

## Chapter NR 466

### NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS FOR PRINTING AND FLEXIBLE SUBSTRATE SURFACE COATING PROCESSES

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#### Subchapter I — Printing and Publishing

**NR 466.01 Applicability; purpose. c1d** APPLICABILITY. cad This chapter applies to all of the following:

1. Each facility that is a major source of hazardous air pollutants at which publication rotogravure, product and packaging rotogravure, or wide-web flexographic printing presses are operated.

2. Each facility at which publication rotogravure, product and packaging rotogravure, or wide-web flexographic printing presses are operated for which the owner or operator, for purposes of establishing the facility to be an area source with respect to this chapter, chooses to commit to, and meets the following criteria:

a. Use less than 9.1 Mg c10 tonsd per each rolling 12-month period of each HAP at the facility, including materials used for source categories or purposes other than printing and publishing.

b. Use less than 22.7 Mg c25 tonsd per each rolling 12-month period of any combination of HAPs at the facility, including materials used for source categories or purposes other than printing and publishing.

cbd Each facility for which the owner or operator chooses to commit to and meets the criteria in par. cad 2. shall be considered an area source, and is subject only to the provisions of ss. NR 466.11 c4d and 466.12 c2d cad.

ccd Each facility for which the owner or operator chooses to commit to and meets the criteria in par. cad 2. may exclude, for the purpose of determining compliance with the usage restrictions in par. cad 2., material used in routine janitorial or facility grounds maintenance, personal uses by employees or other persons, the use of products for the purpose of maintaining electric, propane, gasoline and diesel powered motor vehicles operated by the facility, and the use of HAP contained in intake water, used for processing or noncontact cooling, or intake air, used either as compressed air or for combustion.

cdd Each facility for which the owner or operator chooses to commit to and meets the criteria in par. cad 2. to become an area source, but subsequently exceeds either of the thresholds in par. cad 2. for any rolling 12-month period, without first obtaining and complying with other limits that keep its potential to emit HAP below major source levels, shall be considered in violation of its commitment for that 12-month period and shall be considered a major source of HAP beginning the first month after the end of the 12-month period in which either of the HAP-use

thresholds was exceeded. As a major source of HAP, each facility is subject to this chapter as provided under par. cad 1. and is no longer eligible to use the provisions of par. cad 2., even if in subsequent 12-month periods the facility uses less HAP than the thresholds in par. cad 2.

ced An owner or operator of an affected source subject to par. cad 2. who chooses to no longer be subject to par. cad 2. shall notify the department of the change. If, by no longer being subject to par. cad 2., the facility at which the affected source is located becomes a major source, the owner or operator shall continue to comply with the HAP usage provisions of par. cad 2. until the source is in compliance with all relevant requirements for a new MACT source or an existing source under this chapter.

cfd Nothing in this subsection is intended to preclude a facility from establishing area source status by limiting its potential to emit through other appropriate mechanisms.

cgd This chapter does not apply to research or laboratory equipment.

**c2d PURPOSE.** This chapter is adopted under ss. 285.27 c2d and 285.65, Stats., to establish emission standards for hazardous air pollutants for the printing and publishing industry in order to protect air quality.

**Note:** This chapter is based on the federal regulations contained in 40 CFR part 63 Subpart KK, created May 30, 1996.

**History:** Cr. Register, March, 2000, No. 531, eff. 4-1-00.

#### NR 466.015 Designation of affected sources. c1d

The affected sources subject to this chapter are all of the following:

cad All of the publication rotogravure presses and all associated equipment, including proof presses, cylinder and parts cleaners, ink and solvent mixing and storage equipment, and solvent recovery equipment at a facility.

cbd All of the product and packaging rotogravure or wide-web flexographic printing presses at a facility plus any other equipment at that facility which the owner or operator chooses to include in accordance with sub. c2d, except any of the following:

1. Proof presses.

2. Any product and packaging rotogravure or wide-web flexographic press which is used primarily for coating, laminating or other operations which the owner or operator chooses to exclude, provided that the owner or operator maintains records as required under s. NR 466.11 c6d, and the sum of the total mass of inks, coatings, varnishes, adhesives, primers, solvents, thinners, reduc-

ers and other materials applied by the press using product and packaging rotogravure print stations and wide-web flexographic print stations in each month never exceeds 5% by weight of the total mass of inks, coatings, varnishes, adhesives, primers, solvents, thinners, reducers and other materials applied by the press in that month, including all inboard and outboard stations.

**c2d** The owner or operator of an affected source, as defined in sub. **c1d cbd**, may elect to include in that affected source stand-alone coating equipment subject to all of the following provisions:

**cad** All stand-alone coating equipment which is located at the facility, and which is described by any of the following, is included in the affected source:

1. The stand-alone coating equipment and one or more product and packaging rotogravure or wide-web flexographic presses are used to apply solids-containing materials to the same web or substrate.

2. The stand-alone coating equipment and one or more product and packaging rotogravure or wide-web flexographic presses apply a common solids-containing material.

3. A common control device is used to control organic HAP emissions from the stand-alone coating equipment and from one or more product and packaging rotogravure or wide-web flexographic printing presses.

**cbd** No product and packaging rotogravure or wide-web flexographic presses are excluded from the affected source under the provisions of sub. **c1d cbd 2**.

**c3d** Each product and packaging rotogravure or wide-web flexographic printing affected source at a facility that is a major source of HAP that complies with either of the following criteria on and after the applicable compliance date as specified in s. **NR 466.08** is subject only to the requirements of ss. **NR 466.11 c5d** and **466.12 c2d cad**:

**cad** The owner or operator of the source applies no more than 500 kg c1102 poundsd per month, for every month, of inks, coatings, varnishes, adhesives, primers, solvents, thinners, reducers and other materials on product and packaging rotogravure or wide-web flexographic printing presses.

**cbd** The owner or operator of the source applies no more than 400 kg c882 poundsd per month, for every month, of organic HAP on product and packaging rotogravure or wide-web flexographic printing presses.

**c4d** Each product and packaging rotogravure or wide-web flexographic printing affected source at a facility that is a major source of HAP that does not comply with either criterion in sub. **c3d** in any month after the applicable compliance date as specified in s. **NR 466.08** is, starting with that month, subject to all relevant requirements of this chapter and is no longer eligible to use the provisions of sub. **c3d**, even if in subsequent months the affected source meets either of the criteria in sub. **c3d**.

**History:** Cr. Register, March, 2000, No. 531, eff. 4-1-00.

**NR 466.02 Definitions.** For terms not defined in this section, the definitions contained in chs. **NR 400** and **460** apply to the terms used in this chapter, with definitions in ch. **NR 460** taking priority over definitions in ch. **NR 400**. If this section defines a term which is also defined in ch. **NR 400** or **460**, the definition in this section applies in this chapter.

**c1d** **XAlways-controlled work stationY** means a work station associated with a dryer from which the exhaust is delivered to a control device, with no provision for the dryer exhaust to bypass the control device. Sampling lines for analyzers and relief valves needed for safety purposes are not considered bypass lines.

**c2d** **XCar-sealY** means a seal that is placed on a device that is used to change the position of a valve or damper, for example, from open to closed, in a way that the position of the valve or damper cannot be changed without breaking the seal.

**c3d** **XCertified product data sheetY** or **XCPDSY** means documentation furnished by suppliers of inks, coatings, varnishes, adhesives, primers, solvents and other materials or by an outside laboratory that provides the organic HAP content of these materials, by weight, measured using Method 311 in **40 CFR Part 63**, Appendix A, incorporated by reference in s. **NR 484.04**, or an equivalent or alternative method, or formulation data as provided for in s. **NR 466.09 c2d**, and the solids content of these materials, by weight, determined in accordance with s. **NR 466.09 c3d**.

**c4d** **XCoating operationY** means the application of a uniform layer of material across the entire width of a substrate.

**c5d** **XCoating stationY** means a work station on which a coating operation is conducted.

**c6d** **XControl device efficiencyY** means the ratio of organic HAP emissions recovered or destroyed by a control device to the total HAP emissions that are introduced into the control device, expressed as a percentage.

**c7d** **XFacilityY** means all contiguous or adjoining property that is under common ownership or control, including properties that are separated only by a road or other public right-of-way.

**c8d** **XFlexographic pressY** means an unwind or feed section, a series of individual work stations, one or more of which is a flexographic print station, any dryers, including interstage dryers and overhead tunnel dryers, associated with the work stations, and a rewind, stack or collection station. The work stations may be oriented vertically, horizontally or around the circumference of a single large impression cylinder. Inboard and outboard work stations, including those employing any other technology, such as rotogravure, are included if they are capable of printing or coating on the same substrate.

**c9d** **XFlexographic print stationY** means a work station on which a flexographic printing operation is conducted. A flexographic print station includes a printing plate which is an image carrier made of rubber or other elastomeric material on which the image, type and art, to be printed is raised above the printing plate.

**c10d** **XHAP appliedY** means the organic HAP content of all inks, coatings, varnishes, adhesives, primers, solvent and other materials applied to a substrate by a product and packaging rotogravure or wide-web flexographic printing affected source.

**c12d** **XHAP usedY** means the organic HAP applied by a publication rotogravure printing affected source, including all organic HAP used for cleaning, parts washing, proof presses and all organic HAP emitted during tank loading, ink mixing and storage.

**c13d** **XIntermittently-controllable work stationY** means a work station associated with a dryer with provisions for the dryer exhaust to be delivered to or diverted from a control device depending on the position of a valve or damper.

**c14d** **XMonthY** means a calendar month or a prespecified period of 28 days to 35 days.

**c15d** **XNever-controlled work stationY** means a work station which is not equipped with provisions by which any emissions, including those in the exhaust from any associated dryer, may be delivered to a control device.

**c16d** **XOverall organic HAP control efficiencyY** means the total efficiency of a control system, determined either by the product of the capture efficiency and the control device efficiency or a liquid-liquid material balance.

**c17d** XPrint stationY means a work station on which a printing operation is conducted.

**c18d** XPrinting operationY means the formation of words, designs and pictures on a substrate other than fabric through the application of material to that substrate.

**c19d** XProduct and packaging rotogravure printingY means the production, on a rotogravure press, of any printed substrate not otherwise defined as publication rotogravure printing. This includes, but is not limited to, folding cartons, flexible packaging, labels and wrappers, gift wraps, wall and floor coverings, upholstery, decorative laminates and tissue products.

**c20d** XProof pressY means any device used only to check the quality of the image formation of rotogravure cylinders or flexographic plates, which prints only non-saleable items.

**c21d** XPublication rotogravure printingY means the production, on a rotogravure press, of any of the following saleable paper products:

cad Catalogues, including mail order and premium.

cbd Direct mail advertisements, including circulars, letters, pamphlets, cards, and printed envelopes.

ccd Display advertisements, including general posters, outdoor advertisements, car cards, window posters; counter and floor displays; and point of purchase and other printed display material.

cdd Magazines.

ced Miscellaneous advertisements, including brochures, pamphlets, catalog sheets, circular folders, announcements, package inserts, book jackets, market circulars, magazine inserts and shopping news.

cfid Newspapers, magazine and comic supplements for newspapers, and preprinted newspaper inserts, including hi-fi and spectacolor rolls and sections.

cgd Periodicals.

chd Telephone and other directories, including business reference services.

**c22d** XResearch or laboratory equipmentY means any equipment for which the primary purpose is to conduct research and development into new processes and products, where the equipment is operated under the close supervision of technically trained personnel and is not engaged in the manufacture of products for commercial sale in commerce, except in a de minimis manner.

**c23d** XRotogravure pressY means an unwind or feed section, a series of one or more work stations, one or more of which is a rotogravure print station, any dryers associated with the work stations, and a rewind, stack or collection section. Inboard and outboard work stations including those employing any other technology, such as flexography, are included if they are capable of printing or coating on the same substrate.

**c24d** XRotogravure print stationY means a work station on which a rotogravure printing operation is conducted. A rotogravure print station includes both a cylinder on which the image, type and art, to be printed is etched or engraved below the surface of the cylinder, and an ink supply.

**c25d** XStand-alone coating equipmentY means an unwind or feed section, a series of one or more coating stations and any associated dryers, and a rewind, stack or collection section that is not part of a product and packaging rotogravure or wide-web flexographic press, but is used to conduct one or more coating operations on a substrate. Stand-alone coating equipment may or may not do any of the following:

cad Process substrate that is also processed by a product and packaging rotogravure or wide-web flexographic press.

cbd Apply solids-containing materials that are also applied by a product and packaging rotogravure or wide-web flexographic press.

ccd Utilize a control device that is also utilized by a product and packaging rotogravure or wide-web flexographic press.

**Note:** Stand-alone coating equipment is sometimes referred to as Xoff-lineY coating equipment.

**c26d** XWide-web flexographic pressY means a flexographic press capable of printing substrates greater than 18 inches in width.

**c27d** XWork stationY means a unit on a rotogravure or wide-web flexographic press where material is deposited onto a substrate.

**History:** Cr. Register, March, 2000, No. 531, eff. 4-1-00.

**NR 466.03 Symbols.** The symbols used in equations in this chapter have the following meanings:

**c1d**  $C_{ahi}$  is the monthly average, as-applied, organic HAP content of solids-containing material, i, expressed as a weight-fraction, in kg{kg clb}{lbd}.

**c2d**  $C_{asi}$  is the monthly average, as applied, solids content of solids-containing material, i, expressed as a weight-fraction, in kg{kg clb}{lbd}.

**c3d**  $C_{hi}$  is the organic HAP content of solids-containing material, i, expressed as a weight-fraction, in kg{kg clb}{lbd}.

**c4d**  $C_{hij}$  is the organic HAP content of solvent j, added to solids-containing material i, expressed as a weight-fraction, in kg{kg clb}{lbd}.

**c5d**  $C_{hj}$  is the organic HAP content of solvent j, expressed as a weight-fraction, in kg{kg clb}{lbd}.

**c6d**  $C_i$  is the organic volatile matter concentration in ppm, dry basis, of compound i in the vent gas, as determined by Method 25 or Method 25A in 40 CFR Part 60, Appendix A, incorporated by reference in s. NR 484.04.

**c7d**  $C_{si}$  is the solids content of solids-containing material, i, expressed as a weight-fraction, in kg{kg clb}{lbd}.

**c8d**  $C_{vi}$  is the volatile matter content of solids-containing material, i, expressed as a weight-fraction, in kg{kg clb}{lbd}.

**c9d** E is the organic volatile matter control efficiency of the control device, expressed as a percent.

**c10d** F is the organic volatile matter capture efficiency of the capture system as a percent.

**c11d**  $G_i$  is the mass fraction of each solids-containing material, i, which was applied at 20% by weight or greater solids content, on an as-applied basis, in kg{kg clb}{lbd}.

**c12d** H is the total monthly organic HAP applied, in kg clbd.

**c13d**  $H_a$  is the monthly allowable organic HAP emissions, in kg clbd.

**c14d**  $H_L$  is the monthly average, as-applied, organic HAP content of all solids-containing materials applied at less than 0.04 kg organic HAP per kg of material applied c0.04 lb{lbd}, in kg{kg clb}{lbd}.

**c15d**  $H_s$  is the monthly average, as-applied, organic HAP to solids ratio, kg organic HAP{kg solids applied clb}{lbd}.

**c16d**  $H_{si}$  is the as-applied, organic HAP to solids ratio of material i.

**c17d** L is the mass organic HAP emission rate per mass of solids applied, in kg{kg clb}{lbd}.

**c18d**  $M_{Bi}$  is the sum of the mass of solids-containing material, i, applied on intermittently-controllable work stations oper-

ating in bypass mode and the mass of solids-containing material, *i*, applied on never-controlled work stations, in a month, in kg clbd.

**c19d**  $M_{Bj}$  is the sum of the mass of solvent, thinner, reducer, diluent or other non-solids-containing material, *j*, applied on intermittently-controllable work stations operating in bypass mode and the mass of solvent, thinner, reducer, diluent or other non-solids-containing material, *j*, applied on never-controlled work stations, in a month, in kg clbd.

**c20d**  $M_{Ci}$  is the sum of the mass of solids-containing material, *i*, applied on intermittently-controllable work stations operating in controlled mode and the mass of solids-containing material, *i*, applied on always-controlled work stations, in a month, in kg clbd.

**c21d**  $M_{Cj}$  is the sum of the mass of solvent, thinner, reducer, diluent or other non-solids-containing material, *j*, applied on intermittently-controllable work stations operating in controlled mode and the mass of solvent, thinner, reducer, diluent or other non-solids-containing material, *j*, applied on always-controlled work stations in a month, in kg clbd.

**c22d**  $M_f$  is the total organic volatile matter mass flow rate, in kg{hr clb{hrd.

**c23d**  $M_{fi}$  is the organic volatile matter mass flow rate at the inlet to the control device, in kg{hr clb{hrd.

**c24d**  $M_{fo}$  is the organic volatile matter mass flow rate at the outlet of the control device, in kg{hr clb{hrd.

**c25d**  $M_{hu}$  is the mass of organic HAP used in a month, in kg clbd.

**c26d**  $M_i$  is the mass of solids-containing material, *i*, applied in a month, in kg clbd.

**c27d**  $M_{ij}$  is the mass of solvent, thinner, reducer, diluent or other non-solids-containing material, *j*, added to solids-containing material, *i*, in a month, in kg clbd.

**c28d**  $M_j$  is the mass of solvent, thinner, reducer, diluent or other non-solids-containing material, *j*, applied in a month, in kg clbd.

**c29d**  $M_{Lj}$  is the mass of solvent, thinner, reducer, diluent or other non-solids-containing material, *j*, added to solids-containing materials which were applied at less than 20% by weight solids content, on an as-applied basis, in a month, in kg clbd.

**c30d**  $M_{vr}$  is the mass of volatile matter recovered in a month, in kg clbd.

**c31d**  $M_{vu}$  is the mass of volatile matter, including water, used in a month, in kg clbd.

**c32d**  $MW_i$  is the molecular weight of compound *i* in the vent gas, kg{kg-mol.

**c33d** *n* is the number of organic compounds in the vent gas.

**c34d** *p* is the number of different inks, coatings, varnishes, adhesives, primers and other solids-containing materials applied in a month.

**c35d** *q* is the number of different solvents, thinners, reducers, diluents or other non-solids-containing materials applied in a month.

**c36d**  $Q_{sd}$  is the volumetric flow rate of gases entering or exiting the control device in dscm{hr, as determined by Method 2 in 40 CFR Part 60, Appendix A, incorporated by reference in s. NR 484.04.

**c37d** *R* is the overall organic HAP control efficiency as a percent.

**c38d**  $R_e$  is the overall effective organic HAP control efficiency for publication rotogravure as a percent.

**c39d** *R<sub>v</sub>* is the organic volatile matter collection and recovery efficiency as a percent.

**c40d** *S* is the mass organic HAP emission rate per mass of material applied, in kg{kg clb{lb.

**c41d** 0.0416 is the conversion factor for molar volume, kg-mol{m<sup>3</sup>, at standard conditions.

**History:** Cr. Register, March, 2000, No. 531, eff. 4-1-00.

**NR 466.05 Standards: general.** General provisions of ch. NR 460 apply to owners and operators of affected sources subject to this chapter as indicated in ch. NR 460 Appendix KK.

**History:** Cr. Register, March, 2000, No. 531, eff. 4-1-00.

**NR 466.06 Standards: publication rotogravure printing. c1d COMPLIANCE DATES.** Each owner or operator of any publication rotogravure printing affected source that is subject to the requirements of this chapter shall comply with this section on and after the compliance dates as specified in s. NR 466.08.

**c2d EMISSION LIMITATION.** The owner or operator of each publication rotogravure affected source shall limit organic HAP emissions to no more than 8% of the total volatile matter used each month.

**c3d COMPLIANCE METHODS.** The emission limitation in sub. c2d shall be achieved by any of the following methods:

cad Overall control of at least 92% of organic HAP used.

cbd Substitution of non-HAP materials for organic HAP.

ccd A combination of capture and control technologies and substitution of materials.

**c4d COMPLIANCE DEMONSTRATION. cad Solvent recovery.** Each owner or operator using a solvent recovery device to control emissions shall demonstrate compliance by showing that the HAP emission limitation is achieved by doing either of the following:

1. Perform a liquid-liquid material balance for each month according to the following procedures:

a. Measure the mass of each ink, coating, varnish, adhesive, primer, solvent and other material used by the affected source during the month.

b. Determine the organic HAP content of each ink, coating, varnish, adhesive, primer, solvent and other material used by the affected source during the month following the procedure in s. NR 466.09 c2d cad.

c. Determine the volatile matter content, including water, of each ink, coating, varnish, adhesive, primer, solvent and other material used by the affected source during the month following the procedure in s. NR 466.09 c3d cad.

d. Install, calibrate, maintain and operate, according to the manufacturer[s specifications, a device that indicates the cumulative amount of volatile matter recovered by the solvent recovery device on a monthly basis. The device shall be initially certified by the manufacturer to be accurate to within ±2.0%.

e. Measure the amount of volatile matter recovered for the month.

f. Calculate the overall effective organic HAP control efficiency  $cR_e$  for the month using Equation 1. For the purposes of this calculation, the mass fraction of organic HAP present in the recovered volatile matter is assumed to be equal to the mass fraction of organic HAP present in the volatile matter used.

$$R_e = (100) \frac{M_{vu} - M_{hu} + [(M_{vr})(M_{hu} / M_{vu})]}{M_{vu}}$$

cEquation 1d

2. Use continuous emission monitors, conduct an initial performance test of capture efficiency, and continuously monitor a site specific operating parameter to assure capture efficiency as specified in the following procedures:

- a. Install continuous emission monitors to determine the total organic volatile matter mass flow rate at both the inlet to and the outlet from the control device, and calculate the percent efficiency  $cEd$  of the control device for each month.
- b. Determine the percent capture efficiency  $cFd$  of the capture system according to s. NR 466.09 c5d.
- c. Calculate the overall effective organic HAP control efficiency  $cR_e$  achieved for each month using Equation 2.

$$R_e = (100) \frac{M_{vu} - M_{hu} + [(E / 100) (F / 100) M_{hu}]}{M_{vu}}$$

cEquation 2d

d. Install, calibrate, operate and maintain the instrumentation necessary to measure continuously the site-specific operating parameter established in accordance with s. NR 466.10 c6d whenever a publication rotogravure printing press is operated.

e. Operate the capture device at an average value greater than, or less than, as appropriate, the operating parameter value established in accordance with s. NR 466.10 c6d for each 3-hour period.

**cbd Oxidation.** Each owner or operator using an oxidizer to control emissions shall demonstrate compliance by showing that the HAP emission limitation is achieved by doing either of the following:

1. Demonstrate initial compliance through performance tests and continuing compliance through continuous monitoring according to the following procedures:

- a. Determine the oxidizer destruction efficiency  $cEd$  using the procedure in s. NR 466.09 c4d.
- b. Determine the capture efficiency  $cFd$  using the procedure in s. NR 466.09 c5d.
- c. Calculate the overall effective organic HAP control efficiency  $cR_e$  achieved using Equation 2 in par. cad 2. c.
- d. Continuously monitor an appropriate oxidizer operating parameter in accordance with s. NR 466.10 c5d, and continuously monitor an appropriate capture system monitoring parameter in accordance with s. NR 466.10 c6d.

e. Operate the capture device at an average value greater than or less than, as appropriate, the operating parameter value established in accordance with s. NR 466.10 c6d.

f. If an oxidizer other than a catalytic oxidizer is used, operate the oxidizer at an average combustion temperature for all 3-hour periods greater than or equal to the average combustion temperature established under s. NR 466.09 c4d.

g. If a catalytic oxidizer is used, operate the oxidizer so that the average catalyst bed inlet temperature for all 3-hour periods is greater than or equal to the average catalyst bed inlet temperature established under s. NR 466.09 c4d.

2. Use continuous emission monitors, conduct an initial performance test of capture efficiency and continuously monitor a site specific operating parameter to assure capture efficiency in accordance with the requirements of par. cad 2.

**ccd Low HAP materials.** Each owner or operator demonstrating compliance without the use of a control device shall compare the mass of organic HAP used to the mass of volatile matter used each month, as specified in the following procedures:

1. Measure the mass of each ink, coating, varnish, adhesive,

primer, solvent and other material used in the affected source during the month.

2. Determine the organic HAP content of each ink, coating, varnish, adhesive, primer, solvent and other material used during the month following the procedure in s. NR 466.09 c2d cad.

3. Determine the volatile matter content, including water, of each ink, coating, varnish, adhesive, primer, solvent and other material used during the month following the procedure in s. NR 466.09 c3d cad.

**cdd Compliance criteria.** 1. Under par. cad 1., the affected source is in compliance for the month with the emission limitation if  $R_e$  is at least 92% for that month.

2. Under par. cad 2., the affected source is in compliance for the month with the emission limitation if  $R_e$  is at least 92% for that month, and the capture device is operated at an average value greater than, or less than, as appropriate, the operating parameter value established in accordance with s. NR 466.10 c6d for each 3-hour period.

3. Under par. cbd 1., the affected source is in initial compliance with the emission limitation if  $R_e$  is at least 92%. The affected source is in continuing compliance with the emission limitation if par. cbd 1. e. and either par. cbd 1. f. or g. are satisfied.

4. Under par. cbd 2., the affected source is in compliance for the month with the emission limitation if the criteria of subd. 2. are satisfied.

5. Under par. ccd, the affected source is in compliance for the month with the emission limitation if the mass of organic HAP used does not exceed 8% of the mass of volatile matter used.

**History:** Cr. Register, March, 2000, No. 531, eff. 4-1-00.

**NR 466.07 Standards: product and packaging rotogravure and wide-web flexographic printing. c1d COMPLIANCE DATES.** Each owner or operator of any product and packaging rotogravure or wide-web flexographic printing affected source that is subject to the requirements of this chapter shall comply with this section on and after the compliance dates as specified in s. NR 466.08.

**c2d EMISSION LIMITATIONS.** The owner or operator of each product and packaging rotogravure or wide-web flexographic printing affected source shall limit organic HAP emissions to no more than any one of the following:

cad Five percent of the organic HAP applied for the month.

cbd Four percent of the mass of inks, coatings, varnishes, adhesives, primers, solvents, reducers, thinners and other materials applied for the month.

ccd Twenty percent of the mass of solids applied for the month.

cdd A calculated equivalent allowable mass based on the organic HAP and solids contents of the inks, coatings, varnishes, adhesives, primers, solvents, reducers, thinners and other materials applied for the month.

**c3d COMPLIANCE METHODS.** The owner or operator of each product and packaging rotogravure or wide-web flexographic printing affected source shall demonstrate compliance with sub. c2d according to one of the following procedures:

cad Demonstrate that each ink, coating, varnish, adhesive, primer, solvent, diluent, reducer, thinner and other material applied during the month contains no more than 0.04 weight-fraction organic HAP, on an as-purchased basis, as determined in accordance with s. NR 466.09 c2d cbd.

cbd Demonstrate that each ink, coating, varnish, adhesive, primer and other solids-containing material applied during the month contains no more than 0.04 weight-fraction organic HAP,

on a monthly average as-applied basis, as determined in accordance with the following procedures:

1. Determine the organic HAP content of each ink, coating, varnish, adhesive, primer, solvent, diluent, reducer, thinner and other material applied on an as-purchased basis in accordance with s. NR 466.09 c2d cbd.

2. Calculate the monthly average as-applied organic HAP content  $C_{ahi}$  of each ink, coating, varnish, adhesive, primer and other solids-containing material using Equation 3.

$$C_{ahi} = \frac{(C_{hi} M_i + \sum_{j=1}^q C_{hij} M_{ij})}{M_i + \sum_{j=1}^q M_{ij}} \quad \text{cEquation 3d}$$

ccd Demonstrate that each ink, coating, varnish, adhesive, primer and other solids-containing material applied, contains no more than one of the following:

1. 0.04 weight-fraction organic HAP on a monthly average as-applied basis, when determined in accordance with par. cbd.

2. 0.20 kg c0.20 lbd of organic HAP per kg clbd of solids applied, on a monthly average as-applied basis, when determined in accordance with the following procedures:

a. Determine the as-applied solids content following the procedure in s. NR 466.09 c3d cbd of all materials which do not meet the requirements of subd. 1.

b. Calculate the monthly average as-applied solids content of materials which are reduced, thinned or diluted prior to application, using Equation 4.

$$C_{asi} = \frac{C_{si} M_i}{M_i + \sum_{j=1}^q M_{ij}} \quad \text{(Equation 4)}$$

c. Calculate the as-applied organic HAP to solids ratio,  $H_{si}$ , for all materials which do not meet the requirements of subd. 1., using Equation 5.

$$H_{si} = \frac{C_{ahi}}{C_{asi}} \quad \text{cEquation 5d}$$

cdd Demonstrate that the monthly average as-applied organic HAP content,  $H_L$ , of all materials applied is less than 0.04 kg c0.04 lbd HAP per kg clbd of material applied, using Equation 6.

$$H_L = \frac{\sum_{i=1}^p M_i C_{hi} + \sum_{j=1}^q M_j C_{hj}}{\sum_{i=1}^p M_i + \sum_{j=1}^q M_j} \quad \text{cEquation 6d}$$

ced Demonstrate that the monthly average as-applied organic HAP content,  $H_s$ , is less than 0.20 kg c0.20 lbd HAP per kg clbd solids applied using Equation 7.

$$H_s = \frac{\sum_{i=1}^p M_i C_{hi} + \sum_{j=1}^q M_j C_{hj}}{\sum_{i=1}^p M_i C_{si}} \quad \text{cEquation 7d}$$

cfb Demonstrate that the total monthly organic HAP applied,  $H$ , as determined using Equation 8, is less than the calculated equivalent allowable organic HAP,  $H_a$ , as determined under sub. c6d.

$$H = \sum_{i=1}^p M_i C_{hi} + \sum_{j=1}^q M_j C_{hj} \quad \text{cEquation 8d}$$

cgd Operate a capture system and control device and demon-

strate an overall organic HAP control efficiency of at least 95% for each month. If the affected source operates more than one capture system or more than one control device, and has only always-controlled work stations, the owner or operator shall demonstrate compliance in accordance with the provisions of sub. c7d or c9d. If the affected source operates one or more never-controlled work stations or one or more intermittently-controllable work stations, the owner or operator shall demonstrate compliance in accordance with the provisions of sub. c7d. Otherwise, the owner or operator shall demonstrate compliance in accordance with the procedure in sub. c4d when emissions from the affected source are controlled by a solvent recovery device or the procedure in sub. c5d when emissions are controlled by an oxidizer.

chd Operate a capture system and control device and limit the organic HAP emission rate to no more than 0.20 kg c0.20 lbd organic HAP emitted per kg clbd solids applied as determined on a monthly average as-applied basis. If the affected source operates more than one capture system, more than one control device, one or more never-controlled work stations, or one or more intermittently-controllable work stations, the owner or operator shall demonstrate compliance in accordance with the provisions of sub. c7d. Otherwise, the owner or operator shall demonstrate compliance following the procedure in sub. c4d when emissions from the affected source are controlled by a solvent recovery device or the procedure in sub. c5d when emissions are controlled by an oxidizer.

cid Operate a capture system and control device and limit the organic HAP emission rate to no more than 0.04 kg c0.04 lbd organic HAP emitted per kg clbd material applied as determined on a monthly average as-applied basis. If the affected source operates more than one capture system, more than one control device, one or more never-controlled work stations, or one or more intermittently-controllable work stations, then the owner or operator shall demonstrate compliance in accordance with the provisions of sub. c7d. Otherwise, the owner or operator shall demonstrate compliance following the procedure in sub. c4d when emissions from the affected source are controlled by a solvent recovery device or the procedure in sub. c5d when emissions are controlled by an oxidizer.

cjd Operate a capture system and control device and limit the monthly organic HAP emissions to less than the allowable emissions as calculated in accordance with sub. c6d. If the affected source operates more than one capture system, more than one control device, one or more never-controlled work stations, or one or more intermittently-controllable work stations, the owner or operator shall demonstrate compliance in accordance with the provisions of sub. c7d. Otherwise, the owner or operator shall demonstrate compliance following the procedure in sub. c4d when emissions from the affected source are controlled by a solvent recovery device or the procedure in sub. c5d when emissions are controlled by an oxidizer.

**c4d COMPLIANCE DEMONSTRATION FOR A SOLVENT RECOVERY DEVICE.** cad To demonstrate the overall organic HAP control efficiency required under sub. c3d cgd, or the organic HAP emission limitation requirements in sub. c3d chd to cjd, each owner or operator using a solvent recovery device to control emissions shall do one of the following:

1. Perform a liquid-liquid material balance for each month according to the following procedures:

a. Measure the mass of each ink, coating, varnish, adhesive, primer, solvent and other material applied on the press or group of presses controlled by a common solvent recovery device during the month.

b. If demonstrating compliance with sub. [c2d cbd](#), [ccd](#) or [cdd](#), determine the organic HAP content of each ink, coating, varnish, adhesive, primer, solvent and other material applied during the month following the procedure in s. [NR 466.09 c2d cbd](#).

c. Determine the volatile matter content of each ink, coating, varnish, adhesive, primer, solvent and other material applied during the month following the procedure in s. [NR 466.09 c3d cbd](#).

d. If demonstrating compliance with sub. [c2d ccd](#) or [cdd](#), determine the solids content of each ink, coating, varnish, adhesive, primer, solvent and other material applied during the month following the procedure in s. [NR 466.09 c3d cbd](#).

e. Install, calibrate, maintain and operate according to the manufacturer[s specifications, a device that indicates the cumulative amount of volatile matter recovered by the solvent recovery device on a monthly basis. The device shall be initially certified by the manufacturer to be accurate to within  $\pm 2.0\%$ .

f. Measure the amount of volatile matter recovered for the month.

g. Calculate the volatile matter collection and recovery efficiency,  $R_v$ , using Equation 9.

$$R_v = 100 \frac{M_{vr}}{\sum_{i=1}^p M_i C_{vi} + \sum_{j=1}^q M_j} \quad \text{(Equation 9)}$$

h. If demonstrating compliance with sub. [c2d cbd](#), [ccd](#) or [cdd](#), calculate the organic HAP emitted during the month, H, using Equation 10.

$$H = \left[ 1 - \frac{R_v}{100} \right] \left[ \sum_{i=1}^p \left( C_{hi} M_i + \sum_{j=1}^q C_{hij} M_{ij} \right) \right] \quad \text{cEquation 10d}$$

i. If demonstrating compliance with sub. [c2d ccd](#), calculate the organic HAP emission rate based on solids applied, L, using Equation 11.

$$L = \frac{H}{\sum_{i=1}^p C_{si} M_i} \quad \text{(Equation 11)}$$

j. If demonstrating compliance with sub. [c2d cbd](#), calculate the organic HAP emission rate based on material applied, S, using Equation 12.

$$S = \frac{H}{\sum_{i=1}^p \left[ M_i + \sum_{j=1}^q M_{ij} \right]} \quad \text{(Equation 12)}$$

2. Conduct continuous emission monitoring of the control device, conduct an initial performance test of capture efficiency, and continuously monitor a site specific operating parameter to assure capture efficiency according to the following procedures:

a. If demonstrating compliance with sub. [c2d cbd](#), [ccd](#) or [cdd](#), measure the mass of each ink, coating, varnish, adhesive, primer, solvent and other material applied on the press or group of presses controlled by a common control device during the month.

b. If demonstrating compliance with sub. [c2d cbd](#), [ccd](#) or [cdd](#), determine the organic HAP content of each ink, coating, varnish, adhesive, primer, solvent and other material applied during the month following the procedure in s. [NR 466.09 c2d cbd](#).

c. Install continuous emission monitors to determine the to-

tal organic volatile matter mass flow rate at both the inlet to and the outlet from the control device, and calculate the percent efficiency  $cEd$  of the control device for each month.

d. If demonstrating compliance with sub. [c2d ccd](#) or [cdd](#), determine the solids content of each ink, coating, varnish, adhesive, primer, solvent and other material applied during the month following the procedure in s. [NR 466.09 c3d cbd](#).

e. Install, calibrate, operate and maintain the instrumentation necessary to measure continuously the site-specific operating parameter established in accordance with s. [NR 466.10 c6d](#) whenever a product and packaging rotogravure or wide-web flexographic printing press is operated.

f. Determine the capture efficiency  $cFd$  in accordance with s. [NR 466.09 c5d](#) and [c6d](#).

g. Calculate the overall organic HAP control efficiency,  $cRd$ , achieved for each month using Equation 13.

$$R = \frac{E F}{100} \quad \text{(Equation 13)}$$

h. If demonstrating compliance with sub. [c2d cbd](#), [ccd](#) or [cdd](#), calculate the organic HAP emitted during the month, H, for each month using Equation 14.

$$H = \left[ 1 - \left( \frac{E}{100} \frac{F}{100} \right) \right] \left[ \sum_{i=1}^p \left( C_{hi} M_i + \sum_{j=1}^q C_{hij} M_{ij} \right) \right] \quad \text{cEquation 14d}$$

i. If demonstrating compliance with sub. [c2d ccd](#), calculate the organic HAP emission rate based on solids applied, L, using Equation 15.

$$L = \frac{H}{\sum_{i=1}^p C_{si} M_i} \quad \text{cEquation 15d}$$

j. If demonstrating compliance with sub. [c2d cbd](#), calculate the organic HAP emission rate based on material applied, S, using Equation 16.

$$S = \frac{H}{\sum_{i=1}^p \left[ M_i + \sum_{j=1}^q M_{ij} \right]} \quad \text{(Equation 16)}$$

[cbd 1.](#) Under par. [cad 1.](#), the affected source is in compliance with an emission limitation if one of the following is satisfied:

a. The organic volatile matter collection and recovery efficiency,  $R_v$ , is 95% or greater.

b. The organic HAP emission rate based on solids applied, L, is 0.20 kg c0.20 lbd organic HAP per kg clbd solids applied or less.

c. The organic HAP emission rate based on material applied, S, is 0.04 kg c0.04 lbd organic HAP per kg clbd material applied or less.

d. The organic HAP emitted during the month, H, is less than the calculated allowable organic HAP,  $H_a$ , as determined using sub. [c6d](#).

2. Under par. [cad 2.](#), the affected source is in compliance with an emission limitation if the capture system operating parameter is operated at an average value greater than or less than, as appropriate, the operating parameter value established in accordance with s. [NR 466.10 c6d](#) for each 3 hour period, and one of the following is satisfied:

a. The organic volatile matter collection and recovery efficiency,  $R_v$ , is 95% or greater.

b. The organic HAP emission rate based on solids applied,  $L$ , is 0.20 kg c0.20 lbd organic HAP per kg clbd solids applied or less.

c. The organic HAP emission rate based on material applied,  $S$ , is 0.04 kg c0.04 lbd organic HAP per kg clbd material applied or less.

d. The organic HAP emitted during the month,  $H$ , is less than the calculated allowable organic HAP,  $H_a$ , as determined using sub. c6d.

**c5d COMPLIANCE DEMONSTRATION FOR AN OXIDIZER.** cad To demonstrate the overall organic HAP control efficiency required under sub. c3d cgd or the organic HAP emission limitation requirements in sub. c3d chd to cjd, each owner or operator using an oxidizer to control emissions shall do one of the following:

1. Conduct initial performance tests of capture efficiency and control device efficiency and continuously monitor capture system and control device operating parameters according to the following procedures:

a. Determine the oxidizer destruction efficiency cEd using the procedure in s. NR 466.09 c4d.

b. Determine the capture system capture efficiency cFd in accordance with s. NR 466.09 c5d and c6d.

c. Calculate the overall organic HAP control efficiency, cRd, achieved using Equation 13 in sub. c4d cad 2. g.

d. If demonstrating compliance with sub. c2d cbd, ccd or cdd, measure the mass of each ink, coating, varnish, adhesive, primer, solvent and other material applied on the press or group of presses controlled by a common solvent recovery device during the month.

e. If demonstrating compliance with sub. c2d cbd, ccd or cdd, determine the organic HAP content of each ink, coating, varnish, adhesive, primer, solvent and other material applied during the month following the procedure in s. NR 466.09 c2d cbd.

f. If demonstrating compliance with sub. c2d ccd or cdd, determine the solids content of each ink, coating, varnish, adhesive, primer, solvent and other material applied during the month following the procedure in s. NR 466.09 c3d cbd.

g. If demonstrating compliance with sub. c2d cbd, ccd or cdd, calculate the organic HAP emitted during the month,  $H$ , for each month using Equation 14 in sub. c4d cad 2. h.

h. If demonstrating compliance with sub. c2d ccd, calculate the organic HAP emission rate based on solids applied,  $L$ , for each month using Equation 15 in sub. c4d cad 2. i.

i. If demonstrating compliance with sub. c2d cbd, calculate the organic HAP emission rate based on material applied,  $S$ , using Equation 16 in sub. c4d cad 2. j.

j. Install, calibrate, operate and maintain the instrumentation necessary to measure continuously the site-specific operating parameters established in accordance with s. NR 466.10 c5d and

$$H_a = 0.20 \left[ \sum_{i=1}^p M_i G_i C_{si} \right] + 0.04 \left[ \sum_{i=1}^p M_i (1 - G_i) + \sum_{j=1}^q M_{Lj} \right] \quad \text{cEquation}$$

17d

**c7d OPERATING MORE THAN ONE CAPTURE SYSTEM OR CONTROL DEVICE, OR ONE OR MORE NEVER-CONTROLLED OR INTERMITTENTLY-CONTROLLABLE WORK STATIONS.** This subsection applies to owners or operators of product and packaging rotogravure or wide-web flexographic printing presses operating more than one capture system, more than one control device, one or more never-controlled work stations, or one or more intermittently-controllable work stations.

c6d whenever a product and packaging rotogravure or wide-web flexographic press is operating.

2. Conduct continuous emission monitoring of the control device, conduct an initial performance test of capture efficiency, and continuously monitor a site specific operating parameter to assure capture efficiency in accordance with the requirements in sub. c4d cad 2.

cbd 1. Under par. cad 1., the affected source is in compliance with an emission limitation if the oxidizer is operated such that the average operating parameter value is greater than the operating parameter value established in accordance with s. NR 466.10 c5d for each 3-hour period, and the capture system operating parameter is operated at an average value greater than or less than, as appropriate, the operating parameter value established in accordance with s. NR 466.10 c6d for each 3-hour period, and one of the following is satisfied:

a. The overall organic HAP control efficiency,  $R$ , is 95% or greater.

b. The organic HAP emission rate based on solids applied,  $L$ , is 0.20 kg c0.20 lbd organic HAP per kg clbd solids applied or less.

c. The organic HAP emission rate based on material applied,  $S$ , is 0.04 kg c0.04 lbd organic HAP per kg clbd material applied or less.

d. The organic HAP emitted during the month,  $H$ , is less than the calculated allowable organic HAP,  $H_a$ , as determined using sub. c6d.

2. Under par. cad 2., the affected source is in compliance with an emission limitation if sub. c4d cbd 2. is satisfied.

**c6d CALCULATING MONTHLY ALLOWABLE HAP EMISSIONS  $CH_aD$ .** Owners or operators shall calculate the monthly allowable HAP emissions,  $H_a$ , as required under sub. c3d cfd, c4d cbd 1. d. or 2. d., or c5d cbd 1. d., according to the following procedures:

cad Determine the as-purchased mass of each ink, coating, varnish, adhesive, primer and other solids-containing material applied each month,  $M_i$ .

cbd Determine the as-purchased solids content of each ink, coating, varnish, adhesive, primer and other solids-containing material applied each month, in accordance with s. NR 466.09 c3d cbd,  $C_{si}$ .

ccd Determine the as-purchased mass fraction of each ink, coating, varnish, adhesive, primer and other solids-containing material which was applied at 20% by weight or greater solids content, on an as-applied basis,  $G_i$ .

cdd Determine the total mass of each solvent, diluent, thinner or reducer added to materials which were applied at less than 20% by weight solids content, on an as-applied basis, each month,  $M_{Lj}$ .

ced Calculate the monthly allowable HAP emissions,  $H_a$ , using Equation 17.

cad The owner or operator of each solvent recovery system used to control one or more product and packaging rotogravure or wide-web flexographic presses for which the owner or operator chooses to perform a liquid-liquid material balance under sub. c4d cad 1. shall determine the organic HAP emissions for those presses controlled by that solvent recovery system according to one of the following:

1. In accordance with sub. c4d cad 1. a. to c. and e. to h., if



the presses controlled by that solvent recovery system have only always-controlled work stations.

2. In accordance with subs. [c4d cad 1. b., c., e. and f.](#) and [c8d](#), if the presses controlled by that solvent recovery system have one or more never-controlled or intermittently-controllable work stations.

**cbd** The owner or operator of each solvent recovery system used to control one or more product and packaging rotogravure or wide-web flexographic presses, for which the owner or operator chooses to conduct continuous emission monitoring of the control device, conduct an initial test of capture efficiency, and continuously monitor a site specific operating parameter to assure capture efficiency under sub. [c4d cad 2.](#), shall do both of the following:

1. For each capture system delivering emissions to that solvent recovery system, monitor an operating parameter established in accordance with s. [NR 466.10 c6d](#) to assure capture system efficiency.

2. Determine the organic HAP emissions for those presses served by each capture system delivering emissions to that solvent recovery system according to one of the following:

a. In accordance with sub. [c4d cad 2. a. to c. and e. to h.](#), if the presses served by that capture system have only always-controlled work stations.

b. In accordance with subs. [c4d cad 2. b., c. and e. to g. and c8d](#), if the presses served by that capture system have one or more never-controlled or intermittently-controllable work stations.

**ccd** The owner or operator of each oxidizer used to control emissions from one or more product and packaging rotogravure or wide-web flexographic presses, for which the owner or operator chooses to conduct performance tests of capture efficiency and control device efficiency and continuously monitor capture system and control device operating parameters under sub. [c5d cad 1.](#), shall do all of the following:

1. Monitor an operating parameter established in accordance with s. [NR 466.10 c5d](#) to assure control device efficiency.

2. For each capture system delivering emissions to that oxidizer, monitor an operating parameter established in accordance with s. [NR 466.10 c6d](#) to assure capture efficiency.

3. Determine the organic HAP emissions for those presses served by each capture system delivering emissions to that oxidizer according to one of the following:

a. In accordance with sub. [c5d cad 1. a. to e. and g.](#), if the presses served by that capture system have only always-controlled work stations.

b. In accordance with subs. [c5d cad 1. a. to c. and e. and c8d](#), if the presses served by that capture system have one or more never-controlled or intermittently-controllable work stations.

**cdd** The owner or operator of each oxidizer used to control emissions from one or more product and packaging rotogravure or wide-web flexographic presses, for which the owner or operator chooses to conduct continuous emission monitoring of the control device, conduct an initial performance test of capture efficiency and continuously monitor a site specific operating parameter to assure capture efficiency under sub. [c5d cad 2.](#), shall do both of the following:

1. For each capture system delivering emissions to that oxidizer, monitor an operating parameter established in accordance with s. [NR 466.10 c6d](#) to assure capture efficiency.

2. Determine the organic HAP emissions for those presses served by each capture system delivering emissions to that oxidizer according to one of the following:

a. In accordance with sub. [c4d cad 2. a. to c. and e. to h.](#), if

the presses served by that capture system have only always-controlled work stations.

b. In accordance with subs. [c4d cad 2. b., c., e. to g. and c8d](#), if the presses served by that capture system have one or more never-controlled or intermittently-controllable work stations.

**ced** The owner or operator of one or more uncontrolled product and packaging rotogravure or wide-web flexographic printing presses shall determine the organic HAP applied on those presses using Equation 8 in sub. [c3d cfd](#). For the purpose of a determination under this paragraph, the organic HAP emitted from an uncontrolled press shall be considered equal to the organic HAP applied on that press.

**cfđ** If demonstrating compliance with sub. [c2d ccd](#) or [cdd](#), the owner or operator shall determine the solids content of each ink, coating, varnish, adhesive, primer, solvent and other material applied during the month following the procedure in s. [NR 466.09 c3d cbd](#).

**cgd** The owner or operator shall determine the organic HAP emissions for the affected source for the month by summing all organic HAP emissions calculated according to pars. [cad, cbd 2., ccd 3., cdd 2. and ced](#).

**chđ** Under this subsection, the affected source is in compliance for the month with an emission limitation, if all operating parameters required to be monitored under pars. [cbd to cdd](#), were maintained at the appropriate values, and one of the following is satisfied:

1. The total mass of organic HAP emitted by the affected source was not more than 4% of the total mass of inks, coatings, varnishes, adhesives, primers, solvents, diluents, reducers, thinners and other materials applied by the affected source.

2. The total mass of organic HAP emitted by the affected source was not more than 20% of the total mass of solids applied by the affected source.

3. The total mass of organic HAP emitted by the affected source was not more than the equivalent allowable organic HAP emissions for the affected source,  $H_{as}$ , calculated in accordance with sub. [c6d](#).

4. The total mass of organic HAP emitted by the affected source was not more than 5% of the total mass of organic HAP applied by the affected source. The total mass of organic HAP applied by the affected source in the month shall be determined by the owner or operator using Equation 8 in sub. [c3d cfd](#).

**c8đ** OPERATING NEVER-CONTROLLED OR INTERMITTENTLY CONTROLLABLE WORK STATIONS. Owners or operators determining organic HAP emissions from a press or group of presses having one or more never-controlled or intermittently-controllable work stations and using the procedures specified in sub. [c7d cad 2., cbd 2. b., ccd 3. b. or cdd 2. b.](#), shall do the following for that press or group of presses:

**cad** Determine the sum of the mass of all inks, coatings, varnishes, adhesives, primers and other solids-containing materials which are applied on intermittently-controllable work stations in bypass mode and the mass of all inks, coatings, varnishes, adhesives, primers and other solids-containing materials which are applied on never-controlled work stations during the month,  $M_{Bj}$ .

**cbd** Determine the sum of the mass of all solvents, reducers, thinners and other diluents which are applied on intermittently-controllable work stations in bypass mode and the mass of all solvents, reducers, thinners and other diluents which are applied on never-controlled work stations during the month,  $M_{Bj}$ .

**ccd** Determine the sum of the mass of all inks, coatings, varnishes, adhesives, primers and other solids-containing materials which are applied on intermittently-controllable work stations in

controlled mode and the mass of all inks, coatings, varnishes, adhesives, primers and other solids-containing materials which are applied on always-controlled work stations during the month,  $M_{Ci}$ .

cdd Determine the sum of the mass of all solvents, reducers, thinners and other diluents which are applied on intermittently-

$$H = \left[ \sum_{i=1}^p M_{Ci} C_{hi} + \sum_{j=1}^q M_{Cj} C_{hj} \right] \left[ 1 - \frac{M_{vr}}{\sum_{i=1}^p M_{Ci} C_{vi} + \sum_{j=1}^q M_{Cj}} \right] + \left[ \sum_{i=1}^p M_{Bi} C_{hi} + \sum_{j=1}^q M_{Bj} C_{hj} \right]$$

cEquation 18d

cf d For each press or group of presses for which the owner or operator uses the provisions of sub. c7d cbd 2. b., ccd 3. b. or cdd 2. b., the owner or operator shall calculate the organic HAP emitted during the month using Equation 19.

$$H = \left[ \sum_{i=1}^p M_{Ci} C_{hi} + \sum_{j=1}^q M_{Cj} C_{hj} \right] \left[ 1 - \left( \frac{E}{100} \frac{F}{100} \right) \right] + \left[ \sum_{i=1}^p M_{Bi} C_{hi} + \sum_{j=1}^q M_{Bj} C_{hj} \right]$$

cEquation 19d

**c9d OPERATING MORE THAN ONE CAPTURE SYSTEM OR CONTROL DEVICE AND NO NEVER-CONTROLLED AND NO INTERMITTENTLY CONTROLLABLE WORK STATIONS.** If the owner or operator of an affected source operates more than one capture system or more than one control device, and has no never-controlled work stations and no intermittently-controllable work stations, the affected source is in compliance with the 95% overall organic HAP control efficiency requirement for the month if for each press or group of presses controlled by a common control device one of the following is satisfied:

cad The organic volatile matter collection and recovery efficiency,  $R_v$ , as determined by sub. c4d cad 1. a., c. and e. to g., is equal to or greater than 95%.

cbd The overall organic HAP control efficiency as determined by sub. c4d cad 2. c. and e. to g., for each press or group of presses served by that control device and a common capture system, is equal to or greater than 95% and the average capture system operating parameter value for each capture system serving that control device is greater than or less than, as appropriate, the operating parameter value established for that capture system in accordance with s. NR 466.10 c6d for each 3-hour period.

ccd The overall organic HAP control efficiency as determined by sub. c5d cad 1. a. to c. and j., for each press or group of presses served by that control device and a common capture system, is equal to or greater than 95%, the oxidizer is operated such that the average operating parameter value is greater than the operating parameter value established in accordance with s. NR 466.10 c5d for each 3-hour period, and the average capture system operating parameter value for each capture system serving that control device is greater than or less than, as appropriate, the operating parameter value established for that capture system in accordance with s. NR 466.10 c6d for each 3-hour period.

**History:** Cr. Register, March, 2000, No. 531, eff. 4-1-00.

**NR 466.08 Compliance dates. c1d** The owner or operator of an existing source subject to this chapter shall comply with the provisions of this chapter on or before May 30, 1999.

**c2d** The owner or operator of a new MACT source subject to this chapter shall comply with the provisions of this chapter immediately upon startup of the affected source, or May 30, 1996, whichever is later.

**c3d** Affected sources which have undergone reconstruction are subject to the requirements for new MACT sources. The costs associated with the purchase and installation of air pollu-

controllable work stations in controlled mode and the mass of all solvents, reducers, thinners and other diluents which are applied on always-controlled work stations during the month,  $M_{Cj}$ .

ced For each press or group of presses for which the owner or operator uses the provisions of sub. c7d cad 2., calculate the organic HAP emitted during the month using Equation 18.

tion control equipment are not considered in determining whether the affected source has been reconstructed. Additionally, the costs of retrofitting and replacement of equipment that is installed specifically to comply with this chapter are not considered reconstruction costs.

**Note:** Compliance dates are federally enforceable under 40 CFR 63.826 prior to the effective date of this section.

**History:** Cr. Register, March, 2000, No. 531, eff. 4-1-00.

**NR 466.09 Performance test methods. c1d INITIAL PERFORMANCE TEST EXCEPTIONS FOR CONTROL DEVICES.** An owner or operator using a control device to comply with the requirements of s. NR 466.06 or 466.07 is not required to conduct an initial performance test to demonstrate compliance as is otherwise required under ss. NR 466.06 c4d cad 2., cbd 1. and 2. and 466.07 c4d cad 2. and c5d cad 1. and 2. if any of the following criteria are met:

cad The control device was in operation prior to May 30, 1996 and is equipped with continuous emission monitors for determining inlet and outlet total organic volatile matter concentration; capture efficiency has been determined in accordance with the requirements of this chapter such that an overall HAP control efficiency can be calculated; and the continuous emission monitors are used to demonstrate continuous compliance in accordance with s. NR 466.10.

cbd The owner or operator has met the requirements of either s. NR 460.06 c4d cbd 3. or c7d.

ccd The control device is a solvent recovery system and the owner or operator chooses to comply by means of a monthly liquid-liquid material balance as provided for in s. NR 466.06 c4d cad 1. and 466.07 c4d cad 1.

**c2d ORGANIC HAP WEIGHT-FRACTION.** cad For the purpose of meeting the requirements of s. NR 466.06, the organic HAP weight-fraction of each ink, coating, varnish, adhesive, primer, solvent and other material used in a publication rotogravure affected source shall be determined in accordance with one of the following procedures:

1. Use Method 311 in 40 CFR Part 63, Appendix A, incorporated by reference in s. NR 484.04, or obtain the results of a Method 311 test performed by the manufacturer of the material. If the organic HAP weight-fraction for any material cannot be determined using Method 311, the owner or operator shall submit an alternate method to the U.S. environmental protection agency for approval by the administrator. The recovery efficiency of the proposed technique shall be determined for all of the target or-

ganic HAP and a correction factor, if necessary, shall be determined and applied.

2. Determine the volatile matter content of the material in accordance with sub. [c3d cad](#), and use this value for the organic HAP content for all compliance purposes.

3. Use formulation data provided by the manufacturer of the material on a CPDS if the manufacturer has done both of the following:

a. Included in the organic HAP content determination all HAP present at a level greater than 0.1% in any raw material used, weighted by the mass fraction of each raw material used in the material.

b. Determined the HAP content of each raw material present in the formulation by Method 311 in [40 CFR Part 63](#), Appendix A, incorporated by reference in s. [NR 484.04](#), or by an alternate method approved by the administrator, or by reliance on a CPDS from a raw material supplier prepared in accordance with subpar. a.

cbd For the purpose of meeting the requirements of s. [NR 466.07](#), the organic HAP weight-fraction of each ink, coating, varnish, adhesive, primer, solvent, thinner, reducer, diluent and other material used in a product and packaging rotogravure or wide-web flexographic affected source shall be determined in accordance with one of the following procedures:

1. Use Method 311 in [40 CFR Part 63](#), Appendix A, incorporated by reference in s. [NR 484.04](#), or obtain the results of a Method 311 test performed by the manufacturer of the material. If the organic HAP weight-fraction for any material cannot be determined using Method 311, the owner or operator shall submit an alternate method to the U.S. environmental protection agency for approval by the administrator. The recovery efficiency of the proposed technique shall be determined for all of the target organic HAP and a correction factor, if necessary, shall be determined and applied.

2. Determine the volatile matter content of the material in accordance with sub. [c3d cbd](#), and use this value for the organic HAP content for all compliance purposes.

3. Use formulation data provided by the manufacturer of the material on a CPDS if the manufacturer has done both of the following:

a. Included in the organic HAP content determination all organic HAP present at a level greater than 0.1% in any raw material used, weighted by the mass fraction of each raw material used in the material.

b. Determined the organic HAP content of each raw material present in the formulation by Method 311 in [40 CFR Part 63](#), Appendix A, incorporated by reference in s. [NR 484.04](#), or by an alternate method approved by the administrator, or by reliance on a CPDS from a raw material supplier prepared in accordance with subpar. a.

ccd In the event of any inconsistency between the organic HAP content of a material determined using test data from Method 311 in [40 CFR Part 63](#), Appendix A, incorporated by reference in s. [NR 484.04](#), and the organic HAP content of the same material determined using formulation data as allowed under par. [cad 3](#), or [cbd 3](#)., the Method 311 test data shall govern, unless after consultation, an owner or operator demonstrates to the satisfaction of the department that the formulation data are correct.

**c3d VOLATILE MATTER WEIGHT-FRACTION.** cad For the purpose of meeting the requirements of s. [NR 466.06](#), the volatile matter weight-fraction of each ink, coating, varnish, adhesive, primer, solvent, diluent, reducer, thinner and other material used in a publication rotogravure affected source shall be determined in accordance with one of the following procedures:

1. Use Method 24A in [40 CFR Part 60](#), Appendix A, incorporated by reference in s. [NR 484.04](#), or obtain the results of a Method 24A test performed by the manufacturer of the material. If the volatile matter weight-fraction for any material cannot be determined using Method 24A, the owner or operator shall submit an alternate method to the U.S. environmental protection agency for approval by the administrator.

2. Use formulation data, or volatile matter content data provided by material suppliers.

cbd For the purpose of meeting the requirements of s. [NR 466.07](#), the volatile matter and solids weight-fraction of each ink, coating, varnish, adhesive, primer, solvent, diluent, reducer, thinner and other material used in a product and packaging rotogravure or wide-web flexographic affected source shall be determined in accordance with one of the following procedures:

1. Use Method 24 in [40 CFR Part 60](#), Appendix A, incorporated by reference in s. [NR 484.04](#), or obtain the results of a Method 24 test performed by the manufacturer of the material. If the volatile matter or solids weight-fraction for any material cannot be determined using Method 24, the owner or operator shall submit an alternate method to the U.S. environmental protection agency for approval by the administrator.

2. Use formulation data, or volatile matter and solids content data provided by material suppliers.

ccd In the event of any inconsistency between the volatile matter or solids content of a material determined using formulation data as allowed under par. [cad 2](#), or [cbd 2](#)., and the volatile matter or solids content of the same material using the results of Method 24 or 24A in [40 CFR Part 60](#), Appendix A, incorporated by reference in s. [NR 484.04](#), the applicable test method shall govern, unless after consultation, the owner or operator can demonstrate to the satisfaction of the department that the formulation data are correct.

**c4d CONTROL DEVICE DESTRUCTION EFFICIENCY.** A performance test of a control device to determine destruction efficiency for the purpose of meeting the requirements of ss. [NR 466.06](#) and [466.07](#), shall be conducted by the owner or operator in accordance with the following requirements:

cad An initial performance test to establish the destruction efficiency of an oxidizer and the associated combustion zone temperature for a thermal oxidizer and the associated catalyst bed inlet temperature for a catalytic oxidizer shall be conducted and the data reduced in accordance with the following reference methods and procedure:

1. Use Method 1 or 1A in [40 CFR Part 60](#), Appendix A, incorporated by reference in s. [NR 484.04](#), for sample and velocity traverses to determine sampling locations.

2. Use Method 2, 2A, 2C or 2D in [40 CFR Part 60](#), Appendix A, incorporated by reference in s. [NR 484.04](#), to determine gas volumetric flow rate.

3. Use Method 3 in [40 CFR Part 60](#), Appendix A, incorporated by reference in s. [NR 484.04](#), for gas analysis to determine dry molecular weight.

4. Use Method 4 in [40 CFR Part 60](#), Appendix A, incorporated by reference in s. [NR 484.04](#), to determine stack gas moisture.

5. Perform Methods 2, 2A, 3 and 4 in [40 CFR Part 60](#), Appendix A, incorporated by reference in s. [NR 484.04](#), as applicable, at least twice during each test period.

6. Use Method 25 in [40 CFR Part 60](#), Appendix A, incorporated by reference in s. [NR 484.04](#), to determine organic volatile matter concentration, except as provided for in this subdivision. The owner or operator shall submit notice of the intended test

method to the department for approval along with notice of the performance test required under s. NR 460.06 c2d. The owner or operator may use Method 25A in 40 CFR Part 60, Appendix A, incorporated by reference in s. NR 484.04, if any of the following conditions are met:

a. An exhaust gas organic volatile matter concentration of 50 parts per million by volume ppmvd or less is required to comply with the standards of s. NR 466.06 or 466.07.

b. The organic volatile matter concentration at the inlet to the control system and the required level of control are such to result in exhaust gas organic volatile matter concentrations of 50 ppmv or less.

c. Because of the high efficiency of the control device, the anticipated organic volatile matter concentration at the control device exhaust is 50 ppmv or less, regardless of inlet concentration.

7. Each performance test shall consist of 3 separate runs; each run conducted for at least one hour under the conditions that exist when the affected source is operating under normal representative operating conditions. Operations during periods of startup, shutdown and malfunction do not constitute representative conditions for the purpose of a performance test. For the purpose of determining organic volatile matter concentrations and mass flow rates, the average of results of all runs shall apply.

8. Organic volatile matter mass flow rates shall be determined using Equation 20:

$$M_f = Q_{sd} \left[ \sum_{i=1}^n C_i MW_i \right] [0.0416] [10^{-6}] \quad \text{cEquation 20d}$$

9. Emission control device efficiency shall be determined using Equation 21:

$$E = \frac{M_{fi} - M_{fo}}{M_{fi}}$$

cEquation 21d

cbd The owner or operator shall record the process information necessary to determine the conditions of the performance test.

ccd For the purpose of determining the value of the oxidizer operating parameter that will demonstrate continuing compliance, the time-weighted average of the values recorded during the performance test shall be computed. For an oxidizer other than catalytic oxidizer, the owner or operator shall establish as the operating parameter the minimum combustion temperature. For a catalytic oxidizer, the owner or operator shall establish as the operating parameter the minimum gas temperature at the inlet to the catalyst bed. These minimum temperatures are the operating parameter values that demonstrate continuing compliance with the requirements of ss. NR 466.06 and 466.07.

**c5d CAPTURE EFFICIENCY.** Except as provided for in sub. c6d, a performance test to determine the capture efficiency of each capture system venting organic emissions to a control device for the purpose of meeting the requirements of ss. NR 466.06 c4d cad 2. and cbd and 466.07 c4d cad 2., c5d cad, c7d cbd to cdd and c9d cbd and ccd shall be conducted by the owner or operator in accordance with the following procedures:

cad For permanent total enclosures, capture efficiency shall be assumed as 100%. Method 204 in 40 CFR Part 51, Appendix M, incorporated by reference in s. NR 484.04, shall be used to confirm that an enclosure meets the requirements for permanent total enclosure.

cbd For temporary total enclosures, the capture efficiency shall be determined according to Method 204 and, as applicable,

Methods 204A through 204F, in 40 CFR Part 51, Appendix M, incorporated by reference in s. NR 484.04. The owner or operator may exclude never-controlled work stations from the capture efficiency determinations.

**c6d ALTERNATIVE CAPTURE EFFICIENCY.** As an alternative to the procedures specified in sub. c5d, an owner or operator required to conduct a capture efficiency test may use any capture efficiency protocol and test methods that satisfy the criteria of either the data quality objective cDQOd or the lower confidence limit cLCLd approach in 40 CFR Part 63, Subpart KK, Appendix A, incorporated by reference in s. NR 484.04. The owner or operator may exclude never-controlled work stations from the capture efficiency determinations.

**History:** Cr. Register, March, 2000, No. 531, eff. 4-1-00; CR 05-039: am. c1d cbd Register February 2006 No. 602, eff. 3-1-06; correction in c2d cbd cintro.d made under s. 13.92 c4d cbd 7, Stats., Register April 2008 No. 628.

**NR 466.10 Monitoring requirements.** Following the date on which the initial performance test of a control device is completed, to demonstrate continuing compliance with the standard, the owner or operator shall monitor and inspect each control device required to comply with s. NR 466.06 or 466.07 to ensure proper operation and maintenance by implementing the applicable requirements in this section. Any excursion from the required operating parameters which are monitored in accordance with this section, unless otherwise excused, shall be considered a violation of the emission standard.

**c1d** Owners or operators of product and packaging roto-gravure or wide-web flexographic presses with intermittently-controllable work stations shall implement one of the following procedures for each dryer associated with a work station:

cad Install, calibrate, maintain and operate according to the manufacturer[s] specifications a flow control position indicator that provides a record indicating whether the exhaust stream from the dryer was directed to the control device or was diverted from the control device. The time and flow control position shall be recorded at least once per hour, as well as every time the flow direction is changed. The flow control position indicator shall be installed at the entrance to any bypass line that could divert the exhaust stream away from the control device to the atmosphere.

cbd Secure any bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure mechanism shall be performed at least once every month to ensure that the valve or damper is maintained in the closed position and the exhaust stream is not diverted through the bypass line.

ccd Ensure that any bypass line valve or damper is in the closed position through continuous monitoring of the valve position. The monitoring system shall be inspected at least once every month to ensure that it is functioning properly.

cdd Use an automatic shutdown system in which the press is stopped when flow is diverted away from the control device to any bypass line. The automatic system shall be inspected at least once every month to ensure that it is functioning properly.

**c2d** All continuous emission monitors shall comply with performance specifications cPSd 8 or 9 in 40 CFR Part 60, Appendix B, incorporated by reference in s. NR 484.04. The requirements of 40 CFR Part 60, Appendix F, incorporated by reference in s. NR 484.04, shall also be followed. In conducting the quarterly audits required by Appendix F, owners or operators shall challenge the monitors with compounds representative of the gaseous emission stream being controlled.

**c3d** All temperature monitoring equipment shall be installed, calibrated, maintained and operated according to manufacturer[s] specifications. The calibration of the chart recorder, data logger

or temperature indicator shall be verified every 3 months. The owner or operator shall replace the chart recorder, data logger or temperature indicator if either the owner or operator chooses not to perform the calibration, or the equipment cannot be calibrated properly.

**c4d** An owner or operator complying with s. NR 466.06 or 466.07 through continuous emission monitoring of a control device shall install, calibrate, operate and maintain continuous emission monitors to measure the total organic volatile matter concentration at both the control device inlet and outlet.

**c5d** An owner or operator complying with the requirements of s. NR 466.06 or 466.07 through the use of an oxidizer and demonstrating continuous compliance through monitoring of an oxidizer operating parameter shall do the following as appropriate:

**cad** For an oxidizer other than a catalytic oxidizer, install, calibrate, operate and maintain a temperature monitoring device equipped with a continuous recorder. The device shall be accurate to within 0.1% of the temperature being monitored in °C or 0.1°C, whichever is the greater value. The thermocouple or temperature sensor shall be installed in the combustion chamber at a location in the combustion zone.

**cbd** For a catalytic oxidizer, install, calibrate, operate and maintain a temperature monitoring device equipped with a continuous recorder. The device shall be accurate to within 0.1% of the temperature being monitored in °C or 0.1°C, whichever is the greater value. The thermocouple or temperature sensor shall be installed in the vent stream at the nearest feasible point to the catalyst bed inlet.

**c6d** An owner or operator, complying with the requirements of s. NR 466.06 or 466.07 through the use of a control device and demonstrating continuous compliance by monitoring an operating parameter to ensure that the capture efficiency measured during the initial compliance test is maintained, shall do all of the following:

**cad** Submit to the department, with the compliance status report required by s. NR 460.08 c8d, a plan that does all of the following:

1. Identifies the operating parameter to be monitored to ensure that the capture efficiency measured during the initial compliance test is maintained.
2. Discusses why this parameter is appropriate for demonstrating ongoing compliance.
3. Identifies the specific monitoring procedures.

**cbd** Set the operating parameter value, or range of values, that demonstrate compliance with s. NR 466.06 or 466.07.

**ccd** Conduct monitoring in accordance with the plan submitted to the department unless comments received from the department require an alternate monitoring scheme.

**History:** Cr. Register, March, 2000, No. 531, eff. 4-1-00.

**NR 466.11 Recordkeeping requirements. c1d** Recordkeeping requirements of ch. NR 460 apply to owners and operators of affected sources subject to this chapter as indicated in ch. NR 460 Appendix KK.

**c2d** Each owner or operator of an affected source subject to this chapter shall maintain on a monthly basis, in accordance with the requirements of s. NR 460.09 c2d cad, all of the following records:

**cad** Records specified in s. NR 460.09 c2d cbd, of all measurements needed to demonstrate compliance with this chapter, such as continuous emission monitor data, control device and capture system operating parameter data, material usage, HAP

usage, volatile matter usage and solids usage that support data that the source is required to report.

**cbd** Records specified in s. NR 460.09 c2d ccd for each applicability determination performed by the owner or operator in accordance with the requirements of s. NR 466.01 c1d cad to cfd.

**ccd** Records specified in s. NR 460.09 c3d for each continuous monitoring system operated by the owner or operator in accordance with the requirements of s. NR 466.10 cintro.d.

**c3d** Each owner or operator of an affected source subject to this chapter shall maintain records of all liquid-liquid material balances performed in accordance with the requirements of ss. NR 466.06 and 466.07. The records shall be maintained in accordance with the requirements of s. NR 460.09 c2d.

**c4d** The owner or operator of each facility which commits to the criteria of s. NR 466.01 c1d cad 2. shall maintain records of all required measurements and calculations needed to demonstrate compliance with these criteria, including the mass of all HAP containing materials used and the mass fraction of HAP present in each HAP containing material used, on a monthly basis.

**c5d cad** The owner or operator of each facility which meets the criteria of s. NR 466.015 c3d cad shall maintain records of the total volume of each material applied on product and packaging rotogravure or wide-web flexographic printing presses during each month.

**cbd** The owner or operator of each facility which meets the criteria of s. NR 466.015 c3d cbd shall maintain records of the total volume and organic HAP content of each material applied on product and packaging rotogravure or wide-web flexographic printing presses during each month.

**ccd** The records required under pars. cad and cbd shall be maintained for 5 years and, upon request, submitted to the department.

**c6d** The owner or operator choosing to exclude from an affected source a product and packaging rotogravure or wide-web flexographic press which meets the limits and criteria of s. NR 466.015 c1d cbd 2. shall maintain the following records for 5 years and submit them to the department upon request:

**cad** The total mass of each material applied each month on the press, including all inboard and outboard stations.

**cbd** The total mass of each material applied each month on the press by product and packaging rotogravure or wide-web flexographic printing operations.

**History:** Cr. Register, March, 2000, No. 531, eff. 4-1-00.

**NR 466.12 Reporting requirements. c1d** Except as provided in this section, reporting requirements of ch. NR 460 apply to owners and operators of affected sources subject to this chapter as indicated in ch. NR 460 Appendix KK.

**c2d** Each owner or operator of an affected source subject to this chapter shall submit the following reports to the department:

**cad** An initial notification as required in s. NR 460.08 c2d.

1. Initial notifications for existing sources shall have been submitted no later than June 1, 1998.

2. Initial notifications for new MACT sources and reconstructed sources shall be submitted as required in s. NR 460.08 c2d.

3. For the purpose of this chapter, a permit application for approval of construction or reconstruction under ch. NR 406 may be used in lieu of the initial notification required under s. NR 460.08 c2d, provided the same information is contained in the permit application as required by s. NR 460.08 c2d.

4. Permit applications shall be submitted by the same due dates as those specified for the initial notifications.

cbd A notification of performance tests as specified in ss. NR 460.06 and 460.08 c5d. This notification, and the site-specific test plan required under s. NR 460.06 c2d, shall identify the operating parameter to be monitored to ensure that the capture efficiency measured during the performance test is maintained. The operating parameter identified in the site-specific test plan shall be considered to be approved unless explicitly disapproved, or unless comments received from the department require monitoring of an alternate parameter.

ccd A notification of compliance status as specified in s. NR 460.08 c8d.

cdd Performance test reports as specified in s. NR 460.09 c4d cbd.

ced Startup, shutdown and malfunction reports as specified in s. NR 460.09 c4d ced, but only if a control device is used to comply with this chapter.

1. If actions taken by an owner or operator during a startup, shutdown or malfunction of an affected source, including actions taken to correct a malfunction, are not completely consistent with the procedures specified in the source[s] startup, shutdown and malfunction plan as specified in s. NR 460.05 c4d ccd, the owner or operator shall state the information in the report. The startup, shutdown or malfunction report shall consist of a letter containing the name, title and signature of the responsible official who is certifying its accuracy, that shall be submitted to the department.

2. Separate startup, shutdown or malfunction reports are not required if the information is included in the report specified in par. cfd.

cfđ A summary report shall be submitted in accordance with s. NR 460.09 c5d ccd. In addition to a report of operating parameter exceedances as required by s. NR 460.09 c5d ccd 1., the summary report shall include the following, as applicable:

1. Exceedances of the standards in ss. NR 466.06 and 466.07.

2. Exceedances of either of the criteria in s. NR 466.01 c1d cad 2. a. or b.

3. Exceedances of the criterion in s. NR 466.015 c3d cad and cbd in the same month.

4. Exceedances of the criterion of

**History:** Cr. Register, March, 2000, No. 531, eff. 4-1-00.

### Subchapter III — Paper and Other Web Coating

**NR 466.21 What this subchapter covers.** c1d **WHAT IS IN THIS SUBCHAPTER?** This subchapter describes the actions you must take to reduce emissions of organic hazardous air pollutants cHAPd from paper and other web coating operations. This subchapter establishes emission standards for web coating lines and specifies what you must do to comply if you own or operate a facility with web coating lines that is a major source of HAP. Certain requirements apply to all who are subject to this subchapter; others depend on the means you use to comply with an emission standard.

**Note:** This subchapter is based on the federal regulations contained in 40 CFR part 63 Subpart JJJJ, as created on December 4, 2002 as amended at 71 FR 29805, May 24, 2006.

c2d **DOES THIS SUBCHAPTER APPLY TO ME?** The provisions of this subchapter apply to each new and existing facility that is a major source of HAP at which web coating lines are operated.

c3d **WHICH OF MY EMISSION SOURCES ARE AFFECTED BY THIS SUBCHAPTER?** The affected source subject to this subchapter is the collection of all web coating lines at your facility. The

affected source includes web coating lines engaged in the coating of metal webs that are used in flexible packaging and web coating lines engaged in the coating of fabric substrates for use in pressure sensitive tape and abrasive materials. Web coating lines specified in pars. cad to cgd are not part of the affected source under this subchapter.

cad Any web coating line that is stand-alone coating equipment under subch. I which the owner or operator includes in the affected source under subch. I.

cbd Any web coating line that is a product and packaging roto-gravure or wide-web flexographic press under subch. I which is included in the affected source under subch. I.

ccd Web coating in lithography, screen printing, letterpress and narrow-web flexographic printing processes.

cdd Any web coating line subject to 40 CFR part 63, Subpart EE, the NESHAP for magnetic tape manufacturing operations.

ced Any web coating line subject to 40 CFR part 63, Subpart SSSS, the NESHAP for surface coating of metal coil.

cfđ Any web coating line subject to 40 CFR part 63, Subpart OOOO, the NESHAP for the printing, coating and dyeing of fabric and other textiles. Any web coating line that coats both a paper or other web substrate and a fabric or other textile substrate, except for a fabric substrate used for pressure sensitive tape and abrasive materials, is subject to 40 CFR part 63, Subpart OOOO.

cgd Any web coating line that is defined as research or laboratory equipment in s. NR 466.22.

**History:** CR 07-045: cr. Register April 2008 No. 628, eff. 5-1-08.

**NR 466.22 What definitions are used in this subchapter?** For terms not defined in this section, the definitions contained in chs. NR 400 and 460 apply to the terms in this subchapter, with definitions in ch. NR 460 taking precedence over definitions in ch. NR 400. If this section defines a term which is also defined in ch. NR 400 or 460, the definition in this section applies in this subchapter. In this subchapter:

c1d XAlways-controlled work stationY means a work station associated with a dryer from which the exhaust is delivered to a control device with no provision for the dryer exhaust to bypass the control device unless there is an interlock to interrupt and prevent continued coating during a bypass. Sampling lines for analyzers, relief valves needed for safety purposes and periodic cycling of exhaust dampers to ensure safe operation are not considered bypass lines.

c2d XAppliedY means the amount of organic HAP, coating material or coating solids, as appropriate for the emission standards in s. NR 466.23 c1d cbd used by the affected source during the compliance period.

c3d XAs-appliedY means the condition of a coating at the time of application to a substrate, including any added solvent.

c4d XAs-purchasedY means the condition of a coating as delivered to the user.

c5d XCapture efficiencyY means the fraction of all organic HAP emissions generated by a process that is delivered to a control device, expressed as a percentage.

c6d XCapture systemY means a hood, enclosed room or other means of collecting organic HAP emissions into a closed-system that exhausts to a control device.

c7d XCar-sealY means a seal that is placed on a device that is used to change the position of a valve or damper, for example from open to closed, in such a way that the position of the valve or damper cannot be changed without breaking the seal.

c8d XCoating materialY means all inks, varnishes, adhesives, primers, solvents, reducers and other materials applied to a

substrate via a web coating line. Materials used to form a substrate are not considered coating materials.

**c9d** XControl deviceY means a device such as a solvent recovery device or oxidizer which reduces the organic HAP in an exhaust gas by recovery or by destruction.

**c10d** XControl device efficiencyY means the ratio of organic HAP emissions recovered or destroyed by a control device to the total organic HAP emissions that are introduced into the control device, expressed as a percentage.

**c11d** XDayY means a 24-consecutive-hour period.

**c12d** XDeviationY means any instance in which an affected source subject to this subchapter or an owner or operator of an affected source does any of the following:

cad Fails to meet any requirement or obligation established by this subchapter, including any emission limitation, operating limit or work practice standard.

cbd Fails to meet any term or condition that is adopted to implement an applicable requirement in this subchapter and that is included in the operating permit for any affected source required to obtain an operating permit.

ccd Fails to meet any emission limitation, operating limit or work practice standard in this subchapter during start-up, shut-down or malfunction, regardless of whether or not the failure is permitted by this subchapter.

**c13d** XExisting affected sourceY means any affected source the construction or reconstruction of which is commenced on or before September 13, 2000, and which has not undergone reconstruction as defined in s. NR 460.02.

**c14d** XFabricY means any woven, knitted, plaited, braided, felted or non-woven material made of filaments, fibers or yarns, including thread. This term includes material made of fiberglass, natural fibers, synthetic fibers or composite materials.

**c15d** XFacilityY means all contiguous or adjoining property that is under common ownership or control, including properties that are separated only by a road or other public right-of-way.

**c16d** XFlexible packagingY means any package or part of a package the shape of which can be readily changed. Flexible packaging includes bags, pouches, labels, liners and wraps utilizing paper, plastic, film, aluminum foil, metalized or coated paper or film or any combination of these materials.

**c17d** XFormulation dataY means data on the organic HAP mass fraction, volatile matter mass fraction or coating solids mass fraction of a material that is generated by the manufacturer or means other than a test method specified in this subchapter or an approved alternative method.

**c18d** XHAP appliedY means the organic HAP content of all coating materials applied to a substrate by a web coating line at an affected source.

**c19d** XIntermittently-controlled work stationY means a work station associated with a dryer with provisions for the dryer exhaust to be delivered to or diverted from a control device through a bypass line, depending on the position of a valve or damper. Sampling lines for analyzers, relief valves needed for safety purposes and periodic cycling of exhaust dampers to ensure safe operation are not considered bypass lines.

**c20d** XMetal coilY means a continuous metal strip that is at least 0.15 millimeter c0.006 inchd thick which is packaged in a roll or coil prior to coating. After coating, it may or may not be re-wound into a roll or coil. Metal coil does not include metal webs that are coated for use in flexible packaging.

**c21d** XMonthY means a calendar month or a pre-specified

period of 28 days to 35 days to allow for flexibility in recordkeeping when data are based on a business accounting period.

**c22d** XNever-controlled work stationY means a work station that is not equipped with provisions by which any emissions, including those in the exhaust from any associated dryer, may be delivered to a control device.

**c23d** XNew affected sourceY means any affected source the construction or reconstruction of which is commenced after September 13, 2000.

**c24d** XOverall organic HAP control efficiencyY means the total efficiency of a capture and control system.

**c25d** XPressure sensitive tapeY means a flexible backing material with a pressure-sensitive adhesive coating on one or both sides of the backing.

**c26d** XResearch or laboratory equipmentY means any equipment for which the primary purpose is to conduct research and development into new processes and products where the equipment is operated under the close supervision of technically trained personnel and is not engaged in the manufacture of products for commercial sale in commerce except in a de minimis manner.

**c27d** XRewind or cutting stationY means a unit from which substrate is collected at the outlet of a web coating line.

**c28d** XUncontrolled coating lineY means a coating line consisting of only never-controlled work stations.

**c29d** XUnwind or feed stationY means a unit from which substrate is fed to a web coating line.

**c30d** XWebY means a continuous substrate, such as paper, film or foil, which is flexible enough to be wound or unwound as rolls.

**c31d** XWeb coating lineY means any number of work stations, of which one or more applies a continuous layer of coating material across the entire width or any portion of the width of a web substrate, and any associated curing or drying equipment between an unwind or feed station and a rewind or cutting station.

**c32d** XWork stationY means a unit on a web coating line where coating material is deposited onto a web substrate.

**c33d** XYouY means the owner or operator of a new or existing facility that is a major source of HAP at which web coating lines are operated.

**c34d** XYourY means of or relating to the owner or operator of a new or existing facility that is a major source of HAP at which web coating line are operated.

History: CR 07-045: cr. Register April 2008 No. 628, eff. 5-1-08.

### NR 466.23 Emission standards and compliance

**dates. c1d** WHAT EMISSION STANDARDS MUST I MEET? cad If you own or operate any affected source that is subject to the requirements of this subchapter, you shall comply with the requirements in this section on and after the compliance dates specified in sub. c3d.

cbd You shall limit organic HAP emissions to the level specified in one of the following:

1. No more than 5% of the organic HAP applied for each month c95% reductiond at existing affected sources and no more than 2% of the organic HAP applied for each month c98% reductiond at new affected sources.

2. No more than 4% of the mass of coating materials applied for each month at existing affected sources and no more than 1.6% of the mass of coating materials applied for each month at new affected sources.

3. No more than 20% of the mass of coating solids applied for each month at existing affected sources and no more than 8%

of the coating solids applied for each month at new affected sources.

4. If you use an oxidizer to control organic HAP emissions, operate the oxidizer such that an outlet organic HAP concentration of no greater than 20 parts per million by volume cpmvd by compound on a dry basis is achieved and the efficiency of the capture system is 100%.

ccd You shall demonstrate compliance with this subchapter by following the procedures in s. NR 466.25.

**c2d** WHAT OPERATING LIMITS MUST I MEET? cad For any web coating line or group of web coating lines for which you use add-on control devices, unless you use a solvent recovery system and conduct a liquid-liquid material balance, you shall meet the operating limits specified in Table 1 of this subchapter or the requirements in par. cbd. The operating limits apply to emission capture systems and control devices, and you shall establish the operating limits during the performance test according to the requirements in s. NR 466.24 c3d ccd 3. You shall meet the operating limits at all times after you establish them.

cbd If you use an add-on control device other than those listed in Table 1 of this subchapter or wish to monitor an alternative parameter and comply with a different operating limit, you shall apply to the administrator for approval of alternative monitoring under s. NR 460.07 c6d.

**c3d** WHEN MUST I COMPLY? cad If you own or operate an existing affected source subject to the provisions of this subchapter, you shall comply by the compliance date. The compliance date for existing affected sources is December 5, 2005. You shall complete any performance test required in s. NR 466.24 c3d within the time limits specified in s. NR 460.06 c1d cbd.

cbd If you own or operate a new affected source subject to the provisions of this subchapter, your compliance date is immediately upon start-up of the new affected source or by December 4, 2002, whichever is later. You shall complete any performance test required in s. NR 466.24 c3d within the time limits specified in s. NR 460.06 c1d cbd.

ccd If you own or operate a reconstructed affected source subject to the provisions of this subchapter, your compliance date is immediately upon startup of the affected source or by December 4, 2002, whichever is later. Existing affected sources which have undergone reconstruction as defined in s. NR 460.02 are subject to the requirements for new affected sources. The costs associated with the purchase and installation of air pollution control equipment are not considered in determining whether the existing affected source has been reconstructed. Additionally, the costs of retrofitting and replacing equipment that is installed specifically to comply with this subchapter are not considered reconstruction costs. You shall complete any performance test required in s. NR 466.24 c3d within the time limits specified in s. NR 460.06 c1d cbd.

History: CR 07-045: cr. Register April 2008 No. 628, eff. 5-1-08.

**NR 466.24 General requirements for compliance with the emission standards and for monitoring and performance tests. c1d** WHAT GENERAL REQUIREMENTS

MUST I MEET TO COMPLY WITH THE STANDARDS? You shall comply with the applicable general provisions of ch. NR 460 as specified in ch. NR 460 Appendix JJJJ.

**c2d** IF I USE A CONTROL DEVICE TO COMPLY WITH THE EMISSION STANDARDS, WHAT MONITORING MUST I DO? cad Summary. A summary of monitoring you shall do follows:

**Monitoring Summary**

If you operate a web coating line, and you have the following:	Then you shall:
1. Intermittently-controlled work stations	Record parameters related to possible exhaust flow bypass of control device and to coating use cpar. ccdd
2. Solvent recovery unit	Operate continuous emission monitoring system and perform quarterly audits or determine volatile matter recovered and conduct a liquid-liquid material balance cpar. cddd
3. Control device	Operate continuous parameter monitoring system cpar. cedd
4. Capture system	Monitor capture system operating parameter cpar. cfdd

cbd *Capture system and control device monitoring.* Following the date on which the initial performance test of a control device is completed to demonstrate continuing compliance with the standards, you shall monitor and inspect each capture system and each control device used to comply with s. NR 466.23 c1d. You shall install and operate the monitoring equipment as specified in pars. ccd and cfd.

ccd *Bypass and coating use monitoring.* If you own or operate web coating lines with intermittently-controlled work stations, you shall monitor bypasses of the control device and the mass of each coating material applied at the work station during any bypass. If using a control device for complying with the requirements of this subchapter, you shall demonstrate that any coating material applied on a never-controlled work station or an intermittently-controlled work station operated in bypass mode is allowed in your compliance demonstration according to s. NR 466.25 c14d and c15d. The bypass monitoring shall be conducted using at least one of the procedures in subds. 1. to 4. for each work station and associated dryer.

1. ZFlow control position indicator.[ Install, calibrate, maintain and operate according to the manufacturer[s specifications a flow control position indicator that provides a record indicating whether the exhaust stream from the dryer was directed to the control device or was diverted from the control device. The time and flow control position shall be recorded at least once per hour as well as every time the flow direction is changed. A flow control position indicator shall be installed at the entrance to any bypass line that could divert the exhaust stream away from the control device to the atmosphere.

2. ZCar-seal or lock-and-key valve closures.[ Secure any bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure mechanism shall be performed at least once every month to ensure that the valve or damper is maintained in the closed position, and the exhaust stream is not diverted through the bypass line.

3. ZValve closure continuous monitoring.[ Ensure that any bypass line valve or damper is in the closed position through con-



tinuous monitoring of valve position when the emission source is in operation and is using a control device for compliance with the requirements of this subchapter. The monitoring system shall be inspected at least once every month to verify that the monitor will indicate valve position.

4. **ZAutomatic shutdown system.** Use an automatic shutdown system in which the web coating line is stopped when flow is diverted away from the control device to any bypass line when the control device is in operation. The automatic system shall be inspected at least once every month to verify that it will detect diversions of flow and would shut down operations in the event of such a diversion.

*ddd Solvent recovery unit.* If you own or operate a solvent recovery unit to comply with s. NR 466.23 c1d, you shall meet the requirements in either subd. 1. or 2., depending on how control efficiency is determined.

1. **Continuous emission monitoring system cCEMSd.** If you are demonstrating compliance with the emission standards in s. NR 466.23 c1d through continuous emission monitoring of a control device, you shall install, calibrate, operate and maintain the CEMS according to subd. 1. a. to c.

a. Measure the total organic volatile matter mass flow rate at both the control device inlet and the outlet such that the reduction efficiency can be determined. Each continuous emission monitor shall comply with performance specification 6, 8 or 9, as appropriate, of 40 CFR part 60, Appendix B, incorporated by reference in s. NR 484.04 c21d.

b. You shall follow the quality assurance procedures in procedure 1, of 40 CFR part 60, Appendix F, incorporated by reference in s. NR 484.04 c21md. In conducting the quarterly audits of the monitors as required by procedure 1, Appendix F, you shall use compounds representative of the gaseous emission stream being controlled.

c. You shall have valid data from at least 90% of the hours during which the process is operated.

2. **Liquid-liquid material balance.** If you are demonstrating compliance with the emission standards in s. NR 466.23 c1d through liquid-liquid material balance, you shall install, calibrate, maintain and operate according to the manufacturer[s] specifications a device that indicates the cumulative amount of volatile matter recovered by the solvent recovery device on a monthly basis. The device shall be certified by the manufacturer to be accurate to within 0.0% by mass.

*ced Continuous parameter monitoring system cCPMSd.* If you are using a control device to comply with the emission standards in s. NR 466.23 c1d, you shall install, operate and maintain each CPMS specified in subds. 9. and 10. and par. cfd according to the requirements in subds. 1. to 8. You shall install, operate and maintain each CPMS specified in par. ccd according to subds. 5. to 7.

1. Each CPMS shall complete a minimum of one cycle of operation for each successive 15-minute period. You shall have a minimum of 4 equally spaced successive cycles of CPMS operation to have a valid hour of data.

2. You shall have valid data from at least 90% of the hours during which the process operated.

3. You shall determine the hourly average of all recorded readings according to subd. 3. a. and b.

a. To calculate a valid hourly value, you shall have at least 3 of 4 equally spaced data values from that hour from a continuous monitoring system cCMSd that is not out-of-control.

b. Provided all of the readings recorded in accordance with this subdivision clearly demonstrate continuous compliance with

the standard that applies to you, then you are not required to determine the hourly average of all recorded readings.

4. You shall determine the rolling 3-hour average of all recorded readings for each operating period. To calculate the average for each 3-hour averaging period, you shall have at least 2 of 3 of the hourly averages for that period using only average values that are based on valid data not from out-of-control periods.

5. You shall record the results of each inspection, calibration and validation check of the CPMS.

6. At all times, you shall maintain the monitoring system in proper working order, including maintaining necessary parts for routine repairs of the monitoring equipment.

7. Except for monitoring malfunctions, associated repairs or required quality assurance or control activities, including calibration checks or required zero and span adjustments, you shall conduct all monitoring at all times that the unit is operating. Data recorded during monitoring malfunctions, associated repairs, out-of-control periods or required quality assurance or control activities may not be used for purposes of calculating the emissions concentrations and percent reductions specified in s. NR 466.25 c1d. You shall use all the valid data collected during all other periods in assessing compliance of the control device and associated control system. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring system to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.

8. Any averaging period for which you do not have valid monitoring data, and the data are required, constitutes a deviation, and you shall notify the department in accordance with s. NR 466.26 c1d ccd.

9. If you are using an oxidizer to comply with the emission standards, you shall comply with subd. 9. a. to c.

a. Install, calibrate, maintain and operate temperature monitoring equipment according to the manufacturer[s] specifications. The calibration of the chart recorder, data logger or temperature indicator shall be verified every 3 months or the chart recorder, data logger or temperature indicator shall be replaced. You shall replace the equipment whether you choose not to perform the calibration or the equipment cannot be calibrated properly.

b. For an oxidizer other than a catalytic oxidizer, install, calibrate, operate and maintain a temperature monitoring device equipped with a continuous recorder. The device shall have an accuracy of 0.1% of the temperature being monitored in degrees Celsius, or 0.1v Celsius, whichever is greater. The thermocouple or temperature sensor shall be installed in the combustion chamber at a location in the combustion zone.

c. For a catalytic oxidizer, install, calibrate, operate and maintain a temperature monitoring device equipped with a continuous recorder. The device shall be capable of monitoring temperature with an accuracy of 0.1% of the temperature being monitored in degrees Celsius or 0.1v Celsius, whichever is greater. The thermocouple or temperature sensor shall be installed in the vent stream at the nearest feasible point to the inlet and outlet of the catalyst bed. Calculate the temperature rise across the catalyst.

10. If you use a control device other than an oxidizer or wish to monitor an alternative parameter and comply with a different operating limit, you shall apply to the department for approval of an alternative monitoring method under s. NR 460.07 c6d.

*efd Capture system monitoring.* If you are complying with the emission standards in s. NR 466.23 c1d through the use of a capture system and control device for one or more web coating lines, you shall develop a site-specific monitoring plan containing the

information specified in subds. 1. and 2. for the capture systems. You shall monitor the capture system in accordance with subd. 3. You shall make the monitoring plan available for inspection by the department upon request.

1. The monitoring plan shall do all of the following:
  - a. Identify the operating parameter to be monitored to ensure that the capture efficiency determined during the initial compliance test is maintained.
  - b. Explain why the operating parameter is appropriate for demonstrating ongoing compliance.
  - c. Identify the specific monitoring procedures.
2. The monitoring plan shall specify the operating parameter value or range of values that demonstrate compliance with the

emission standards in s. NR 466.23 c1d. The specified operating parameter value or range of values shall represent the conditions present when the capture system is being properly operated and maintained.

3. You shall conduct all capture system monitoring in accordance with the plan.
4. Any deviation from the operating parameter value or range of values which are monitored according to the plan will be considered a deviation from the operating limit.
5. You shall review and update the capture system monitoring plan at least annually.

**c3d** WHAT PERFORMANCE TESTS SHALL I CONDUCT? *cad Performance test methods.* The performance test methods you shall use are as follows:

**Performance Test Methods**

If you control organic HAP on any individual web coating line or any group of web coating lines by:	You shall:
1. Limiting organic HAP or volatile matter content of coatings	Determine the organic HAP or volatile matter and coating solids content of coating materials according to procedures in pars. ccd and cdd. If applicable, determine the mass of volatile matter retained in the coated web or otherwise not emitted to the atmosphere according to par. cgd.
2. Using a capture and control system	Conduct a performance test for each capture and control system to determine the destruction or removal efficiency of each control device other than solvent recovery according to par. ced and the capture efficiency of each capture system according to par. cfd. If applicable, determine the mass of volatile matter retained in the coated web or otherwise not emitted to the atmosphere according to par. cgd.

*cbd Exceptions.* If you are using a control device to comply with the emission standards in s. NR 466.23 c1d, you are not required to conduct a performance test to demonstrate compliance if one or more of the criteria in subds. 1. to 3. are met.

1. The control device is equipped with continuous emission monitors for determining inlet and outlet total organic volatile matter concentration and capture efficiency has been determined in accordance with the requirements of this subchapter such that an overall organic HAP control efficiency can be calculated, and the continuous emission monitors are used to demonstrate continuous compliance in accordance with sub. c2d.

2. You have met the requirements of s. NR 460.06 c7d for waiver of performance testing.

3. The control device is a solvent recovery system and you comply by means of a monthly liquid-liquid material balance.

*ccd Organic HAP content.* If you determine compliance with the emission standards in s. NR 466.23 c1d by means other than determining the overall organic HAP control efficiency of a control device, you shall determine the organic HAP mass fraction of each coating material as-purchased by following one of the procedures in subds. 1. to 3., and determine the organic HAP mass fraction of each coating material as-applied by following the procedures in subd. 4. If the organic HAP content values are not determined using the procedures in subds. 1. to 3., you shall submit an alternative test method for determining their values for approval by the administrator in accordance with 40 CFR 63.7 cfd.

The recovery efficiency of the test method shall be determined for all of the target organic HAP and a correction factor, if necessary, shall be determined and applied.

1. ZMethod 311.[ You may test the coating material in accordance with Method 311 of 40 CFR part 63, Appendix A, incorporated by reference in s. NR 484.04 c25d. The Method 311 determination may be performed by the manufacturer of the coating material and the results provided to the owner or operator. The organic HAP content shall be calculated according to the criteria and procedures in subd. 1. a. to c.

a. Include each organic HAP determined to be present at greater than or equal to 0.1% by mass for the United States occupational safety and health administration-defined cOSHA-defined carcinogens as specified in 29 CFR 1910.1200 cdd c4d and greater than or equal to 1.0% by mass for other organic HAP compounds.

b. Express the mass fraction of each organic HAP you include according to subd. 1. a. as a value truncated to 4 places after the decimal point, e.g., 0.3791.

c. Calculate the total mass fraction of organic HAP in the tested material by summing the counted individual organic HAP mass fractions and truncating the result to 3 places after the decimal point, e.g., 0.763.

2. ZMethod 24.[ For coatings, determine the volatile organic content as mass fraction of non-aqueous volatile matter and use it as a substitute for organic HAP using Method 24 of 40 CFR part

60, Appendix A, incorporated by reference in s. NR 484.04 c13d. The Method 24 determination may be performed by the manufacturer of the coating and the results provided to you.

3. ZFormulation data.[ You may use formulation data to determine the organic HAP mass fraction of a coating material. Formulation data may be provided to you by the manufacturer of the material. In the event of an inconsistency between Method 311 of 40 CFR part 63, Appendix A, incorporated by reference in s. NR 484.04 c25d, test data and a facility[s formulation data, and the Method 311 test value is higher, the Method 311 data will govern. Formulation data may be used provided that the information represents all organic HAP present at a level equal to or greater than 0.1% for OSHA-defined carcinogens as specified in 29 CFR 1910.1200 cdd c4d and equal to or greater than 1.0% for other organic HAP compounds in any raw material used.

4. ZAs-applied organic HAP mass fraction.[ If the as-purchased coating material is applied to the web without any solvent or other material added, the as-applied organic HAP mass fraction is equal to the as-purchased organic HAP mass fraction. Otherwise, the as-applied organic HAP mass fraction shall be calculated using Equation 1a of s. NR 466.25.

*cdd Volatile organic and coating solids content.* If you determine compliance with the emission standards in s. NR 466.23 c1d by means other than determining the overall organic HAP control efficiency of a control device and you choose to use the volatile organic content as a surrogate for the organic HAP content of coatings, you shall determine the as-purchased volatile organic content and coating solids content of each coating material applied by following the procedures in subd. 1. or 2. and the as-applied volatile organic content and coating solids content of each coating material by following the procedures in subd. 3.

1. ZMethod 24.[ You may determine the volatile organic and coating solids mass fraction of each coating applied using Method 24 in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04 c13d. The Method 24 determination may be performed by the manufacturer of the material and the results provided to you. If these values cannot be determined using Method 24, you shall submit an alternative technique for determining their values for approval by the administrator.

2. ZFormulation data.[ You may determine the volatile organic content and coating solids content of a coating material based on formulation data and may rely on volatile organic content data provided by the manufacturer of the material. In the event of any inconsistency between the formulation data and the results of Method 24 in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04 c13d, and the Method 24 results are higher, the results of Method 24 will govern.

3. ZAs-applied volatile organic content and coating solids content.[ If the as-purchased coating material is applied to the web without any solvent or other material added, the as-applied volatile organic content is equal to the as-purchased volatile content and the as-applied coating solids content is equal to the as-purchased coating solids content. Otherwise, the as-applied volatile organic content shall be calculated using Equation 1b of s. NR 466.25 and the as-applied coating solids content shall be calculated using Equation 2 of s. NR 466.25.

*ced Control device efficiency.* If you are using an add-on control device other than solvent recovery, such as an oxidizer, to comply with the emission standards in s. NR 466.23 c1d, you shall conduct a performance test to establish the destruction or removal efficiency of the control device according to the methods and procedures in subds. 1. and 2. During the performance test, you shall establish the operating limits required by s. NR 466.23 c2d according to subd. 3.

1. An initial performance test to establish the destruction or removal efficiency of the control device shall be conducted such that control device inlet and outlet testing is conducted simultaneously and the data are reduced in accordance with the test methods and procedures in subd. 1. a. to i. You shall conduct 3 test runs as specified in s. NR 460.06 c4d ccd, and each test run shall last at least one hour.

a. Method 1 or 1A of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04 c13d, shall be used for sample and velocity traverses to determine sampling locations.

b. Method 2, 2A, 2C, 2D, 2F or 2G of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04 c13d, shall be used to determine gas volumetric flow rate.

c. Method 3, 3A or 3B of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04 c13d, shall be used for gas analysis to determine dry molecular weight. You may also use as an alternative to Method 3B the manual method for measuring the oxygen, carbon dioxide and carbon monoxide content of exhaust gas in ANSI{ASME PTC 19.10-1981, XFlue and Exhaust Gas Analyses, Part 10, Instruments and ApparatusY, incorporated by reference in s. NR 484.11 c6d cbd.

d. Method 4 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04 c13d, shall be used to determine stack gas moisture.

e. The gas volumetric flow rate, dry molecular weight and stack gas moisture shall be determined during each test run specified in subd. 1. g.

f. Method 25 or 25A of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04 c13d, shall be used to determine total gaseous non-methane organic matter concentration. Use the same test method for both the inlet and outlet measurements which shall be conducted simultaneously. You shall submit notice of the intended test method to the department for approval along with notification of the performance test required under s. NR 460.06 c2d. You shall use Method 25A if any of the following 4 conditions apply to the control device:

1d The control device is not an oxidizer.

2d The control device is an oxidizer but an exhaust gas volatile organic matter concentration of 50 ppmv or less is required to comply with the emission standards in s. NR 466.23 c1d.

3d The control device is an oxidizer but the volatile organic matter concentration at the inlet to the control system and the required level of control are such that they result in exhaust gas volatile organic matter concentrations of 50 ppmv or less.

4d The control device is an oxidizer but, because of the high efficiency of the control device, the anticipated volatile organic matter concentration at the control device exhaust is 50 ppmv or less, regardless of inlet concentration.

g. Except as provided in s. NR 460.06 c4d ccd, each performance test shall consist of 3 separate runs with each run conducted for at least one hour under the conditions that exist when the affected source is operating under normal operating conditions. For the purpose of determining volatile organic compound concentrations and mass flow rates, the average of the results of all the runs shall apply.

h. Volatile organic matter mass flow rates shall be determined for each run specified in subd. 1. g. using Equation 1:

$$M_f = Q_{sd} C_c [12] [0.0416] [10^{-6}]$$

cEquation 1d

where:

$M_r$  is the total organic volatile matter mass flow rate in kilograms ckgd{hour chd

$Q_{sd}$  is the volumetric flow rate of gases entering or exiting the control device, as determined according to par. ced 1. b., dry standard cubic meters cdscmd{h

$C_c$  is the concentration of organic compounds as carbon, ppmv

12.0 is the molecular weight of carbon

0.0416 is a conversion factor for molar volume, kg-moles per cubic meter cmol{m<sup>3</sup>d at 293 Kelvin cKd and 760 millimeters of mercury cmmHg

i. For each run, emission control device destruction or removal efficiency shall be determined using Equation 2:

$$E = \frac{M_{fi} - M_{fo}}{M_{fi}} \times 100 \quad \text{cEquation 2d}$$

where:

$E$  is the organic volatile matter control efficiency of the control device, percent

$M_{fi}$  is the organic volatile matter mass flow rate at the inlet to the control device, kg{h

$M_{fo}$  is the organic volatile matter mass flow rate at the outlet of the control device, kg{h

j. The control device destruction or removal efficiency is determined as the average of the efficiencies determined in the test runs and calculated in Equation 2 of this section.

2. You shall record process information as may be necessary to determine the conditions in existence at the time of the performance test. Operations during periods of startup, shutdown and malfunction will not constitute representative conditions for the purpose of a performance test.

3. If you are using one or more add-on control devices other than a solvent recovery system for which you conduct a liquid-liquid material balance to comply with the emission standards in s. NR 466.23 c1d, you shall establish the applicable operating limits required by s. NR 466.23 c2d. The operating limits apply to each add-on emission control device, and you shall establish the operating limits during the performance test required by this paragraph according to the requirements in subd. 3. a. or b.

a. If your add-on control device is a thermal oxidizer, establish the operating limits according to the following 2 requirements:

1d During the performance test, you shall monitor and record the combustion temperature at least once every 15 minutes during each of the 3 test runs. You shall monitor the temperature in the firebox of the thermal oxidizer or immediately downstream of the firebox before any substantial heat exchange occurs.

2d Use the data collected during the performance test to calculate and record the average combustion temperature maintained during the performance test. This average combustion temperature is the minimum operating limit for your thermal oxidizer.

b. If your add-on control device is a catalytic oxidizer, establish the operating limits according to subd. 3. b. 1d and 2d or 3. b. 3d and 4d:

1d During the performance test, you shall monitor and record the temperature just before the catalyst bed and the temperature difference across the catalyst bed at least once every 15 minutes during each of the 3 test runs.

2d Use the data collected during the performance test to cal-

culate and record the average temperature just before the catalyst bed and the average temperature difference across the catalyst bed maintained during the performance test. These are the minimum operating limits for your catalytic oxidizer.

3d As an alternative to monitoring the temperature difference across the catalyst bed, you may monitor the temperature at the inlet to the catalyst bed and implement a site-specific inspection and maintenance plan for your catalytic oxidizer as specified in subd. 3. b. 4d. During the performance test, you shall monitor and record the temperature just before the catalyst bed at least once every 15 minutes during each of the 3 test runs. Use the data collected during the performance test to calculate and record the average temperature just before the catalyst bed during the performance test. This is the minimum operating limit for your catalytic oxidizer.

4d You shall develop and implement an inspection and maintenance plan for the catalytic oxidizers which you elect to monitor according to subd. 3. b. 3d. The plan shall address, at a minimum, all of the following elements:

ad Annual sampling and analysis of the catalyst activity, i.e., conversion efficiency, following the manufacturer[s] or catalyst supplier[s] recommended procedures.

bd Monthly inspection of the oxidizer system including the burner assembly and fuel supply lines for problems.

cd Annual internal and monthly external visual inspection of the catalyst bed to check for channeling, abrasion and settling. If problems are found, you shall take corrective action consistent with the manufacturer[s] recommendations and conduct a new performance test to determine destruction efficiency in accordance with this section.

cfd *Capture efficiency.* If you demonstrate compliance by meeting the requirements of s. NR 466.25 c5d, c6d, c7d, c11d, c14d cbd or ccd or c16d, you shall determine capture efficiency using the procedures in subd. 1., 2. or 3., as applicable.

1. You may assume your capture efficiency equals 100% if your capture system is a permanent total enclosure cPTEd. You shall confirm that your capture system is a PTE by demonstrating that it meets the requirements of section 6 of Method 204 of 40 CFR part 51, Appendix M, incorporated by reference in s. NR 484.04 c9d, and that all exhaust gases from the enclosure are delivered to a control device.

2. You may determine capture efficiency according to the protocols for testing with temporary total enclosures that are specified in Methods 204 and 204A through F of 40 CFR part 51, Appendix M, incorporated by reference in s. NR 484.04 c9d. You may exclude never-controlled work stations from such capture efficiency determinations.

3. You may use any capture efficiency protocol and test methods that satisfy the criteria of either the data quality objective or the lower confidence limit approach as described in 40 CFR part 63, Subpart KK, Appendix A, incorporated by reference in s. NR 484.04 c24d. You may exclude never-controlled work stations from capture efficiency determinations made under this subdivision.

cgd *Volatile matter retained in the coated web or otherwise not emitted to the atmosphere.* You may choose to take into account the mass of volatile matter retained in the coated web after curing or drying or otherwise not emitted to the atmosphere when determining compliance with the emission standards in s. NR 466.23 c1d. If you choose this option, you shall develop a testing protocol to determine the mass of volatile matter retained in the coated web or otherwise not emitted to the atmosphere and sub-

mit this protocol to the department for approval. You shall submit this protocol with your site-specific test plan under s. NR 460.06 c5d. If you intend to take into account the mass of volatile matter retained in the coated web after curing or drying or otherwise not emitted to the atmosphere and demonstrate compliance according to s. NR 466.25 c3d ccd, cdd, ced or c4d, the test protocol you submit shall determine the mass of organic HAP retained in the coated web or otherwise not emitted to the atmosphere. Otherwise, compliance shall be shown using the volatile organic matter content as a surrogate for the HAP content of the coatings.

chd *Control devices in series.* If you use multiple control devices in series to comply with the emission standards in s. NR

466.23 c1d, the performance test shall include, at a minimum, the inlet to the first control device in the series, the outlet of the last control device in the series, and all intermediate streams, such as gaseous exhaust to the atmosphere or a liquid stream from a recovery device, that are not subsequently treated by any of the control devices in the series.

**History:** CR 07-045: cr. Register April 2008 No. 628, eff. 5-1-08; correction in c3d cfd 1. made under s. 13.92 c4d cbd 7., Stats., Register April 2008 No. 628.

**NR 466.25 Requirements for showing compliance. c1d SUMMARY.** A summary of how you shall demonstrate compliance with the emission standards follows:

#### Compliance Demonstration

If you choose to demonstrate compliance by:	Then you shall demonstrate that:	Using these procedures:
cad Use of Xas-purchasedY compliant coating materials.	<p>1. Each coating material used at an existing affected source does not exceed 0.04 kg of organic HAP per kg of coating material, and each coating material used at a new affected source does not exceed 0.016 kg of organic HAP per kg of coating material as purchased; or</p> <p>2. Each coating material used at an existing affected source does not exceed 0.2 kg of organic HAP per kg of coating solids, and each coating material used at a new affected source does not exceed 0.08 kg of organic HAP per kg of coating solids as purchased.</p>	<p>Follow the procedures set out in sub. c2d.</p> <p>Follow the procedures set out in sub. c2d.</p>
cbd Use of Xas-appliedY compliant coating materials.	<p>1. Each coating material used at an existing affected source does not exceed 0.04 kg of organic HAP per kg of coating material, and each coating material used at a new affected source does not exceed 0.016 kg of organic HAP per kg of coating material as applied; or</p> <p>2. Each coating material used at an existing affected source does not exceed 0.2 kg of organic HAP per kg of coating solids, and each coating material used at a new affected source does not exceed 0.08 kg of organic HAP per kg of coating solids as applied; or</p>	<p>Follow the procedures set out in sub. c3d cad. Use either Equation 1a or b of this section to determine compliance with s. NR 466.23 c1d cbd 2. in accordance with sub. c3d ced 1.</p> <p>Follow the procedures set out in sub. c3d cbd. Use Equations 2 and 3 of this section to determine compliance with s. NR 466.23 c1d cbd 3. in accordance with sub. c3d ced 1.</p>
	<p>3. Monthly average of all coating materials used at an existing affected source does not exceed 0.04 kg of organic HAP per kg of coating material, and monthly average of all coating materials used at a new affected source does not exceed 0.016 kg of organic HAP per kg of coating material as applied on a monthly average basis; or</p> <p>4. Monthly average of all coating materials used at an existing affected source does not exceed 0.2 kg of organic HAP per kg of coating solids, and monthly average of all coating materials used at a new affected source does not exceed 0.08 kg of organic HAP per kg of coating solids as applied on a monthly average basis.</p>	<p>Follow the procedures set out in sub. c3d ccd. Use Equation 4 of this section to determine compliance with s. NR 466.23 c1d cbd 2. in accordance with sub. c3d ced 2.</p> <p>Follow the procedures set out in sub. c3d cdd. Use Equation 5 of this section to determine compliance with s. NR 466.23 c1d cbd 3. in accordance with sub. c3d ced 2.</p>

If you choose to demonstrate compliance by:	Then you shall demonstrate that:	Using these procedures:
<p>cdd Tracking total monthly organic HAP applied.</p>	<p>Total monthly organic HAP applied does not exceed the calculated limit based on emission limitations.</p>	<p>Follow the procedures set out in sub. c4d. Show that total monthly HAP applied, calculated using Equation 6 of this section, is less than the equivalent allowable organic HAP calculated using Equation 13a or b of this section.</p>
<p>cdd Use of a capture system and control device.</p>	<ol style="list-style-type: none"> <li data-bbox="537 474 1089 642">1. Overall organic HAP control efficiency is equal to 95% at an existing affected source and 98% at a new affected source on a monthly basis; or oxidizer outlet organic HAP concentration is no greater than 20 ppmv by compound and capture efficiency is 100%; or operating parameters are continuously monitored; or</li> <li data-bbox="537 730 1089 869">2. Overall organic HAP emission rate does not exceed 0.2 kg of organic HAP per kg of coating solids for an existing affected source or 0.08 kg of organic HAP per kg of coating solids for a new affected source on a monthly average as-applied basis; or</li> <li data-bbox="537 932 1089 1071">3. Overall organic HAP emission rate does not exceed 0.04 kg of organic HAP per kg of coating material for an existing affected source or 0.016 kg of organic HAP per kg of coating material for a new affected source on a monthly average as-applied basis; or</li> <li data-bbox="537 1134 1089 1184">4. Overall organic HAP emission rate does not exceed the calculated limit based on emission limitations.</li> </ol>	<p>Follow the procedures set out in sub. c5d to determine compliance with s. NR 466.23 c1d cbd 1. according to sub. c9d if using a solvent recovery device or sub. c10d if a using control device and CPMS or sub. c11d if using an oxidizer.</p> <p>Follow the procedures set out in sub. c6d to determine compliance with s. NR 466.23 c1d cbd 3. according to sub. c9d if using a solvent recovery device or sub. c11d if using an oxidizer.</p> <p>Follow the procedures set out in sub. c7d to determine compliance with s. NR 466.23 c1d cbd 2. according to sub. c9d if using a solvent recovery device or sub. c11d if using an oxidizer.</p> <p>Follow the procedures set out in sub. c8d. Show that the monthly organic HAP emission rate is less than the equivalent allowable organic HAP emission rate calculated using Equation 13a or b of this section. Calculate the monthly organic HAP emission rate according to sub. c9d if using a solvent recovery device or sub. c11d if using an oxidizer.</p>

If you choose to demonstrate compliance by:	Then you shall demonstrate that:	Using these procedures:
<p>ced Use of multiple capture devices, multiple control devices or both.</p>	<ol style="list-style-type: none"> <li>1. Overall organic HAP control efficiency is equal to 95% at an existing affected source and 98% at a new affected source on a monthly basis; or</li> <li>2. Average equivalent organic HAP emission rate does not exceed 0.2 kg of organic HAP per kg of coating solids for an existing affected source or 0.08 kg of organic HAP per kg of coating solids for a new affected source on a monthly average as-applied basis; or</li> <li>3. Average equivalent organic HAP emission rate does not exceed 0.04 kg of organic HAP per kg of coating material for an existing affected source or 0.016 kg of organic HAP per kg of coating material for a new affected source on a monthly average as-applied basis; or</li> <li>4. Average equivalent organic HAP emission rate does not exceed the calculated limit based on emission limitations.</li> </ol>	<p>Follow the procedures set out in sub. c5d to determine compliance with s. NR 466.23 c1d cbd 1. according to sub. c5d cad or cbd.</p> <p>Follow the procedures set out in sub. c6d to determine compliance with s. NR 466.23 c1d cbd 3. according to sub. c14d.</p> <p>Follow the procedures set out in sub. c7d to determine compliance with s. NR 466.23 c1d cbd 2. according to sub. c14d.</p> <p>Follow the procedures set out in sub. c8d. Show that the monthly organic HAP emission rate is less than the equivalent allowable organic HAP emission rate calculated using Equation 13a or b of this section according to sub. c14d.</p>
<p>cfd Use of a combination of compliant coatings and control devices.</p>	<ol style="list-style-type: none"> <li>1. Average equivalent organic HAP emission rate does not exceed 0.2 kg of organic HAP per kg of coating solids for an existing affected source or 0.08 kg of organic HAP per kg of coating solids for a new affected source on a monthly average as-applied basis; or</li> <li>2. Average equivalent organic HAP emission rate does not exceed 0.04 kg of organic HAP per kg of coating material for an existing affected source or 0.016 kg of organic HAP per kg of coating material for a new affected source on a monthly average as-applied basis; or</li> <li>3. Average equivalent organic HAP emission rate does not exceed the calculated limit based on emission limitations.</li> </ol>	<p>Follow the procedures set out in sub. c6d to determine compliance with s. NR 466.23 c1d cbd 3. according to sub. c14d.</p> <p>Follow the procedures set out in sub. c7d to determine compliance with s. NR 466.23 c1d cbd 2. according to sub. c14d.</p> <p>Follow the procedures set out in sub. c8d. Show that the monthly organic HAP emission rate is less than the equivalent allowable organic HAP emission rate calculated using Equation 13a or b of this section according to sub. c14d.</p>

**c2d AS-PURCHASED XCOMPLIANTY COATING MATERIALS.** cad If you comply by using coating materials that individually meet the emission standards in s. NR 466.23 c1d cbd 2. or 3., you shall demonstrate that each coating material applied during the month at an existing affected source contains no more than 0.04 mass fraction of organic HAP or 0.2 kg of organic HAP per kg of coating solids, and that each coating material applied during the month at a new affected source contains no more than 0.016 mass fraction of organic HAP or 0.08 kg of organic HAP per kg of

coating solids on an as-purchased basis as determined in accordance with s. NR 466.24 c3d ccd.

cbd You are in compliance with emission standards in s. NR 466.23 c1d cbd 2. and 3. if each coating material applied at an existing affected source is applied as-purchased and contains no more than 0.04 kg of organic HAP per kg of coating material or 0.2 kg of organic HAP per kg of coating solids, and each coating material applied at a new affected source is applied as-purchased and contains no more than 0.016 kg of organic HAP per kg of

coating material or 0.08 kg of organic HAP per kg of coating solids.

**c3d AS-APPLIED XCOMPLIANTY COATING MATERIALS.** If you comply by using coating materials that meet the emission standards in s. NR 466.23 c1d cbd 2. or 3. as-applied, you shall demonstrate compliance by following one of the procedures in pars. cad to cdd. You shall determine compliance in accordance with par. ced.

cad *Each coating material as-applied meets the mass fraction of coating material standard in s. NR 466.23 c1d cbd 2.* You shall demonstrate that each coating material applied at an existing affected source during the month contains no more than 0.04 kg of organic HAP per kg of coating material applied, and each coating material applied at a new affected source contains no more than 0.016 kg of organic HAP per kg of coating material applied as determined in accordance with subds. 1. and 2. You shall calculate the as-applied organic HAP content of as-purchased coating materials which are reduced, thinned or diluted prior to application.

1. Determine the organic HAP content or volatile organic content of each coating material applied on an as-purchased basis in accordance with s. NR 466.24 c3d ccd.

2. Calculate the as-applied organic HAP content of each coating material using Equation 1a or calculate the as-applied volatile organic content of each coating material using Equation 1b:

$$C_{ahi} = \frac{\left( C_{hi} M_i + \sum_{j=1}^q C_{hij} M_{ij} \right)}{M_i + \sum_{j=1}^q M_{ij}} \tag{cEquation 1ad}$$

where:

$C_{ahi}$  is the monthly average, as-applied, organic HAP content of coating material, i, expressed as a mass fraction, kg/kg

$C_{hi}$  is the organic HAP content of coating material, i, as-purchased, expressed as a mass fraction, kg/kg

$M_i$  is the mass of as-purchased coating material, i, applied in a month, kg

$q$  is the number of different materials added to the coating material

$C_{hij}$  is the organic HAP content of material, j, added to as-purchased coating material, i, expressed as a mass fraction, kg/kg

$M_{ij}$  is the mass of material, j, added to as-purchased coating material, i, in a month, kg

$M_i$  is the mass of as-purchased coating material, i, applied in a month, kg

$$C_{avi} = \frac{\left( C_{vi} M_i + \sum_{j=1}^q C_{vij} M_{ij} \right)}{M_i + \sum_{j=1}^q M_{ij}} \tag{cEquation 1bd}$$

where:

$C_{avi}$  is the monthly average, as-applied, volatile organic content of coating material, i, expressed as a mass fraction, kg/kg

$C_{vi}$  is the volatile organic content of coating material, i, expressed as a mass fraction, kg/kg

$M_i$  is the mass of as-purchased coating material, i, applied in a month, kg

$q$  is the number of different materials added to the coating material

$C_{vij}$  is the volatile organic content of material, j, added to as-purchased coating material, i, expressed as a mass fraction, kg/kg

$M_{ij}$  is the mass of material, j, added to as-purchased coating material, i, in a month, kg

cbd *Each coating material as-applied meets the mass fraction of coating solids standard in s. NR 466.23 c1d cbd 3.* You shall demonstrate that each coating material applied at an existing affected source contains no more than 0.20 kg of organic HAP per kg of coating solids applied and each coating material applied at a new affected source contains no more than 0.08 kg of organic HAP per kg of coating solids applied. You shall demonstrate compliance in accordance with subds. 1. and 2.

1. Determine the as-applied coating solids content of each coating material following the procedure in s. NR 466.24 c3d cdd. You shall calculate the as-applied coating solids content of coating materials which are reduced, thinned or diluted prior to application, using Equation 2:

$$C_{asi} = \frac{\left( C_{si} M_i + \sum_{j=1}^q C_{sij} M_{ij} \right)}{M_i + \sum_{j=1}^q M_{ij}} \tag{cEquation 2d}$$

where:

$C_{si}$  is the coating solids content of coating material, i, expressed as a mass fraction, kg/kg

$M_i$  is the mass of as-purchased coating material, i, applied in a month, kg

$q$  is the number of different materials added to the coating material

$C_{sij}$  is the coating solids content of material, j, added to as-purchased coating material, i, expressed as a mass-fraction, kg/kg

$M_{ij}$  is the mass of material, j, added to as-purchased coating material, i, in a month, kg

2. Calculate the as-applied organic HAP to coating solids ratio using Equation 3:

$$H_{si} = \frac{C_{ahi}}{C_{asi}} \tag{cEquation 3d}$$

where:

$H_{si}$  is the as-applied, organic HAP to coating solids ratio of coating material, i

$C_{ahi}$  is the monthly average, as-applied, organic HAP content of coating material, i, expressed as a mass fraction, kg/kg

$C_{asi}$  is the monthly average, as-applied, coating solids content of coating material, i, expressed as a mass fraction, kg/kg

ccd *Monthly average organic HAP content of all coating materials as-applied is less than the mass percent limit in s. NR 466.23 c1d cbd 2.* Demonstrate that the monthly average as-applied organic HAP content of all coating materials applied at an existing affected source is less than 0.04 kg organic HAP per kg of coating material applied, and all coating materials applied at a new affected source are less than 0.016 kg organic HAP per kg of coating material applied, as determined by Equation 4:



$$H_L = \frac{\sum_{i=1}^p C_{hi} M_i + \sum_{j=1}^q C_{hij} M_{ij} - M_{vret}}{\sum_{i=1}^p M_i + \sum_{j=1}^q M_{ij}}$$

cEquation 4d

where:

$H_L$  is the monthly average, as-applied, organic HAP content of all coating materials applied, expressed as kg organic HAP per kg of coating material applied

$p$  is the number of different coating materials applied in a month

$C_{hi}$  is the organic HAP content of coating material,  $i$ , as-purchased, expressed as a mass fraction, kg/kg

$M_i$  is the mass of as-purchased coating material,  $i$ , applied in a month, kg

$q$  is the number of different materials added to the coating material

$C_{hij}$  is the organic HAP content of material,  $j$ , added to as-purchased coating material,  $i$ , expressed as a mass fraction, kg/kg

$M_{ij}$  is the mass of material,  $j$ , added to as-purchased coating material,  $i$ , in a month, kg

$M_{vret}$  is the mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmosphere, kg. The value of this term will be zero in all cases except where you choose to take into account the volatile matter retained in the coated web or otherwise not emitted to the atmosphere for the compliance demonstration procedures in this section.

*cdd Monthly average organic HAP content of all coating materials as-applied is less than the mass fraction of coating solids limit in s. NR 466.23 c1d cbd 3.* Demonstrate that the monthly average as-applied organic HAP content on the basis of coating solids applied of all coating materials applied at an existing affected source is less than 0.20 kg of organic HAP per kg of coating solids applied, and all coating materials applied at a new affected source are less than 0.08 kg of organic HAP per kg of coating solids applied, as determined by Equation 5:

$$H_S = \frac{\sum_{i=1}^p C_{hi} M_i + \sum_{j=1}^q C_{hij} M_{ij} - M_{vret}}{\sum_{i=1}^p C_{si} M_i + \sum_{j=1}^q C_{sij} M_{ij}}$$

cEquation 5d

where:

$H_S$  is the monthly average, as-applied, organic HAP to coating solids ratio, kg of organic HAP per kg of coating solids applied

$p$  is the number of different coating materials applied in a month

$C_{hi}$  is the organic HAP content of coating material,  $i$ , as-purchased, expressed as a mass fraction, kg/kg

$M_i$  is the mass of as-purchased coating material,  $i$ , applied in a month, kg

$q$  is the number of different materials added to the coating material

$C_{hij}$  is the organic HAP content of material,  $j$ , added to as-purchased coating material,  $i$ , expressed as a mass fraction, kg/kg

$M_{ij}$  is the mass of material,  $j$ , added to as-purchased coating material,  $i$ , in a month, kg

$M_{vret}$  is the mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmosphere, kg. The value of this term will be zero in all cases except where you choose to take into account the volatile matter retained in the coated web or otherwise not emitted to the atmosphere for the compliance demonstration procedures in this section.

$C_{si}$  is the coating solids content of coating material,  $i$ , expressed as a mass fraction, kg/kg

$C_{sij}$  is the coating solids content of material,  $j$ , added to as-purchased coating material,  $i$ , expressed as a mass-fraction, kg/kg

*ced Compliance.* The affected source is in compliance with emission standards in s. NR 466.23 c1d cbd 2. or 3. if one of the following is met:

1. The organic HAP content of each coating material as-applied at an existing affected source is no more than 0.04 kg of organic HAP per kg of coating material or 0.2 kg of organic HAP per kg of coating solids, and the organic HAP content of each coating material as-applied at a new affected source contains no more than 0.016 kg of organic HAP per kg of coating material or 0.08 kg of organic HAP per kg of coating solids.

2. The monthly average organic HAP content of all as-applied coating materials at an existing affected source are no more than 0.04 kg of organic HAP per kg of coating material or 0.2 kg of organic HAP per kg of coating solids, and the monthly average organic HAP content of all as-applied coating materials at a new affected source is no more than 0.016 kg of organic HAP per kg of coating material or 0.08 kg of organic HAP per kg of coating solids.

**c4d MONTHLY ALLOWABLE ORGANIC HAP APPLIED.** Demonstrate that the total monthly organic HAP applied as determined by Equation 6 is less than the calculated equivalent allowable organic HAP as determined by Equation 13a or b in sub. c12d ced:

$$H_m = \sum_{i=1}^p C_{hi} M_i + \sum_{j=1}^q C_{hij} M_{ij} - M_{vret}$$

cEquation 6d

where:

$H_m$  is the total monthly organic HAP applied, kg

$p$  is the number of different coating materials applied in a month

$C_{hi}$  is the organic HAP content of coating material,  $i$ , as-purchased, expressed as a mass fraction, kg/kg

$M_i$  is the mass of as-purchased coating material,  $i$ , applied in a month, kg

$q$  is the number of different materials added to the coating material

$C_{hij}$  is the organic HAP content of material,  $j$ , added to as-purchased coating material,  $i$ , expressed as a mass fraction, kg/kg

$M_{ij}$  is the mass of material,  $j$ , added to as-purchased coating material,  $i$ , in a month, kg

$M_{vret}$  is the mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmosphere, kg. The value of this term will be zero in all cases except where you choose to take into account the volatile matter retained

in the coated web or otherwise not emitted to the atmosphere for the compliance demonstration procedures in this section.

**c5d CAPTURE AND CONTROL TO REDUCE EMISSIONS TO NO MORE THAN ALLOWABLE LIMIT.** To reduce emissions to no more than the allowable limit in s. NR 466.23 c1d cbd 1., operate a capture system and control device and demonstrate an overall organic HAP control efficiency of at least 95% at an existing affected source and at least 98% at a new affected source for each month, or operate a capture system and oxidizer so that an outlet organic HAP concentration of no greater than 20 ppmv by compound on a dry basis is achieved as long as the capture efficiency is 100% as detailed in s. NR 466.23 c1d cbd 4. Unless one of the cases described in par. cad, cbd or ccd applies to the affected source, you shall either demonstrate compliance in accordance with the procedure in sub. c9d when emissions from the affected source are controlled by a solvent recovery device, or the procedure in sub. c11d when emissions are controlled by an oxidizer or demonstrate compliance for a web coating line by operating each capture system and each control device and continuous parameter monitoring according to the procedures in sub. c10d.

cad If the affected source has only always-controlled work stations and operates more than one capture system or more than one control device, you shall demonstrate compliance in accordance with the provisions of either sub. c14d or c16d.

cbd If the affected source operates one or more never-controlled work stations or one or more intermittently-controlled work stations, you shall demonstrate compliance in accordance with the provisions of sub. c14d.

ccd An alternative method of demonstrating compliance with s. NR 466.23 c1d cbd 1. is the installation of a PTE around the web coating line that achieves 100% capture efficiency and ventilation of all organic HAP emissions from the total enclosure to an oxidizer with an outlet organic HAP concentration of no greater than 20 ppmv by compound on a dry basis. If this method is selected, you shall demonstrate compliance by following the procedures in subds. 1. and 2. Compliance is determined according to subd. 3.

1. Demonstrate that a total enclosure is installed. An enclosure that meets the requirements in s. NR 466.24 c3d cfd 1. will be considered a total enclosure.

2. Determine the organic HAP concentration at the outlet of your total enclosure using the procedures in subd. 2. a. or b.

a. Determine the control device efficiency using Equation 2 of s. NR 466.24 c3d and the applicable test methods and procedures specified in s. NR 466.24 c3d ccd.

b. Use a CEMS to determine the organic HAP emission rate according to sub. c9d cbd 1. to 10.

3. You are in compliance if the installation of a total enclosure is demonstrated and the organic HAP concentration at the outlet of the incinerator is demonstrated to be no greater than 20 ppmv by compound on a dry basis.

**c6d CAPTURE AND CONTROL TO ACHIEVE MASS FRACTION OF COATING SOLIDS APPLIED LIMIT.** To achieve the mass fraction of coating solids applied limit in s. NR 466.23 c1d cbd 3., operate a capture system and control device and limit the organic HAP emission rate from an existing affected source to no more than 0.20 kg of organic HAP emitted per kg of coating solids applied, and from a new affected source to no more than 0.08 kg of organic HAP emitted per kg of coating solids applied as determined on a monthly average as-applied basis. If the affected source operates more than one capture system, more than one control device, one or more never-controlled work stations or one or more intermittently-controlled work stations, you shall demonstrate compliance in accordance with the provisions of

sub. c14d. Otherwise, you shall demonstrate compliance following the procedure in sub. c9d when emissions from the affected source are controlled by a solvent recovery device or the procedure in sub. c11d when emissions are controlled by an oxidizer.

**c7d CAPTURE AND CONTROL TO ACHIEVE MASS FRACTION LIMIT.** To achieve the mass fraction limit in s. NR 466.23 c1d cbd 2., operate a capture system and control device and limit the organic HAP emission rate to no more than 0.04 kg of organic HAP emitted per kg of coating material applied at an existing affected source, and no more than 0.016 kg of organic HAP emitted per kg of coating material applied at a new affected source as determined on a monthly average as-applied basis. If the affected source operates more than one capture system, more than one control device, one or more never-controlled work stations or one or more intermittently-controlled work stations, then you shall demonstrate compliance in accordance with the provisions of sub. c14d. Otherwise, you shall demonstrate compliance following the procedure in sub. c9d when emissions from the affected source are controlled by a solvent recovery device or the procedure in sub. c11d when emissions are controlled by an oxidizer.

**c8d CAPTURE AND CONTROL TO ACHIEVE ALLOWABLE EMISSION RATE.** Operate a capture system and control device and limit the monthly organic HAP emissions to less than the allowable emissions as calculated in accordance with sub. c12d. If the affected source operates more than one capture system, more than one control device, one or more never-controlled work stations or one or more intermittently-controlled work stations, then you shall demonstrate compliance in accordance with the provisions of sub. c14d. Otherwise, the owner or operator shall demonstrate compliance following the procedure in sub. c9d when emissions from the affected source are controlled by a solvent recovery device or the procedure in sub. c11d when emissions are controlled by an oxidizer.

**c9d SOLVENT RECOVERY DEVICE COMPLIANCE DEMONSTRATION.** If you use a solvent recovery device to control emissions, you shall show compliance by following the procedures in either par. cad or cbd:

cad *Liquid-liquid material balance.* Perform a monthly liquid-liquid material balance as specified in subds. 1. to 5. and use the applicable equations in subds. 6. to 9. to convert the data to units of the selected compliance option in subds. c5d to c8d. Compliance shall be determined in accordance with subd. 10.

1. Determine the mass of each coating material applied on the web coating line or group of web coating lines controlled by a common solvent recovery device during the month.

2. If demonstrating compliance on the basis of an organic HAP emission rate based on coating solids applied, an organic HAP emission rate based on coating material applied or emission of less than the calculated allowable organic HAP, determine the organic HAP content of each coating material as-applied during the month following the procedure in s. NR 466.24 c3d ccd.

3. Determine the volatile organic content of each coating material as-applied during the month following the procedure in s. NR 466.24 c3d ccd.

4. If demonstrating compliance on the basis of an organic HAP emission rate based on coating solids applied or emissions of less than the calculated allowable organic HAP, determine the coating solids content of each coating material applied during the month following the procedure in s. NR 466.24 c3d ccd.

5. Determine and monitor the amount of volatile organic matter recovered for the month according to the procedures in s. NR 466.24 c2d cdd.

6. Calculate the volatile organic matter collection and recovery efficiency using Equation 7:

$$R_v = \frac{M_{vr} + M_{vret}}{\sum_{i=1}^p C_{vi} M_i + \sum_{j=1}^q C_{vij} M_{ij}} \times 100$$

cEquation 7d

where:

$R_v$  is the organic volatile matter collection and recovery efficiency, percent

$M_{vr}$  is the mass of volatile matter recovered in a month, kg

$M_{vret}$  is the mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmosphere, kg. The value of this term will be zero in all cases except where you choose to take into account the volatile matter retained

$$H_e = \left( 1 - \frac{R_v}{100} \right) \left( \sum_{i=1}^p C_{hi} M_i + \sum_{j=1}^q C_{hij} M_{ij} - M_{vret} \right)$$

cEquation 8d

where:

$H_e$  is the total monthly organic HAP emitted, kg

$R_v$  is the organic volatile matter collection and recovery efficiency, percent

$p$  is the number of different coating materials applied in a month

$C_{hi}$  is the organic HAP content of coating material,  $i$ , as-purchased, expressed as a mass fraction, kg/kg

$M_i$  is the mass of as-purchased coating material,  $i$ , applied in a month, kg

$q$  is the number of different materials added to the coating material

$C_{hij}$  is the organic HAP content of material,  $j$ , added to as-purchased coating material,  $i$ , expressed as a mass fraction, kg/kg

$M_{ij}$  is the mass of material,  $j$ , added to as-purchased coating material,  $i$ , in a month, kg

$M_{vret}$  is the mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmosphere, kg. The value of this term will be zero in all cases except where you choose to take into account the volatile matter retained in the coated web or otherwise not emitted to the atmosphere for the compliance demonstration procedures in this section.

8. Calculate the organic HAP emission rate based on coating solids applied using Equation 9:

$$L = \frac{H_e}{\sum_{i=1}^p C_{si} M_i + \sum_{j=1}^q C_{sij} M_{ij}}$$

cEquation 9d

where:

$L$  is the mass of organic HAP emitted per mass of coating solids applied, kg/kg

$H_e$  is the total monthly organic HAP emitted, kg

$p$  is the number of different coating materials applied in a month

$C_{si}$  is the coating solids content of coating material,  $i$ , expressed as a mass fraction, kg/kg

$M_i$  is the mass of as-purchased coating material,  $i$ , applied in a month, kg

in the coated web or otherwise not emitted to the atmosphere for the compliance demonstration procedures in this section

$p$  is the number of different coating materials applied in a month

$C_{vi}$  is the volatile organic content of coating material,  $i$ , expressed as a mass fraction, kg/kg

$M_i$  is the mass of as-purchased coating material,  $i$ , applied in a month, kg

$q$  is the number of different materials added to the coating material

$C_{vij}$  is the volatile organic content of material,  $j$ , added to as-purchased coating material,  $i$ , expressed as a mass fraction, kg/kg

$M_{ij}$  is the mass of material,  $j$ , added to as-purchased coating material,  $i$ , in a month, kg

7. Calculate the organic HAP emitted during the month using Equation 8:

$q$  is the number of different materials added to the coating material

$C_{sij}$  is the coating solids content of material,  $j$ , added to as-purchased coating material,  $i$ , expressed as a mass-fraction, kg/kg

$M_{ij}$  is the mass of material,  $j$ , added to as-purchased coating material,  $i$ , in a month, kg

9. Calculate the organic HAP emission rate based on coating material applied using Equation 10:

$$S = \frac{H_e}{\sum_{i=1}^p M_i + \sum_{j=1}^q M_{ij}}$$

cEquation 10d

where:

$S$  is the mass organic HAP emitted per mass of material applied, kg/kg

$H_e$  is the total monthly organic HAP emitted, kg

$p$  is the number of different coating materials applied in a month

$M_i$  is the mass of as-purchased coating material,  $i$ , applied in a month, kg

$q$  is the number of different materials added to the coating material

$M_{ij}$  is the mass of material,  $j$ , added to as-purchased coating material,  $i$ , in a month, kg

10. You are in compliance with the emission standards in s. NR 466.23 c1d cbd if you meet any of the following:

a. The volatile organic matter collection and recovery efficiency is 95% or greater at an existing affected source and 98% or greater at a new affected source.

b. The organic HAP emission rate based on coating solids applied is no more than 0.20 kg of organic HAP per kg of coating solids applied at an existing affected source and no more than 0.08 kg of organic HAP per kg of coating solids applied at a new affected source.

c. The organic HAP emission rate based on coating material applied is no more than 0.04 kg of organic HAP per kg of coating material applied at an existing affected source and no more than

0.016 kg of organic HAP per kg of coating material applied at a new affected source.

d. The organic HAP emitted during the month is less than the calculated allowable organic HAP as determined using sub. [c12d](#).

cbd *Continuous emission monitoring of capture system and control device performance.* Demonstrate initial compliance through a performance test on capture efficiency and continuing compliance through continuous emission monitors and continuous monitoring of capture system operating parameters following the procedures in subs. [1.](#) to [7.](#) Use the applicable equations specified in subs. [8.](#) to [10.](#) to convert the monitoring and other data into units of the selected compliance option in subs. [c5d](#) to [c8d](#). Compliance shall be determined in accordance with subd. [11.](#)

1. Continuously monitor the gas stream entering and exiting the control device to determine the total organic volatile matter mass flow rate such that the efficiency of the control device can be calculated for each month using Equation 2 in s. [NR 466.24 c3d ced 1. i.](#)

2. Whenever a web coating line is operated, continuously monitor the operating parameters established in accordance with s. [NR 466.24 c2d cfd](#) to ensure capture efficiency.

3. Determine the percent capture efficiency in accordance with s. [NR 466.24 c3d cfd](#).

4. Calculate the overall organic HAP control efficiency achieved for each month using Equation 11:

$$R = \frac{(E)(CE)}{100} \quad \text{cEquation 11d}$$

where:

R is the overall organic HAP control efficiency, percent

E is the organic volatile matter control efficiency of the control device, percent

CE is the organic volatile matter capture efficiency of the capture system, percent

5. If demonstrating compliance on the basis of organic HAP emission rate based on coating solids applied, organic HAP emission rate based on coating materials applied or emission of less than the calculated allowable organic HAP, determine the mass of each coating material applied on the web coating line or group of web coating lines controlled by a common control device during the month.

6. If demonstrating compliance on the basis of organic HAP emission rate based on coating solids applied, organic HAP emission rate based on coating material applied or emission of less than the calculated allowable organic HAP, determine the organic HAP content of each coating material as-applied during the month following the procedure in s. [NR 466.24 c3d ccd](#).

7. If demonstrating compliance on the basis of organic HAP emission rate based on coating solids applied or emission of less than the calculated allowable organic HAP, determine the coating solids content of each coating material as-applied during the month following the procedure in s. [NR 466.24 c3d cdd](#).

8. Calculate the organic HAP emitted during the month for each month using Equation 12:

$$H_e = \left( 1 - R \right) \left( \sum_{i=1}^p C_{ahi} M_i \right) - M_{vret} \quad \text{cEquation 12d}$$

where:

$H_e$  is the total monthly organic HAP emitted, kg

R is the overall organic HAP control efficiency, percent

p is the number of different coating materials applied in a month

$C_{ahi}$  is the monthly average, as-applied, organic HAP content of coating material, i, expressed as a mass fraction, kg/kg

$M_i$  is the mass of as-purchased coating material, i, applied in a month, kg

$M_{vret}$  is the mass of volatile matter retained in the coated web after curing or drying or otherwise not emitted to the atmosphere, kg. The value of this term will be zero in all cases except where you choose to take into account the volatile matter retained in the coated web or otherwise not emitted to the atmosphere for the compliance demonstration procedures in this section.

9. Calculate the organic HAP emission rate based on coating solids applied using Equation 9 in par. [cad 8](#).

10. Calculate the organic HAP emission rate based on coating material applied using Equation 10 in par. [cad 9](#).

11. You are in compliance with the emission standards in s. [NR 466.23 c1d cbd](#) for each month if you operate the capture system such that the average capture system operating parameter is greater than or less than, as appropriate, the operating parameter value established in accordance with s. [NR 466.24 c2d cfd](#), and you satisfy one of the following:

a. The organic volatile matter collection and recovery efficiency is 95% or greater at an existing affected source and 98% or greater at a new affected source.

b. The organic HAP emission rate based on coating solids applied is no more than 0.20 kg of organic HAP per kg of coating solids applied at an existing affected source and no more than 0.08 kg of organic HAP per kg of coating solids applied at a new affected source.

c. The organic HAP emission rate based on coating material applied is no more than 0.04 kg of organic HAP per kg of coating material applied at an existing affected source and no more than 0.016 kg of organic HAP per kg of coating material applied at a new affected source.

d. The organic HAP emitted during the month is less than the calculated allowable organic HAP as determined using sub. [c12d](#).

**c10d CAPTURE AND CONTROL SYSTEM COMPLIANCE DEMONSTRATION PROCEDURES USING A CPMS.** If you use an add-on control device, you shall demonstrate initial compliance for each capture system and each control device through performance tests and demonstrate continuing compliance through continuous monitoring of capture system and control device operating parameters as specified in pars. [cad](#) to [ccd](#). Compliance shall be determined in accordance with par. [cdd](#).

[cad](#) Determine the control device destruction or removal efficiency using the applicable test methods and procedures in s. [NR 466.24 c3d ced](#).

[cbd](#) Determine the emission capture efficiency in accordance with s. [NR 466.24 c3d cfd](#).

[ccd](#) Whenever a web coating line is operated, continuously monitor the operating parameters established according to s. [NR 466.24 c2d ced](#) and [cfd](#).

[cdd](#) You are in compliance with the emission standards in s. [NR 466.23 c1d cbd](#) if the control device is operated such that the average operating parameter value is greater than or less than, as appropriate, the operating parameter value established in accordance with s. [NR 466.24 c3d ced](#) for each 3-hour period, and the capture system operating parameter is operated at an average

value greater than or less than, as appropriate, the operating parameter value established in accordance with s. NR 466.24 c2d cfd, and you satisfy one of the following:

1. The overall organic HAP control efficiency is 95% or greater at an existing affected source and 98% or greater at a new affected source.

2. The organic HAP emission rate based on coating solids applied is no more than 0.20 kg of organic HAP per kg of coating solids applied at an existing affected source and no more than 0.08 kg of organic HAP per kg of coating solids applied at a new affected source.

3. The organic HAP emission rate based on coating material applied is no more than 0.04 kg of organic HAP per kg of coating material applied at an existing affected source and no more than 0.016 kg of organic HAP per kg of coating material applied at a new affected source.

4. The organic HAP emitted during the month is less than the calculated allowable organic HAP as determined using sub. c12d.

**c11d OXIDIZER COMPLIANCE DEMONSTRATION PROCEDURES.** If you use an oxidizer to control emissions, you shall show compliance by following the procedures in par. cad and using the applicable equations specified in par. cbd to convert the monitoring and other data into units of the selected compliance option in subs. c5d to c8d. Compliance shall be determined in accordance with par. ccd.

cad Demonstrate initial compliance through performance tests of capture efficiency and control device efficiency and continuing compliance through continuous monitoring of capture system and control device operating parameters as specified in subs. 1. to 6.:

1. Determine the oxidizer destruction efficiency using the procedure in s. NR 466.24 c3d ccd.

2. Determine the capture system capture efficiency in accordance with s. NR 466.24 c3d cfd.

3. Whenever a web coating line is operated, continuously monitor the operating parameters established in accordance with s. NR 466.24 c2d cfd and cfd to ensure capture and control efficiency.

4. If demonstrating compliance on the basis of organic HAP emission rate based on coating solids applied, organic HAP emission rate based on coating materials applied or emission of less than the calculated allowable organic HAP, determine the mass of each coating material applied on the web coating line or group of web coating lines controlled by a common oxidizer during the month.

5. If demonstrating compliance on the basis of organic HAP emission rate based on coating solids applied, organic HAP emission rate based on coating material applied or emission of less than the calculated allowable organic HAP, determine the organic HAP content of each coating material as-applied during the month following the procedure in s. NR 466.24 c3d ccd.

6. If demonstrating compliance on the basis of organic HAP emission rate based on coating solids applied or emission of less than the calculated allowable organic HAP, determine the coating solids content of each coating material applied during the month following the procedure in s. NR 466.24 c3d cdd.

cbd You shall convert the information obtained under sub. c16d cad into the units of the selected compliance option using the calculation procedures specified in subs. 1. to 4.

1. Calculate the overall organic HAP control efficiency achieved using Equation 11 of this section.

2. Calculate the organic HAP emitted during the month using Equation 12 of this section.

3. Calculate the organic HAP emission rate based on coating solids applied for each month using Equation 9 of this section.

4. Calculate the organic HAP emission rate based on coating material applied using Equation 10 of this section.

ccd You are in compliance with the emission standards in s. NR 466.23 c1d cbd if the oxidizer is operated such that the average operating parameter value is greater than the operating parameter value established in accordance with s. NR 466.24 c3d ccd for each 3-hour period, and the capture system operating parameter is operated at an average value greater than or less than, as appropriate, the operating parameter value established in accordance with s. NR 466.24 c2d cfd, and you satisfy one of the following:

1. The overall organic HAP control efficiency is 95% or greater at an existing affected source and 98% or greater at a new affected source.

2. The organic HAP emission rate based on coating solids applied is no more than 0.20 kg of organic HAP per kg of coating solids applied at an existing affected source and no more than 0.08 kg of organic HAP per kg of coating solids applied at a new affected source.

3. The organic HAP emission rate based on coating material applied is no more than 0.04 kg of organic HAP per kg of coating material applied at an existing affected source and no more than 0.016 kg of organic HAP per kg of coating material applied at a new affected source.

4. The organic HAP emitted during the month is less than the calculated allowable organic HAP as determined using sub. c12d.

**c12d MONTHLY ALLOWABLE ORGANIC HAP EMISSIONS.** You shall use the procedures and calculations in this subsection for determining monthly allowable organic HAP emissions for use in demonstrating compliance in accordance with subs. c4d, c8d, c9d cad 10. d., c9d cbd 11. d. and c11d ccd 4. You shall determine the amount of coating material applied at greater than or equal to 20% by mass coating solids and the amount of coating material applied at less than 20% by mass coating solids. The allowable organic HAP limit shall then be calculated based on coating material applied at greater than or equal to 20% by mass coating solids complying with 0.2 kg of organic HAP per kg of coating solids at an existing affected source or 0.08 kg of organic HAP per kg of coating solids at a new affected source, and coating material applied at less than 20% by mass coating solids complying with 4% by mass organic HAP at an existing affected source and 1.6% by mass organic HAP at a new affected source by doing all of the following:

cad Determine the as-purchased mass of each coating material applied each month.

cbd Determine the as-purchased coating solids content of each coating material applied each month in accordance with s. NR 466.24 c3d cdd 1.

ccd Determine the as-purchased mass fraction of each coating material which was applied at 20% by mass or greater coating solids content on an as-applied basis.

cdd Determine the total mass of each solvent, diluent, thinner or reducer added to coating materials which were applied at less than 20% by mass coating solids content on an as-applied basis each month.

ced Calculate the monthly allowable organic HAP emissions using Equation 13a for an existing affected source and Equation 13b for a new affected source:

$$H_a = 0.20 \left[ \sum_{i=1}^p M_i G_i C_{si} \right] + 0.04 \left[ \sum_{i=1}^p M_i \chi - G_i \delta + \sum_{j=1}^q M_{Lj} \right]$$

Equation 13ad

where:

$H_a$  is the monthly allowable organic HAP emissions, kg

$p$  is the number of different coating materials applied in a month

$M_i$  is the mass of as-purchased coating material,  $i$ , applied in a month, kg

$G_i$  is the mass fraction of each coating material,  $i$ , which was applied at 20% by mass or greater coating solids content, on an as-applied basis, kg {kg

$C_{si}$  is the coating solids content of coating material,  $i$ , expressed as a mass fraction, kg {kg

$q$  is the number of different materials added to the coating material

$M_{Lj}$  is the mass of non-coating-solids-containing coating material,  $j$ , added to coating-solids-containing coating materials which were applied at less than 20% by mass coating solids content, on an as-applied basis, in a month, kg

$$H_a = 0.08 \left[ \sum_{i=1}^p M_i G_i C_{si} \right] + 0.016 \left[ \sum_{i=1}^p \chi - G_i \delta + \sum_{j=1}^q M_{Lj} \right]$$

Equation 13bd

where

$H_a$  is the monthly allowable organic HAP emissions, kg

$p$  is the number of different coating materials applied in a month

$M_i$  is the mass of as-purchased coating material,  $i$ , applied in a month, kg

$G_i$  is the mass fraction of each coating material,  $i$ , which was applied at 20% by mass or greater coating solids content, on an as-applied basis, kg {kg

$C_{si}$  is the coating solids content of coating material,  $i$ , expressed as a mass fraction, kg {kg

$q$  is the number of different materials added to the coating material

$M_{Lj}$  is the mass of non-coating-solids-containing coating material,  $j$ , added to coating-solids-containing coating materials which were applied at less than 20% by mass coating solids content, on an as-applied basis, in a month, kg

**Note:** Sub. c13d was not used to maintain consistency with numbering used in parallel federal language.

**c14d** COMBINATIONS OF CAPTURE AND CONTROL. If you operate more than one capture system, more than one control device, one or more never-controlled work stations or one or more intermittently-controlled work stations, you shall calculate organic HAP emissions according to the procedures in pars. cad to cdd and use the calculation procedures specified in par. ced to convert the monitoring and other data into units of the selected control option in subs. c5d to c8d. Use the procedures specified in par. cfd to demonstrate compliance.

cad *Solvent recovery system using liquid-liquid material balance compliance demonstration.* If you choose to comply by means of a liquid-liquid material balance for each solvent recovery system used to control one or more web coating lines, you shall determine the organic HAP emissions for the web coating lines controlled by the solvent recovery system in accordance with one of the following:

1. Subsection c9d cad 1. to 3. and 5. to 7., if the web coating lines controlled by the solvent recovery system have only always-controlled work stations.

2. Subsections c9d cad 2., 3., 5. and 6. and c15d, if the web coating lines controlled by the solvent recovery system have one or more never-controlled or intermittently-controlled work stations.

cbd *Solvent recovery system using performance test compliance demonstration and CEMS.* To demonstrate compliance through an initial test of capture efficiency, continuous monitor-

ing of a capture system operating parameter and a CEMS on each solvent recovery system used to control one or more web coating lines, you shall do both of the following:

1. For each capture system delivering emissions to that solvent recovery system, monitor the operating parameter established in accordance with s. NR 466.24 c2d cfd to ensure capture system efficiency.

2. Determine the organic HAP emissions for the web coating lines served by each capture system delivering emissions to the solvent recovery system in accordance with one of the following:

a. Subsection c9d cbd 1. to 3., 5., 7. and 8. if the web coating lines served by the capture and control system have only always-controlled work stations.

b. Subsections c9d cbd 1. to 3. and 6. and c15d if the web coating lines served by the capture and control system have one or more never-controlled or intermittently-controlled work stations.

ccd *Oxidizer.* To demonstrate compliance through performance tests of capture efficiency and control device efficiency, continuous monitoring of capture system and CPMS for control device operating parameters for each oxidizer used to control emissions from one or more web coating lines, you shall do all of the following:

1. Monitor the operating parameter in accordance with s. NR 466.24 c2d ced to ensure control device efficiency.

2. For each capture system delivering emissions to the oxidizer, monitor the operating parameter established in accordance with s. NR 466.24 c2d cfd to ensure capture efficiency.

3. Determine the organic HAP emissions for the web coating lines served by each capture system delivering emissions to that oxidizer in accordance with one of the following:

a. In accordance with sub. c11d cad 1. to 4. if the web coating lines served by the capture and control system have only always-controlled work stations.

b. In accordance with sub. c11d cad 1. to 3. and 5. and sub. c15d if the web coating lines served by the capture and control system have one or more never-controlled or intermittently-controlled work stations.

cdd *Uncontrolled coating lines.* If you own or operate one or more uncontrolled web coating lines, you shall determine the organic HAP applied on the web coating lines using Equation 6 in sub. c4d. The organic HAP emitted from an uncontrolled web coating line is equal to the organic HAP applied on the web coating line.

ced *Conversion of information.* Convert the information ob-

tained under pars. [cad](#) to [cdd](#) into the units of the selected compliance option using the calculation procedures specified in subs. 1. to 4.

1. Calculate the organic HAP emissions for the affected source for the month by summing all organic HAP emissions calculated according to pars. [cad](#), [cbd 2.](#), [ccd 3.](#) and [cdd](#).

2. If demonstrating compliance on the basis of organic HAP emission rate based on coating solids applied or emission of less than the calculated allowable organic HAP, you shall determine the coating solids content of each coating material applied during the month following the procedure in s. [NR 466.24 c3d cdd](#).

3. Calculate the organic HAP emission rate based on coating solids applied for each month using Equation 9 in sub. [c9d cad 8](#).

4. Calculate the organic HAP emission rate based on material applied using Equation 10 in sub. [c9d cad 9](#).

*cf* **Compliance.** You are in compliance with the emission standards in s. [NR 466.23 c1d cbd](#) for the month if all operating parameters required to be monitored under pars. [cad](#) to [ccd](#) were maintained at the values established under s. [NR 466.24 c2d](#) and [c3d](#), and you satisfy one of the following:

1. The total mass of organic HAP emitted by the affected source based on coating solids applied is no more than 0.20 kg of organic HAP per kg of coating solids applied at an existing affected source and no more than 0.08 kg of organic HAP per kg of coating solids applied at a new affected source.

2. The total mass of organic HAP emitted by the affected source based on material applied is no more than 0.04 kg of organic HAP per kg of material applied at an existing affected

$$H_e = \left[ \sum_{i=1}^p M_{Ci} C_{ahi} \right] \left[ 1 - \frac{R_v}{100} \right] + \left[ \sum_{i=1}^p M_{Bi} C_{ahi} \right] - M_{vret}$$

Equation 14d

where:

$H_e$  is the total monthly organic HAP emitted, kg

$p$  is the number of different coating materials applied in a month

$M_{Ci}$  is the sum of the mass of coating material,  $i$ , as-applied on intermittently-controlled work stations operating in controlled mode and the mass of coating material,  $i$ , as-applied on always-controlled work stations, in a month, kg

$C_{ahi}$  is the monthly average, as-applied, organic HAP content of coating material,  $i$ , expressed as a mass fraction, kg/kg

$R_v$  is the organic volatile matter collection and recovery efficiency, percent

$M_{Bi}$  is the sum of the mass of coating material,  $i$ , as-applied

$$H_e = \left[ \sum_{i=1}^p M_{Ci} C_{ahi} \right] \left[ 1 - \frac{R}{100} \right] + \left[ \sum_{i=1}^p M_{Bi} C_{ahi} \right] - M_{vret}$$

Equation 15d

where:

$H_e$  is the total monthly organic HAP emitted, kg

$p$  is the number of different coating materials applied in a month

$M_{Ci}$  is the sum of the mass of coating material,  $i$ , as-applied on intermittently-controlled work stations operating in controlled mode and the mass of coating material,  $i$ , as-applied on always-controlled work stations, in a month, kg

source and no more than 0.016 kg of organic HAP per kg of material applied at a new affected source.

3. The total mass of organic HAP emitted by the affected source during the month is less than the calculated allowable organic HAP as determined using sub. [c12d](#).

4. The total mass of organic HAP emitted by the affected source was not more than 5% of the total mass of organic HAP applied for the month at an existing affected source and no more than 2% of the total mass of organic HAP applied for the month at a new affected source. The total mass of organic HAP applied by the affected source in the month shall be determined using Equation 6 in sub. [c4d](#).

**c15d** INTERMITTENTLY-CONTROLLED AND NEVER-CONTROLLED WORK STATIONS. If you have been expressly referred to this subsection by sub. [c14d cad 2.](#), [cbd 2. b.](#) or [ccd 3. b.](#) for calculation procedures to determine organic HAP emissions for your intermittently-controlled and never-controlled work stations, you shall do all of the following:

*cad* Determine the sum of the mass of all coating materials as-applied on intermittently-controlled work stations operating in bypass mode and the mass of all coating materials as-applied on never-controlled work stations during the month.

*cbd* Determine the sum of the mass of all coating materials as-applied on intermittently-controlled work stations operating in a controlled mode and the mass of all coating materials applied on always-controlled work stations during the month.

*ccd* For each web coating line or group of web coating lines for which you use the provisions of sub. [c14d cad 2.](#) for liquid-liquid material balance compliance demonstration, calculate the organic HAP emitted during the month using Equation 14:

on intermittently-controlled work stations operating in bypass mode and the mass of coating material,  $i$ , as-applied on never-controlled workstations, in a month, kg

$M_{vret}$  is the mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmosphere, kg. The value of this term will be zero in all cases except where you choose to take into account the volatile matter retained in the coated web or otherwise not emitted to the atmosphere for the compliance demonstration procedures in this section.

*cdd* For each web coating line or group of web coating lines for which you use the provisions of sub. [c14d cbd 2. b.](#) or [ccd 3. b.](#) on using a performance test to determine capture efficiency and control device efficiency, calculate the organic HAP emitted during the month using Equation 15:

$C_{ahi}$  is the monthly average, as-applied, organic HAP content of coating material,  $i$ , expressed as a mass fraction, kg/kg

$R$  is the overall organic HAP control efficiency, percent

$M_{Bi}$  is the sum of the mass of coating material,  $i$ , as-applied on intermittently-controlled work stations operating in bypass mode and the mass of coating material,  $i$ , as-applied on never-controlled work stations, in a month, kg

$M_{vret}$  is the mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmos-

phere, kg. The value of this term will be zero in all cases except where you choose to take into account the volatile matter retained in the coated web or otherwise not emitted to the atmosphere for the compliance demonstration procedures in this section.

**c16d** ALWAYS-CONTROLLED WORK STATIONS WITH MORE THAN ONE CAPTURE AND CONTROL SYSTEM. If you operate more than one capture system or more than one control device and only have always-controlled work stations, you are in compliance with the emission standards in s. NR 466.23 c1d cbd 1. for the month if for each web coating line or group of web coating lines controlled by a common control device you satisfy one of the following:

cad The volatile matter collection and recovery efficiency as determined by sub. c9d cad 1., 3., 5. and 6. is at least 95% at an existing affected source and at least 98% at a new affected source.

cbd The overall organic HAP control efficiency as determined by sub. c9d cbd 1. to 4. for each web coating line or group of web coating lines served by that control device and a common capture system is at least 95% at an existing affected source and at least 98% at a new affected source.

ccd The overall organic HAP control efficiency as determined by sub. c11d cad 1. to 3. and cbd 1. for each web coating line or group of web coating lines served by that control device and a common capture system is at least 95% at an existing affected source and at least 98% at a new affected source.

**History:** CR 07-045: cr. Register April 2008 No. 628, eff. 5-1-08.

**NR 466.26 Notifications, reports and records. c1d** WHAT NOTIFICATIONS AND REPORTS MUST I SUBMIT? cad Each owner or operator of an affected source subject to this subchapter shall submit the reports specified in pars. cbd to cgd to the department.

cbd You shall submit an initial notification according to the following requirements:

1. Initial notification for existing affected sources shall be submitted no later than one year before the compliance date specified in s. NR 466.23 c3d cad.

2. Initial notification for new and reconstructed affected sources shall be submitted as required by s. NR 460.08 c2d.

3. For the purpose of this subchapter, a permit application submitted under ch. NR 407 may be used in lieu of the initial notification required under s. NR 460.08 c2d, provided the same information is contained in the permit application as required by s. NR 460.08 c2d.

4. If you are using a permit application in lieu of an initial notification in accordance with subd. 3., the permit application shall be submitted by the same due date specified for the initial notification.

ccd You shall submit a semiannual compliance report according to subds. 1. and 2.

1. The compliance report shall be submitted in accordance with the requirements in subd. 1. a. to e.

a. The first compliance report shall cover the period beginning on the compliance date that is specified for your affected source in s. NR 466.23 c3d and ending on June 30 or December 31, whichever date is the first date following the end of the calendar half immediately following the compliance date that is specified for your affected source in s. NR 466.23 c3d.

b. The first compliance report shall be postmarked or delivered no later than July 31 or January 31, whichever date follows the end of the calendar half immediately following the compliance date that is specified for your affected source in s. NR 466.23 c3d.

c. Each subsequent compliance report shall cover the semiannual reporting period from January 1 to June 30 or the semiannual reporting period from July 1 to December 31.

d. Each subsequent compliance report shall be postmarked or delivered no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period.

e. For each affected source that is subject to permitting regulations pursuant to ch. NR 407, and for which the department has established dates for submitting semiannual reports pursuant to s. NR 407.09 c1d ccd 3. a., you may submit the first and subsequent compliance reports according to the dates the department has established instead of according to the dates in subd. 1. a. to d.

2. The compliance report shall contain the information in subd. 2. a. to f.

a. Company name and address.

b. Statement by a responsible official with that official[s] name, title and signature certifying the accuracy of the content of the report.

c. Date of report and beginning and ending dates of the reporting period.

d. If there are no deviations from any emission limit or operating limit that apply to you, a statement that there were no deviations from any emission limit or operating limit during the reporting period, and that no CMS was inoperative, inactive, malfunctioning, out-of-control, repaired or adjusted.

e. For each deviation from an emission limit or operating limit that applies to you and that occurs at an affected source where you are not using a CEMS to comply with the emission limits or operating limits in this subchapter, you shall include the following information:

1d The total operating time of each affected source during the reporting period.

2d Information on the number, duration and cause of deviations, including unknown cause, if applicable, and the corrective action taken.

3d Information on the number, duration and cause for CPMS downtime incidents, if applicable, other than downtime associated with zero and span and other calibration checks.

f. For each deviation from an emission limit occurring at an affected source where you are using a CEMS to comply with the emission limit in this subchapter, you shall include the following information:

1d The date and time that each malfunction started and stopped.

2d The date and time that each CEMS and CPMS, if applicable, was inoperative except for zero, low-level and high-level checks.

3d The date and time that each CEMS and CPMS, if applicable, was out-of-control, including the information in s. NR 460.07 c3d chd.

4d The date and time that each deviation started and stopped and whether each deviation occurred during a period of startup, shutdown or malfunction or during another period.

5d A summary of the total duration, in hours, of each deviation during the reporting period and the total duration of each deviation as a percent of the total source operating time during that reporting period.

6d A breakdown of the total duration of the deviations during the reporting period into those that are due to startup, shut-



down, control equipment problems, process problems, other known causes and other unknown causes.

7d A summary of the total duration, in hours, of CEMS and CPMS downtime during the reporting period and the total duration of CEMS and CPMS downtime as a percent of the total source operating time during that reporting period.

8d A breakdown of the total duration of CEMS and CPMS downtime during the reporting period into periods that are due to monitoring equipment malfunctions, non-monitoring equipment malfunctions, quality assurance and quality control calibrations, other known causes and other unknown causes.

9d The date of the latest CEMS and CPMS certification or audit.

10d A description of any changes in CEMS, CPMS or controls since the last reporting period.

cdd You shall submit a notification of performance tests as specified in ss. NR 460.06 and 460.08 c5d if you are complying with the emission standard using a control device and you are required to conduct a performance test of the control device. This notification and the site-specific test plan required under s. NR 460.06 c2d shall identify the operating parameters to be monitored to ensure that the capture efficiency of the capture system and the control efficiency of the control device determined during the performance test are maintained. Unless the department objects to the parameter or requests changes, you may consider the parameter approved.

ced You shall submit a notification of compliance status as specified in s. NR 460.08 c8d.

cfđ You shall submit performance test reports as specified in s. NR 460.09 c4d cbd if you are using a control device to comply with the emission standard and you have not obtained a waiver from the performance test requirement or you are not exempted from this requirement by s. NR 466.24 c3d cbd. The performance test reports shall be submitted as part of the notification of compliance status required in par. ced.

cgđ You shall submit startup, shutdown and malfunction reports as specified in s. NR 460.09 c4d ced, except that the provisions in ch. NR 460 pertaining to startups, shutdowns and malfunctions do not apply unless a control device is used to comply with this subchapter.

1. If actions taken by an owner or operator during a startup, shutdown or malfunction of an affected source, including actions taken to correct a malfunction, are not consistent with the procedures specified in the affected source[s] SSMP required by s. NR

460.05 c4d ccd, the owner or operator shall state the information in the report. The startup, shutdown or malfunction report shall consist of a letter containing the name, title and signature of the responsible official who is certifying its accuracy and shall be submitted to the department.

2. Separate startup, shutdown and malfunction reports are not required if the information is included in the report specified in par. ccd 2. f.

**c2d** WHAT RECORDS MUST I KEEP? cad Each owner or operator of an affected source subject to this subchapter shall maintain the records specified in subsd. 1. and 2. on a monthly basis in accordance with the requirements of s. NR 460.09 c2d cad:

1. Records specified in s. NR 460.09 c2d cbd of all measurements needed to demonstrate compliance with this standard, including all of the following:

a. Continuous emission monitor data in accordance with the requirements of s. NR 466.24 c2d cdd.

b. Control device and capture system operating parameter data in accordance with the requirements of s. NR 466.24 c2d ccd, ced and cfd.

c. Organic HAP content data for the purpose of demonstrating compliance in accordance with the requirements of s. NR 466.24 c3d cdd.

d. Volatile matter and coating solids content data for the purpose of demonstrating compliance in accordance with the requirements of s. NR 466.24 c3d cdd.

e. Overall control efficiency determination using capture efficiency and control device destruction or removal efficiency test results in accordance with the requirements of s. NR 466.24 c3d ced and cfd.

f. Material use, organic HAP use, volatile matter use and coating solids use and compliance demonstrations using these data in accordance with the requirements of s. NR 466.25 c2d, c3d and c4d.

2. Records specified in s. NR 460.09 c3d for each CMS operated by the owner or operator in accordance with the requirements of s. NR 466.24 c2d cbd.

cbd Each owner or operator of an affected source subject to this subchapter shall maintain records of all liquid-liquid material balances performed in accordance with the requirements of s. NR 466.25. The records shall be maintained in accordance with the requirements of s. NR 460.09 c2d. If you are required to comply with operating limits by s. NR 466.23 c2d, you shall comply with the applicable operating limits in the following table:

**Table 1**  
**Operating Limits if Using Add-On Control Devices and Capture System**

For the following device:	You shall meet the following operating limit:	And you shall demonstrate continuous compliance with operating limits by:
1. Thermal Oxidizer	The average combustion temperature in any 3-hour period may not fall below the combustion temperature limit established according to s. NR 466.24 c3d ced 3. a.	1. Collecting the combustion temperature data according to s. NR 466.24 c2d ced 9.; 2. Reducing the data to 3-hour block averages; and 3. Maintaining the 3-hour average combustion temperature at or above the temperature limit.

For the following device:	You shall meet the following operating limit:	And you shall demonstrate continuous compliance with operating limits by:
2. Catalytic Oxidizer	<p>a. The average temperature at the inlet to the catalyst bed in any 3-hour period may not fall below the combustion temperature limit established according to s. NR 466.24 c3d ced 3. b.</p> <p>b. The temperature rise across the catalyst bed may not fall below the limit established according to s. NR 466.24 c3d ced 3. b.</p>	<p>1. Collecting the catalyst bed inlet temperature data according to s. NR 466.24 c2d ced 9.;</p> <p>2. Reducing the data to 3-hour block averages; and</p> <p>3. Maintaining the 3-hour average catalyst bed inlet temperature at or above the temperature limit.</p> <p>1. Collecting the catalyst bed inlet and outlet temperature data according to s. NR 466.24 c2d ced 9.;</p> <p>2. Reducing the data to 3-hour block averages; and</p> <p>3. Maintaining the 3-hour average temperature rise across the catalyst bed at or above the limit.</p>
3. Emission Capture System	Submit monitoring plan to the department that identifies operating parameters to be monitored according to s. NR 466.24 c2d cfd.	Conduct monitoring according to the plan specified in s. NR 466.24 c2d cfd 3.

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