all electric batteries removed after being placed in the booth, room booth or other location and before spray is begun.

RECOMMENDATIONS**§ 35.131. Health protection.**

(a) *Sprayers.* The following recommendations apply to all workers engaged in spray painting operations:

- (1) Sprayers of vitreous enamel or other siliceous materials, who are not wearing air helmets or respirators, should be supplied with a mild nonirritating solution for use as a nasal douche or wash at the end of their working periods.

(2) Spray operators in booths and room booths should exercise care not to come between the exhaust outlet and any spray created.

(3) Operators spraying in any location should not spray toward each other where there is any possibility of spray or spray vapors striking the head or face of another operator.

(4) Operators spraying inside of room booths, in the open air, or in other locations not provided with exhaust equipment should wear caps or other head coverings to protect the hair. This is not necessary in the case of operators stationed outside of a booth who are spraying into a booth.

(5) Where spraying is done in room booths, in open shops, or in the open, the employer should provide nondrying oil or grease for all workers, for the purpose of anointing exposed parts of the body during spraying operations.

(6) It is advisable not to have one sprayer working continuously on the interiors of cabinets, chests or other hollow objects, as it is difficult to prevent completely the rebound of spray into the face of the worker when doing work of this nature.

(7) In addition to the washing or bathing facilities required by Chapter 41 (relating to sanitation) adequate supplies of soap and nail brushes should be provided for spray operators and their helpers.

(b) *Booth spraying.* The following recommendations apply to booth spraying:

(1) Where the objects being sprayed present large, flat, upright surfaces acting as baffles, there should be at least 2 feet clear space between the sides of the object and the sides of the booth.

(2) Where cabinets, chests or other hollow objects are being coated on the interior, it is particularly important to have the entire object well within the booth and to have a space of at least 2 feet clear between the sides of the object and the sides of the booth.

(3) Where the objects to be sprayed are small they should be sprayed in a small booth.

(4) Where possible, objects to be spray coated should be placed in the booth so that the prevailing direction of the spray is downward from the gun nozzle toward the side of the booth in which the exhaust opening is located.

(5) Air pressure on the gun should be kept as low as possible, consistent with good finish. In booth spraying the distance between the nozzle and the object to be coated should, if possible, be kept under 12 inches.

(6) The use of automatically operated spray booths should be encouraged as they offer greater protection to the sprayer than other methods commonly used.

(c) *Drying rooms.* It is recommended that, whenever possible, drying rooms for objects coated with lacquer or other materials containing highly volatile solvents should be so located that the air from the drying room is not drawn past the working area of the sprayer.

(d) *Ducts.* It is recommended that ducts be of a diameter not less than the transverse diameter of the fan. They should preferably be of larger diameter so as not to introduce unnecessary air friction. Turns in ducts should be avoided wherever possible.

(e) *Reduction of lead content.* It is recommended that the manufacturers of vitreous enamel continue their efforts to eliminate or reduce the percentage of soluble lead in these materials.

§ 35.132. Physical examinations.

(a) *Initial.* The health of persons doing spray coating may be injured by inhaling such substances as lead, poisonous solvents, especially benzol, or finely divided siliceous material. To render complete protection to spray operators from these hazards it is recommended that operators be given a physical examination, including X-ray examinations, previous to or within one week of employment, with the following two objects in view:

(1) To determine whether they have any physical defects which might be made worse by their employment.

(2) To obtain a record of their physical condition for comparison with succeeding examinations.

(b) *Follow up.* The following frequency of examinations is recommended:

(1) Periodic examinations of persons spraying lead or poisonous solvents should be made at least once every 6 months and should include white and red blood cell counts, differential white cell counts, and an estimation of the amount of hemoglobin.

(2) The periodic examinations of persons spraying vitreous enamel or other siliceous materials should be made at least once every 2 years and should include an X-ray examination of the chest.

(c) *Guidelines for restricting employment.* It is recommended that there be compliance with the following:

(1) No person should be permitted to perform the work of a spray operator or to come in contact in any way with spray coating operations if the results of an examination made of his blood show any evidence of a disturbance that would be aggravated by exposure to lead or benzol or any evidence of lead or benzol absorption as indicated by any of the following findings:

(i) The presence of 70 stipple cells per 100,000.

(ii) A distinct evidence of anemia as shown by hemoglobin under 12 grams per 100 cubic centimeters of blood, or red cells under 4 million per cubic millimeter for men, and 3.8 million for women.

(iii) A total white cell count under 5,600 per cubic millimeter, or a total polymorphonuclear cell count under 4,000 per cubic millimeter. When a second or succeeding differential count is more than 5% lower in polymorphonuclear cells than the preceding one, the individual should be reexamined in one month, or sooner if he appears to be in poor physical condition. If the

recount made on such examination shows the condition to be progressive, he should not be permitted to continue spraying, regardless of his physical condition in other respects.

(2) No person should be permitted to spray vitreous enamel or other siliceous materials if an X-ray examination of his chest shows the presence of fibrosis or active tuberculosis. Any evidence of developing fibrosis at subsequent examinations should call for a change of occupation. Any evidence of progressive lead absorption by such persons, as indicated by the increase of stipple cells, should likewise call for a change of occupation.

§ 35.133. Fire protection.

The following recommendations apply to fire protection:

(1) Ducts longer than 10 feet should have clean-out doors at 10 foot intervals, or should be so constructed as to be easily taken apart for cleaning.

(2) To minimize the spread of fire, finished products should be removed immediately from the vicinity of the spray booths or from the room booths, regardless of location.

(3) The surfaces of all booths, after they have been made clean and free from accumulations of sprayed materials, should be greased and papered, or otherwise prepared so that they may be easily cleaned.

(4) Spraying operations should be located under smooth ceilings.

(5) For the spraying of materials containing volatile solvents, there should be a separate exhaust duct for each booth.

(6) Where plants at present have three or more booths connected to a single exhaust fan they should, whenever possible, change equipment to conform to this subchapter.

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