

## Chapter Ind 221

## SPRAY COATING

Ind 221.01	Scope	Ind 221.06	Equipment
Ind 221.02	Existing booths	Ind 221.07	Operation
Ind 221.03	Plans, booth installations	Ind 221.08	Protection of person
Ind 221.04	Definitions	Ind 221.09	Scope
Ind 221.05	Scope	Ind 221.10	Scope

**History:** Chapter Ind 21 as it existed on August 31, 1974, was repealed and a new Chapter Ind 21 was created, effective September 1, 1974. Renumber Ind 221, effective May 1, 1980.

## SCOPE AND PURPOSE

**Ind 221.01 Scope.** These rules shall govern the use and control of all spray coating apparatus, in every place of employment; provided, however, that they shall not prohibit any farmer, horticulturist, fruit grower, or other person engaged in farming or fruit or vegetable growing, from using spray coating apparatus for the purpose of spraying trees, shrubs, and vines with chemicals to protect the same from disease; or prohibit any dairyman, creamery owner or operator or other person from using any spray coating apparatus to spray any building or part thereof with solutions composed of water and chemicals of recognized value in keeping said building in a sanitary condition.

**History:** Cr. Register, August, 1974, No. 224, eff. 9-1-74; renum. from Ind 21.01, Register, October, 1979, No. 286, eff. 5-1-80.

**Ind 221.02 Existing booths.** These rules are not applicable to existing installations except where adequate protection to the health and safety of the operator or helper requires alterations. All such alterations shall show reasonably close adherence to the provisions of these rules.

**History:** Cr. Register, August, 1974, No. 224, eff. 9-1-74; renum. from Ind 21.02, Register, October, 1979, No. 286, eff. 5-1-80.

**Ind 221.03 Plans, Booth installations.** Plans and specifications in duplicate shall be submitted to the department for approval before installing any spray booth.

**History:** Cr. Register, August, 1974, No. 224, eff. 9-1-74; renum. from Ind 21.03, Register, October, 1979, No. 286, eff. 5-1-80.

## DEFINITIONS

**Ind 221.04 Definitions.** (1) **APPARATUS, SPRAY COATING.** Any and all devices and equipment used in the application of finishing materials by a method employing air pressure.

(2) **APPROVED.** Of such design and arrangement as to meet the approval of the department.

(3) **BOOTHS. CABINET, CANOPY, ROOM AND TUNNEL.** (a) *Cabinet booth.* An enclosure open on one side only and equipped with independent exhaust system.

(b) *Canopy booth.* An overhead dome enclosure open on all sides at the bottom and equipped with an independent exhaust system.

Register, October, 1979, No. 286  
Spray Coating

(c) *Room booth.* A room or enclosure equipped with independent exhaust system.

(d) *Tunnel booth.* An enclosure with both ends open equipped with independent exhaust system.

(4) **BREATHING ZONE.** The immediate area around the mouth and nose of the operator while in a working position.

(5) **CONTAMINATED AIRWAY.** A contaminated airway in connection with any type of spray booth is any duct, chamber or space containing vapors or fumes of a deleterious, flammable or explosive character, or of other harmful nature, generated by spray coating operations.

(6) **DISCHARGE ORIFICE.** An opening through which ventilating air is discharged from a booth.

(7) **DISCHARGE PIPE.** An extension of the discharge orifice to convey spray-laden or contaminated air to the outside atmosphere.

(8) **DISTRIBUTOR PLATES.** Solid or perforated non-combustible plates placed in a booth to deflect and distribute air currents.

(9) **EXHAUST SYSTEM.** All equipment connected with the removal of ventilating air from the spray zone.

(10) **INCOMBUSTIBLE MATERIAL.** Material which cannot be burned.

(11) **INSTALLATIONS, EXISTING AND NEW.** (a) *Existing installations.* Installations in existence and use prior to the effective date of this code.

(b) *New installations.* Installations completed or the contracts for which are let after the effective date of these rules.

(12) **LAMPS, EXTENSION, PORTABLE, EXPLOSION-PROOF AND VAPOR-PROOF.** (a) *Extension lamp.* Lamp or extension cord not fixed, nor self-supporting, and not equipped with standard.

(b) *Portable, explosion-proof lamp.* A portable explosion-proof lamp is a lamp not fixed but with self-supporting, properly weighted stand, capable of being readily moved and having the lighting unit so designed and constructed that its use to provide artificial illumination at different points within any type of spray booth will not ignite any fumes, vapors, or residues formed in the process of coating objects with a spray gun.

(c) *Vapor-proof or vapor-tight lamp.* A lamp that is so enclosed that vapor will not enter the enclosure.

(13) { ORIFICE  
OUTLET (See DISCHARGE ORIFICE)

(14) **PLACE OF EMPLOYMENT.** For purposes of administering this code a place of employment is any place where spray coating is being carried on for profit.

(15) **PRESSURE, ATOMIZING AND PAINT.** (a) *Atomizing pressure.* Pressure of the air used to atomize or break up the paint or other coating material.

(b) *Paint pressure.* Pressure in a closed tank bearing on the paint or other coating material to raise it to the spray gun level.

(16) **PRESSURE REGULATOR.** An instrument or device for regulating or controlling air pressure.

(17) **PRESSURE TANK.** A tank in which air pressure is used to develop pressure on paint or other coating material.

(18) **RESPIRATORS, AIR LINE AND CHEMICAL CARTRIDGE.** (a) *Air line respirator.* A device consisting of a hood or head and face covering to which fresh air is fed creating a slight outward pressure excluding fumes and mist thus permitting breathing of uncontaminated air.

(b) *Chemical cartridge respirator.* A respirator which is equipped with a chemical cartridge or cannister which mechanically removes solid particles and chemically removes vapors from air being breathed.

(19) **SETTLING CHAMBER.** A space located in the exhaust air stream for the purpose of collecting solids in spray mist.

(20) **SPRAY GUN.** A mechanical device employing air pressure for the application of paints, varnishes, lacquers and similar finishing materials.

(21) **VACUUM TYPE. (Feed Cup).** (Sometimes erroneously referred to as siphon type). A type of materials container in which the liquid is drawn into the atomizing air stream by a partial vacuum created by the flow of air over the paint chamber outlet opening.

(22) **VENTILATING SYSTEM. (See EXHAUST SYSTEM)**

**History:** Cr. Register, August, 1974, No. 224, eff. 9-1-74; renum. from Ind 21.04, Register, October, 1979, No. 286, eff. 5-1-80.

### **SPRAY COATING OF BUILDINGS, STRUCTURES AND OUTDOOR SPRAYING**

**Ind 221.05 Scope.** The requirements of this section, sections Ind 221.05 to Ind 221.08, inclusive, shall apply to all spray coating operations on buildings, ships and structures of any kind or nature, and to all outdoor spray coating operations, but these requirements need not apply to spray coating operations in approved booths.

**History:** Cr. Register, August, 1974, No. 224, eff. 9-1-74; renum. from Ind 21.05, Register, October, 1979, No. 286, eff. 5-1-80.

**Ind 221.06 Equipment. (1) TYPE OF EQUIPMENT.** Any type of equipment may be used except the vacuum type of more than one quart capacity.

**Note:** The vacuum type of spray coating apparatus is sometimes erroneously referred to as siphon type, suction type and ejector type.

(2) **CHARACTER OF EQUIPMENT.** All spraying equipment shall be complete in all details essential to effective operation and prevention of excessive mist.

**History:** Cr. Register, August, 1974, No. 224, eff. 9-1-74; renum. from Ind 21.06, Register, October, 1979, No. 286, eff. 5-1-80.

**Ind 221.07 Operation. (1) NOZZLE DISTANCE FROM SURFACE.** During operation the nozzle of the spray gun shall not at any time be more than 13 inches from the surface being spray coated.

Register, October, 1979, No. 286  
Spray Coating

(2) **SCAFFOLDING.** When necessary, scaffolding or other approved support shall be used so that the maximum allowable distance between gun nozzle and surface being spray coated will not be exceeded.

**Note:** For safety in scaffold construction refer to Wis. Adm. Code, Ch. Ind 35, Safety in Construction.

(3) **MAXIMUM ALLOWABLE PAINT PRESSURE.** The paint pressure shall at no time exceed that necessary to produce a free flow of paint at the nozzle when the gun is operated independent of atomizing pressure.

**Notes:** 1. Testimony of spray gun manufacturers and observations have shown that excessive paint pressure over that actually necessary to produce this result requires a correspondingly higher atomizing pressure, resulting in excessive mist.

2. **Exterior painting—Wind advantage.** During exterior spray coating, the operator should at all times take advantage of draft and wind conditions, spraying with the air current whenever possible.

3. **Interior painting—Natural ventilation.** During interior spray coating of walls or structural members of a building the operator should at all times produce and maintain all ventilation possible by opening doors and windows, spraying with the air current whenever possible.

(4) **OPERATION AT DIFFERENT LEVELS.** At no time shall 2 or more operators working at elevations differing more than 8 feet use paint from the same supply tank unless spray guns are equipped with paint pressure regulators.

**Note:** If this maximum allowable difference in working elevations were exceeded, the operators working at the lower levels would be subjected to excessive mist.

(5) **EXCLUSION OF OTHERS.** None other than spray operators and their helpers shall be permitted within a zone where a mist or deposit is apparent, unless such a person is protected the same as operators and helpers.

(6) **CONTAMINATION OF ADJACENT AREAS.** Proper precautionary measures shall be taken to prevent contamination of the atmosphere in adjacent occupied areas.

**History:** Cr. Register, August, 1974, No. 224, eff. 9-1-74; renum. from Ind 21.07, Register, October, 1979, No. 286, eff. 6-1-80.

**Ind 221.08 Protection of person. (1) NOSE AND MOUTH PROTECTION.**  
(a) The nose and mouth of each operator and of any other person in the area contaminated by spray, shall be protected with an approved respirator or other approved device furnished and maintained in a clean and efficient condition by the employer. In every case where interior spray coating is done, except when the operation is confined to an approved booth, an approved respirator, or an approved device having a source of fresh air supply independent of the interior being sprayed, shall be used by each employe in the contaminated area.

(b) Where air is supplied from outside the contaminated area, such air shall be obtained from such a source and conveyed in such a manner as to prevent the introduction of any hazardous gases, dusts, fumes, or vapors into the respirator.

(2) **CLEANSING OF RESPIRATORS.** Every respirator shall be cleansed at least once each day. Where the filter type respirator is used, the filter shall be replaced not less than twice each working day, or oftener if necessary. In case of intermittent use of a filter type respirator, it shall be

Register, October, 1979, No. 286  
Spray Coating

cleansed and filter replaced at least once each calendar day of use. Unless sterilized provisions shall be made to insure that the cleansed respirators are returned to the same individuals who used them prior to the cleansing.

**Note:** The following suggestions are offered in order to give information as to cleaning respirators: Remove head bands and filtering elements and thoroughly wash the respirators in warm soapy water. After this any one of the following solutions may be used for sterilizing purposes: (1) a solution of one part of formaldehyde solution in nine parts of water; (2) a solution of denatured alcohol; (3) a 2% solution of lysol; (4) a 3% solution of carbolic acid; (5) exposure at room temperature for 10 minutes in a moist atmosphere of antiseptic gas preferably formaldehyde; (6) scrub with a brush in a solution of 5 fluid ounces of cresolis compound and 4 gallons of water. Following this the respirators should be thoroughly rinsed with warm water and allowed to dry.

(3) **APPROVAL OF RESPIRATORS.** Every respirator or other such device used shall be such as to meet the approval of the department.

**Note:** The chemical cartridge respirator is the only one of the filter type that will be approved for use in spray coating.

(4) **HEAD PROTECTION.** The head shall be covered with a low fitting cap with visor.

(5) **BODY PROTECTION.** The body shall be covered with clothing as close fitting as possible consistent with comfort, paying particular attention to the fit at neck and wrists.

(6) **HAND PROTECTION.** The hands shall be protected by suitable gloves, preferably of the gauntlet type.

(7) **RESPONSIBILITY AND MAINTENANCE.** All protective clothing shall be furnished and maintained in a sanitary condition by the employer. A complete change shall be furnished at least once each week or oftener if necessary.

(8) **FACE AND NECK ANOINTED.** All exposed parts of the body shall be kept anointed with non-irritating, protective oil, grease or cream during spray coating operations.

(9) **WASHING FACILITIES.** Clean rags shall be furnished by the employer and washing facilities shall be provided in compliance with the general orders on sanitation.

**Note:** The purpose of this is to eliminate the necessity of washing with turpentine or naphtha, the continued use of which is extremely irritating to the skin.

**History:** Cr. Register, August, 1974, No. 224, eff. 9-1-74; renum. from Ind 21.08, Register, October, 1979, No. 286, eff. 5-1-80.

### **SPRAY FINISHING OPERATIONS INSIDE OF BUILDINGS**

**Ind 221.09 Scope.** The requirements of subsection Ind 1000.50 (1) (a), subpart G, subsection 1910.94 (c) shall apply to all spray coating operations inside of buildings except the spray coating of walls, structural members and fixtures of a building or other structure

**History:** Cr. Register, August, 1974, No. 224, eff. 9-1-74; am. Register, December, 1974, No. 228, eff. 1-1-75; renum. from Ind 21.09, Register, October, 1979, No. 286, eff. 5-1-80.

Register, October, 1979, No. 286  
Spray Coating

**SPRAY FINISHING OPERATIONS USING FLAMMABLE  
AND COMBUSTIBLE LIQUIDS**

**Ind 221.10 Scope.** The requirements of subsection Ind 1000.50 (1) (a), subpart H, section 1910.107 shall apply to all spray finishing operations using flammable and combustible liquids.

**History:** Cr. Register, August, 1974, No. 224, eff. 9-1-74; am. Register, December, 1974, No. 228, eff. 1-1-75; renum. from Ind 21.10, Register, October, 1979, No. 286, eff. 5-1-80.

**Note:** Ch Ind 221 is a supplement to the Wisconsin Safety and Health Code, Ind 1000.