Chapter NR 422

CONTROL OF ORGANIC COMPOUND EMISSIONS FROM SURFACE COATING, PRINTING AND ASPHALT SURFACING OPERATIONS

NR 422.01 Applicability; purpose. (1) APPLICABILITY. This chapter applies to all surface coating and printing process air contaminant sources and to their owners and operators. This chapter also applies to the handling and use of cutback asphalts for application to surfaces traversed by motor vehicles, bicycles or pedestrians and to all persons responsible for such handling and use.

(2) PURPOSE. This chapter is adopted under ss. 144.31 and 144.38, Stats., to categorize organic compound emissions from surface coating, printing and asphalt surfacing operations into separate organic compound air contaminant source categories and to establish emission limitations or other requirements for these categories of sources in order to protect air quality.

History: Cr. Register, September, 1986, No. 369, eff. 10-1-86; am. Register, February, 1990, No. 410, eff. 3-1-90.

NR 422.02 Definitions. In addition to the definitions in this section, the definitions contained in chs. NR 400, 419, 420 and 421 apply to the terms used in this chapter.

(1) "Air dried coating" means coatings which are dried by the use of air or forced warm air. Forced warm air includes processes whereby the coated object is heated above ambient temperature up to a maximum of 90°C (194°F) to decrease drying time.

(2) "Application area" means the area where a coating is applied by spraying, dipping or flow coating techniques.

(3) "Asphalt" means a dark-brown to black cementitious material (solid, semisolid, or liquid in consistency) in which the predominating constituents are bitumens which occur in nature as such or which are obtained as residue in refining petroleum.

(4) "Baseline transfer efficiency" means the typical transfer efficiency, as defined by the department, for a specific operation in an industry.

(5) "Blade coating"means the application of a coating material to a substrate by means of drawing the substrate beneath a straight-edged blade that spreads the coating evenly over the full width of the substrate.

(7) "Class II hardboard paneling finish" means finishes which meet the specifications of Voluntary Product Standard PS-59-73 as approved by the American National Standards Institute. This standard is incorporated by reference in ch. NR 484.

(8) "Clear coat" means a coating which lacks color and opacity or is transparent and uses the undercoat as a reflectant base or undertone color.

(9) "Coating applicator" means a device or devices used at a single location in a coating line to apply a surface coating of a particular material.

(10) "Coating line" means one or more apparatus or operations, which may include a coating applicator, flashoff area, and oven, wherein a surface coating is applied, dried, or cured.

(11) "Coil coating" means the coating of any flat metal sheet or strip that comes in rolls or coils.

(11m) "Conductive ink" means an ink used in screen printing which contains material that permits electric current to flow through printed lines or patterns.

(12) "Cutback asphalt" means asphalt cement which has been liquefied by blending with petroleum solvents (diluents) other than residual oils. Upon exposure to atmospheric conditions the diluents evaporate, leaving the asphalt cement to perform its function. Asphalt which contains less than 5% by weight petroleum solvents (disregarding any residual oils added) is not included in this definition.

(12m) "Emergency response vehicle" means any motor vehicle specifically designed to carry equipment and personnel involved in providing emergency medical or rescue services.

(12s) "Emulsified asphalt" means an emulsion of asphalt cement and water which contains a small amount of an emulsifying agent; a heterogeneous system containing 2 normally immiscible phases (asphalt and water) in which the water forms the continuous phase of the emulsion, and minute globules of asphalt form the discontinuous phase.

(13) "End sealing compound" means a synthetic rubber compound which is coated onto can ends and which functions as a gasket when the end is assembled on the can.

(14) "Exterior base coating" means a coating applied to the exterior of a can to provide exterior protection to the metal and to provide background for the lithographic or printing operation.

(15) "Extreme performance coatings" means coatings designed for harsh exposure or exposure to one or more of the following: the weather all of the time, temperatures consistently above 95°C, detergents, abrasive and scouring agents, solvents, corrosive atmospheres, or similar environmental conditions.

(16) "Fabric coating" means applying a coating, including a saturation coating, or printing on to a textile substrate with a blade, roll, rotogravure or dip coater, or other coating applicator, to impart properties that are not initially present, such as strength, stability, water or acid repellancy, or appearance.

(16e) "Field-reacted traffic marking material" means a liquid traffic marking material, such as epoxy or polyester, which consists of resin, pigments, and a hardening agent, and which is mixed at the time of application and designed to harden quickly.

(16m) "Fire truck" means any motor vehicle specifically designed to be used in fighting fires and to carry equipment and personnel involved in fighting fires.

(17) "Flashoff area" means the space between the application area and the oven.

(18) "Flexographic printing" means the application of words, designs or pictures to a substrate by means of a roll printing technique in which the pattern to be applied is raised above the printing roll and the image carrier is made of rubber or other elastomeric materials.

(19) "Furniture metal coating" means the surface coating of any furniture made of metal or any metal part which will be assembled with other metal, wood, fabric, plastic or glass parts to form a furniture piece.

(20) "Hardboard" means a panel manufactured primarily from interfelted ligno-cellulosic fibers which are consolidated under heat and pressure in a hot press.

(21) "Hardwood plywood" means a plywood whose surface layer is a veneer of hardwood.

(21m) "High performance architectural coatings" means a coating which meets the requirements specified in Architectural Aluminum Manufacturer's Association publication number AAMA 605.2-1985, incorporated by reference in ch. NR 484.

(21s) "Ink transfer" means a decal, printed using screen printing onto a special release carrier, that will be transferred from the carrier to a substrate. Final transfer of the decal to the substrate may or may not occur at the screen printing facility.

(22) "Interior sheet base coating" means a coating applied by roller coater or spray to the interior side of sheets from which cans are formed to provide a protective lining between the can metal and product.

(23) "Interior body spray" means a coating sprayed on the interior of the can body to provide a protective film between the product and the can.

(24) "Large appliances" means doors, cases, lids, panels and interior support parts of residential and commercial washers, dryers, ranges, refrigerators, freezers, water heaters, dishwashers, trash compactors, air conditioners and other similar products. Not included are products of such weight that they are normally lifted only with powered lifting equipment or products which are intended to be permanently fastened in place.

(24m) "Leather coating" means the coating of any raw or processed leather material with a roll coater, spray system, or other coating applicator to impart or enhance properties such as strength, stability, water or acid repellency, color or appearance.

(25) "Low solvent coating or ink" means a coating or ink which contains less organic solvent than the conventional coatings used by the particular industry. Low solvent coatings or inks include water-borne, higher solids, electrodeposition and powder coatings or inks.

(26) "Magnet wire coating" means the process of applying a coating of electrically insulating varnish or enamel to aluminum or copper wire for use in electrical machinery.

(27) "Manufacturing plant" means a facility where parts are manufactured, finished or assembled for eventual inclusion into a finished product ready for sale to retailers. With respect to the manufacture of motor vehicles, customizers, body shops and other repainters are not included in this definition.

(28) "Natural finish hardwood plywood panels" means panels whose original grain pattern is enhanced by essentially transparent finishes which may be supplemented by fillers and toners.

(28m) "Organisol" means a thick coating containing resin, plasticizers and organic solvent used to coat flexible substances such as paper or fabrics.

(29) "Oven" means, for the purpose of surface coating, a chamber within which heat is used to bake, cure, polymerize, or dry a surface coating.

(30) "Overvarnish" means a coating applied directly over ink to reduce the coefficient of friction, to provide gloss and to protect the finish against abrasion and corrosion.

(31) "Packaging rotogravure printing" means rotogravure printing upon paper, paper board, metal foil, plastic film, or other substrates, which in subsequent operations are formed into packaging products or labels for articles to be sold.

(32) "Paper coating" means application of the uniform coatings, including saturation coatings, put on paper and pressure sensitive tape in a web process. Related web coating processes on plastic films and on metal foil are included in this definition but processes such as printing where the coating is not uniform across the web are not included.

(33) "Penetrating prime coat" means an application of low-viscosity liquid asphalt to an absorbent surface to prepare it for an asphalt surface.

(33g) "Plastisol" means a composition of finely divided resin and plasticizer used to coat flexible substances such as paper or fabrics which is applied as a thick gel which solidifies when heated.

(33m) "Pretreatment coat" means a coating applied directly to metal substrates and which contains at least ½% acid, by weight, and is used to provide surface etching, corrosion resistance and enhanced adhesion of subsequent coatings.

(34) "Prime coat" means a coating applied directly to a substrate or on top of a pretreatment coat or other coating for purposes of providing corrosion resistance or enhancing adhesion or blister resistance of subsequent coatings.

(35) "Printed interior panels" means panels whose grain or natural surface is obscured by fillers and basecoats upon which a simulated grain or decorative pattern is printed.

(36) "Publication rotogravure printing" means rotogravure printing upon paper which is subsequently formed into books, magazines, catalogues, brochures, directories, newspaper supplements, and other types of printed materials.

(37) "Quench area" means a chamber where the hot metal exiting the oven is cooled by either a spray of water or a blast of air followed by water cooling.

(38) "Roll coating" means the application of a coating material to a substrate by means of hard rubber or steel rolls.

(39) "Roll printing" means the application of words, designs or pictures to a substrate, usually by means of a series of hard rubber or steel rolls each with only partial coverage.

(40) "Rotogravure coating" means the application of a coating material to a substrate by means of a roll coating technique in which the pattern to be applied is etched on the coating roll. The coating material is transferred to the substrate from the recessed areas on the coating roll.

(41) "Rotogravure printing" means the application of words, designs or pictures to a substrate by means of a roll printing technique which involves an intaglio or recessed image areas in the form of cells.

(41m) "Saturation coating" means application of a coating which permeates the substrate to which it is applied.

(41p) "Screen printing" means a process in which ink or coating is passed through a taut screen mesh or fabric, to which a refined form of stencil has been applied, onto a substrate. The stencil openings determine the form and dimensions of the imprint made on the substrate.

(41s) "Screen printing unit" means a printing application station and its associated flash-off area, ovens or dryers, conveyors or other equipment operating as part of the screen printing process. Screen reclamation is considered to be part of the screen printing process.

(41v) "Screen reclamation" means the removal of the stencil or of residual ink or coating from the screen mesh or fabric after excess ink or coating has been removed from the screen or fabric.

(42) "Single coat" means a single film of coating applied directly to a metal substrate, omitting the primer application.

(42m) "Special purpose screen printing inks and coatings" means inks and coatings used in screen printing which are conductive inks, are used to print ink transfers, or are designed to resist or withstand any of the following:

(a) More than 2 years of outdoor exposure.

(b) Exposure to chemicals, solvents, acids, detergents, oil products or cosmetics.

(c) Temperatures in excess of 170° F.

(d) Vacuum forming.

(e) Embossing.

(f) Molding.

(42q) "Stripe-kilometer" means one 10-centimeter-wide solid stripe of traffic marking material that is 1.0 kilometer long.

(42s) "Stripe-mile" means one 4-inch-wide solid stripe of traffic marking material that is 1.0 mile long.

(43) "Surface coating" means the application of a coating to a product in a coating line.

(44) "Thin particleboard" means a manufactured board 0.64 centimeters (¼ inch) or less in thickness made of individual wood particles which have been coated with a binder and formed into flat sheets by pressure.

(45) "Three-piece can side-seam spray" means a coating sprayed on the exterior and interior of a welded, cemented or soldered seam to protect the exposed metal.

(46) "Tileboard" means paneling that has a colored waterproof surface coating.

(47) "Topcoat" means a coating applied over a prime coat for purposes of appearance, identification or protection of the substrate.

(47m) "Traffic marking material" means any substance, either solid or liquid at time of application, used to provide land delineation or other traffic guidance or information on paved surfaces. Markings provided by traffic marking material include, but are not limited to, centerlines, edgelines, lane lines, turn arrows, parking stall markings, crosswalks, curb markings, railroad markings and airport taxi and runway markings.

(48) "Transfer efficiency" means the portion of coating solids which adheres to the surface being coated during the application process, expressed as a percentage of the total volume of coating solids delivered to the applicator.

(49) "Two-piece can exterior end coating" means a coating applied by roller coating or spraying to the exterior end of a can to provide protection to the metal.

(50) "Vinyl coating" means printing on or applying a decorative or protective topcoat, other than vinyl plastisols or organisols, to vinyl or urethane coated fabric or vinyl or urethane sheets.

History: Renum. from NR 154.01,Register, September, 1986, No. 369, eff. 10-1-86; cr. (24m), Register, January, 1987, No. 373, eff. 2-1-87; cr. (21m), Register, July, 1988, No. 391, eff. 8-1-88; cr. (12m), (16m) and (33m), am. (34) and (47), Register, August, 1989, No. 404, eff. 9-1-89; renum. (6) to be NR 400.02 (21m), am. (16), (32) (33m) and (50), cr. (28m), (33g) and (41m), (12s) renum. from NR 400.02 (36), Register, February, 1990, No. 410, eff. 3-1-90; am. (7), Register, May, 1992, No. 437, eff. 6-1-92; am. (50), Register, December, 1993, No. 456, eff. 1-1-94; cr. (11m), (21s), (41p), (41s), (41v) and (42m), am. (32), Register, June, 1994, No. 462, eff. 7-1-94; cr. (16e), (42q), (42s) and (47m), Register, July, 1994, No. 463, eff. 8-1-94.

NR 422.03 Exemptions. Sections NR 422.04 to 422.155 apply to any facility which contains one or more of the surface coating or printing process lines described in ss. NR 422.05 to 422.155, except as specified in this section. If VOC emissions exceed an exemption level given in this section, the exemption will no longer apply to the source. Exempt facilities include:

(1) Any surface coating process line which meets the specific applicability requirements of ss. NR 422.04 to 422.155 within a facility when actual emissions of VOCs from all surface coating process lines meeting the same applicability requirements within the facility are never greater than 6.8 kilograms (15 pounds) in any one day with all emission control equipment inoperative.

(2) Surface coating facilities as described under s. NR 422.15 or 422.155 which have maximum theoretical emissions of VOCs from all surface coating process lines meeting the applicability requirements of s.

Next page is numbered 143

(b) 0.53 kilograms per liter (4.44 pounds per gallon) of coating, excluding water, delivered to a coating applicator that applies prime coats.

(c) 0.72 kilograms per liter (6.00 pounds per gallon) of coating, excluding water, delivered to a coating applicator that applies topcoats.

(d) 0.42 kilograms per liter (3.50 pounds per gallon) of coating, excluding water, delivered to a coating applicator that applies clear coats.

(3) SOLVENT WASHINGS. All VOC emissions from solvent washings shall be considered in the emission limitations in sub. (2), unless the used wash solvent is directed into containers that prevent evaporation into the atmosphere.

(4) INTERNAL OFFSETS. Coating operations subject to this section may not be involved in an internal offset under s. NR 425.05.

History: Cr. Register, August, 1989, No. 404, eff. 9-1-89; am. (2) (a) to (d) and (4), Register, February, 1990, No. 410, eff. 3-1-90.

NR 422.16 Use of asphalt surfacing materials. (1) APPLICABILITY. This section applies to the mixing, storage, use and application of cutback asphalts in Wisconsin. This section does not apply to cutback asphalts intended for uses other than application to surfaces traversed by motor vehicles, bicycles or pedestrians.

(2) RESTRICTED MATERIALS. The following restrictions apply to the mixing, open storage, use or application of cutback asphalts during the ozone season:

(a) The use of rapid curing cutback asphalts containing gasoline or naphtha as the diluent is prohibited.

(b) The use of cutback asphalts not prohibited under par. (a) is prohibited except for:

1. Application of a single coat of liquid asphalt to an aggregate base to control dust; and

2. Use as a penetrating prime coat during the first and last months of the ozone season.

History: Renum. from NR 154.13 (5) (a) and am. Register, September, 1986, No. 369, eff. 10-1-86; am. (2) (a) and (b), r. (2) (c), Register, February, 1990, No. 410, eff. 3-1-90.

NR 422.17 Application of traffic marking materials. (1) APPLICABILITY. This section applies after April 30, 1996, to the application of traffic marking material on any paved surface during the ozone season in Kenosha, Kewaunee, Manitowoc, Milwaukee, Ozaukee, Racine, Sheboygan, Washington and Waukesha counties.

(2) RESTRICTED MATERIALS. During the ozone season, no person may cause, allow or permit the application of traffic marking material which exceeds the following limits:

(a) Except as provided in par. (b), for traffic marking material that is measurable as a liquid at the time of application, a VOC content of 91 grams per liter of coating or 0.76 pounds per gallon of coating, excluding water.

(b) For field-reacted traffic marking material, or for traffic marking material that is not measurable as a liquid at the time of application, a

VOC emission rate of 3.6 kilograms per stripe-kilometer or 12.2 pounds per stripe-mile.

(3) RECORDKEEPING. (a) In addition to the applicable reporting and recordkeeping requirements of ss. NR 439.03 and 439.04, any person who applies traffic marking material and is subject to this section shall retain records sufficient to document the following:

1. Types and amounts of traffic marking materials purchased annually.

2. The VOC content or emission rate of each type of traffic marking material applied, either in grams per liter or pounds per gallon or kilograms per stripe-kilometer or pounds per stripe-mile.

3. Monthly quantities of each type of traffic marking material applied.

4. The counties in which each marking material was applied.

(b) The documentation required in par. (a) shall be kept for a period of 3 years after the traffic marking material is applied.

History: Cr. Register, July, 1994, No. 463, eff. 8-1-94.