

**Instructions for Attachment E205**  
**SURFACE COATING OR PRINTING OPERATIONS**  
**Supplemental Application Form**  
(Instructions for Completing DEEP-NSR-APP-205)

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All applications for a permit to construct and operate a stationary source shall include the information listed in Regulations of Connecticut State Agencies (RCSA) section 22a-174-3a(c). This supplemental application form shall be completed for new or modified sources such as: spray painting operations; dip coating operations; knife or roll coating; or, rotogravure, flexographic, lithographic, or screen printing.

Note: Certain surface coating operations may be operated pursuant to RCSA section 22a-174-3b or -3c in lieu of a permit to construct and operate pursuant to RCSA section 22a-174-3a. [The Regulations](#) are available on the Department web site.

Complete a separate form for *each* type of part to be coated or each printing operation. Complete each item as appropriate. If a specific item does not apply to your situation indicate N/A (not applicable). If additional space is needed to answer a question stated in the application, attach separate sheet(s) as necessary, clearly identifying the applicant name, form name and Part number, and unit number.

**Note: The data provided in these forms will be used to define the operating limits in your permit.**

Questions? Visit the [Air Permitting](#) web page or contact the Air Permitting Engineer of the Day at 860-424-4152 (between 8:30 AM and 4:30 PM, Monday through Friday).

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*Applicant Name:* Provide the applicant name as previously indicated on the *Permit Application for Stationary Sources of Air Pollution* form (DEEP-NSR-APP-200).

*Unit Number:* Provide the unit number of the subject unit as previously assigned on the *Permit Application for Stationary Sources of Air Pollution* form (DEEP-NSR-APP-200). Please use a consistent reference number for each unit throughout the application package.

**Part I: General**

*Manufacturer and Model Number* – Provide the manufacturer and model number of the equipment. This information can be obtained from the equipment manufacturer.

*Construction Date* - Provide the actual or anticipated construction date of the equipment.

*Begin actual construction* means in general, initiation of physical on-site construction

activities on an emissions unit which are of a permanent nature. Such activities include, but are not limited to, installation of building supports and foundations, laying of underground pipework, and construction of permanent storage structures. With respect to a change in method of operating this term refers to those on-site activities other than preparatory activities which mark the initiation of the change.

*Is this unit subject to RCSA section 22a-174-20, Control of Organic Compound Emissions?* - Indicate if the unit is subject to RCSA section 22a-174-20, Control of Organic Compound Emissions.

*Is this unit subject to Title 40 CFR Part 60, NSPS?* - Indicate if the unit is subject to Title 40 of the Code of Federal Regulations (CFR) Part 60, New Source Performance Standards (NSPS). If yes, specify the appropriate subpart(s).

*Is this unit subject to Title 40 CFR Part 63, MACT?* - Indicate if the unit is subject to Title 40 CFR Part 63, National Emissions Standards for Hazardous Air Pollutants (NESHAP). If yes, specify the appropriate subpart(s).

Title 40 CFR Part 60 and Title 40 CFR Part 63 regulations can be found on the [U.S. Government Printing Office Website](#).

*Type of Parts Coated or Printing Operation* - Indicate the type of part to be coated or the type of printing operation. If other, specify type.

## **Part II: Surface Coating Applicator Data**

*Applicator ID Number* - Assign a reference number to each applicator. Base this reference number on the same numbering system that was used in completing Part I: Application and Source Type of the form *Permit Application for New Source Review Stationary Sources of Air Pollution* (DEEP-NSR-APP-200). For example, if the number assigned to a type of part to be coated or a type of printing operation is U1, the reference numbers assigned to the applicators used would be U1a, U1b, etc.

*Mode of Surface Coating* - Indicate all appropriate modes of coating that apply. If other, specify type. A hand-held spray gun is an example of manual coating. Offset lithographic web printing is an example of continuous coating. A robotic spray system is an example of automatic coating. A dip coating operation is an example of batch coating.

*Type of Applicator* - Indicate the type of applicator used. If other, specify type. This information can be obtained from the manufacturer.

If using a spray applicator, indicate the specific subtype and the manufacturer's quoted transfer efficiency of the applicator. Transfer efficiency is the ratio of amount of solids sprayed from the applicator that adheres to the part being coated. This information can be obtained from the manufacturer.

If using a dip tank, provide the tank dimensions in feet and its capacity in gallons and indicate if the dip tank is equipped with a cover.

If using a printing operation, indicate the specific subtype. If other, specify type.

“Rotogravure” uses a depressed or sunken surface for the image. The image areas consist of honey comb shaped cells or wells that are etched or engraved into a copper cylinder. The unetched areas of the cylinder represent the non-image or unprinted areas. The cylinder rotates in a bath of ink called the ink pan. As the cylinder turns, the excess ink is wiped off the cylinder by a flexible steel doctor blade. The ink remaining in the recessed cells forms the image by direct transfer to the substrate (paper or other material) as it passes between the plate cylinder and the impression cylinder. Almost all gravure is web-fed.

“Flexographic” printing uses flexible plates with raised images and only the raised images come in contact with the substrate during printing to transfer fluid inks to a substrate through a series of print units. Each print unit prints a single color. Flexographic printing presses can be either sheet-fed or web-fed.

“Lithographic” does not apply ink directly from the printing plate (or cylinder) to the substrate as it is in rotogravure or flexographic. Instead, ink is applied to the printing plate to form the "image" (such as text or artwork to be printed) and then, most commonly, transferred or "offset" to a rubber blanket. The image on the blanket is then transferred to the substrate (typically paper or paperboard) to produce the printed product. Lithographic printing presses can be either sheet-fed or web-fed.

“Letterpress” uses metal or plastic plates with a raised printing image to transfer ink to a substrate. There are three types of letterpresses: platen, flatbed, and rotary.

“Screen” printing differs from the other printing processes in that ink is transferred to a substrate through a porous mesh rather than on an impervious surface.

“Plateless” printing processes do not use printing plates or any other type of physical image carrier. Instead, they rely on sophisticated computer software and hardware to control the printing elements. A number of commercial plateless printing technologies exist including: electronic printing, ink jet printing, magnetography, ion deposition printing and direct charge deposition printing.

*Applicator Maximum Rated Capacity* - Provide the applicator's design maximum rated capacity in gallons per hour of coating or ink as applied, i.e., with thinner. This can be obtained from the manufacturer.

*Maximum Operating Schedule* – Provide the maximum anticipated operating schedule in hours per day and hours per year.

#### *Printing Press Data*

*Heatset or Non-Heatset (Retention Factor – R)* – Indicate whether the printing operation is heatset or non-heatset. The retention factor is assumed to be 20% for heatset and 95% for non-heatset. If you are using an alternate process and retention factor, please indicate the type of process and associated retention factor.

“Heatset” means any operation where the printing inks are set by the evaporation of the ink oils in a heatset dryer.

“Non-heatset” means a printing process where the printing inks are set by absorption and/or oxidation of the ink oil, not by evaporation of the ink oils in a dryer. Note that use of an infrared heater or printing conducted using ultraviolet-cured, or electron beam-cured inks, is considered non-heatset.

“Retention factor” means the portion of the VOCs contained in inks and/or cleaning solution that is retained in the printed web or in the shop towels used for cleaning.

*Type of Press* – Indicate whether the printing press is a web press or a sheet-fed press.

“Web-fed” means a press that prints on a continuous roll of substrate. Web-fed printing is commonly used for high speed production of magazines, catalogs, newspapers, and other periodicals.

“Sheet-fed” means a press that has a substrate fed into the press one sheet at a time. Sheet-fed printing is typically used for printing books, posters, brochures, and artwork.

*Web Press Maximum Web Speed* – If operating a web press, provide the maximum web speed in feet per minute.

*Web Press Maximum Web Width* – If operating a web press, provide the maximum web width feet.

*Web Press Maximum Ink Coverage* – If operating a web press, provide the maximum ink coverage in pounds of ink per square foot.

*Sheet-fed Press Maximum Sheet Area* – If operating a sheet-fed press, provide the maximum sheet area in square feet.

*Sheet-fed Press Maximum Press Speed* – If operating a sheet-fed press, provide the maximum press speed in sheets per hour.

### **Part III: Drying Method Information**

*Drying method* - Indicate if the coating is cured in an oven, air dried or heat polymerized.

*Drying Temperature* –Provide the drying temperature in °F.

*Oven Power Source* - If the coating is cured in an oven, indicate the appropriate power source of the oven. If other, specify type.

*Oven Fuel Type* - If fuel is used to fire the oven, specify the type of fuel to be burned (e.g., natural gas).

*Oven Fuel Higher Heating Value* - Provide the fuel's higher heating value in BTU per unit of fuel. Specify the measurement units (e.g., BTU/gallon). These can be obtained from your fuel dealer.

*Oven Burner Maximum Rated Capacity* - Provide the maximum design fuel firing rate of the oven's burner in MMBtu per hour. If unknown, this information can be obtained from the manufacturer.

*Oven Maximum Annual Fuel Usage* – Provide the maximum anticipated annual fuel usage and specify the measurement units (e.g., gallons per year).

*Oven Fuel Specifications* – Provide the fuel's sulfur content in weight % on a dry basis. This can be obtained from your fuel dealer.

## **Part IV: Coatings Information**

### **A. Coatings Inventory**

Complete this section for all coating(s) to be used in a surface coating or printing operation.

This section should list all VOC containing materials used for any type of surface coating. Types of VOC containing materials can include, but are not limited to those listed in Part IV.D of this form, which include: coatings, printing inks, fountain solutions, varnish, clear coatings, etc. Cleaning solvents should be listed in Part V of this form.

If more space is needed check the appropriate box and attach additional sheets providing the required information.

*Attach a Material Safety Data Sheet for each coating, thinner, or catalyst as Attachment E205-D.* These forms are available from the supplier or are shipped with the chemical when it is purchased.

*Coating Data (as received)*

*Coating ID* - Assign an identifying number to each coating (e.g., c-1, c-2 etc.). This number may be an inventory number you are currently using, or a number created for these application materials. Please use a consistent identifying number for each coating throughout the application package.

*Coating Name* – Provide the name of each coating.

*Applicator ID(s)* – Provide the applicator identification number(s). Use the same numbering system that was used in completing Part II.

*Type of Coating* – Provide the type of coating. Refer to Part IV.D of the form (DEEP-NSR-APP-205) for the proper code to be entered in this column. If a type of coating is not listed in the table, use “NS” to designate the coating as being used in a non-specific coating.

*Maximum Hourly, Daily and Annual Coating Usage* - Estimate the maximum anticipated total coating usage in gallons per hour, gallons per day, and gallons per year.

*Coating Density, as received* - Provide the coating's density in pounds per gallon, as purchased, i.e. before thinning.

*Total Volatiles Content* – Provide the total volatiles content in the coating in weight percent. Volatiles, in this case, include VOCs, exempt VOCs, and water.

*Solids Content* – Provide the solids content of the coating in volume or weight percent.

*Water Content* – Provide the water content of the

coating in weight percent.

*VOC Content, Exempt* – Provide the exempt VOC content of the coating in weight percent. Exempt VOCs are listed in RCSA section 22a-174-1.

*VOC Content, Non-Exempt* – Provide the non-exempt VOC content of the coating in weight percent.

The sum of solids content, water content, exempt VOC content and VOC content should be 100% by weight.

#### *Coating Data (as mixed)*

If no diluents are added to the coating, skip these items.

*Diluent(s) Used* - Provide the diluents used with the coating. Use the same diluent ID numbering system that was used in completing Part IV.B of this form.

*Diluent/Coating Ratio* – Provide the volumetric mix ratio of diluent to coating in gallons of diluent per gallon of coating.

*VOC Content, Exempt* - Provide the coating's exempt VOC content in pounds per gallon of mixed coating. Exempt VOCs are listed in RCSA section 22a-174-1.

*VOC Content, Non-Exempt* – Provide the coating's non-exempt VOC content in pounds per gallon of mixed coating.

## **B. Diluent Inventory**

*Note: If no diluents are added to the coating, check the box and go to Part IV.C.*

### *Diluent Data*

*Diluent ID* - Assign an identifying number to each coating (e.g., d-1, d-2 etc.). This number may be an inventory number you are currently using, or a number created for these application materials. Please use a consistent identifying number for each diluent throughout the application package.

*Diluent Name* - Provide the name of each diluent.

*Diluent Density* - Provide the diluent's density in pounds per gallon.

*Water Content* – Provide the water content of the diluent in weight percent.

*VOC Content, Exempt* – Provide the exempt VOC content of the diluent in weight percent. Exempt VOCs are listed in RCSA section 22a-174-1.

*VOC Content, Non-Exempt* - Provide the non-exempt VOC content of the diluent in weight percent.

## **C. HAP Inventory**

This section is used to list all HAPs contained in the coatings listed in Part IV.A of this form. If more space is needed check the appropriate box and attach additional sheets providing the required information.

*HAP Name* - Provide the name of each HAP contained in each coating. You only need to list HAPs that appear on Tables 29-1, 29-2 or 29-3 of RCSA section 22a-174-29. If a HAP appears in more than one coating, it only needs to be listed once for the coating where the content of the HAP is greatest in pounds per gallon.

*Coating ID* - Provide the coating identification number that corresponds to the coating the HAP appears in. Use the same numbering system that was used in completing Part IV.A.

*HAP Content, as applied* - Provide the HAP content in the coating, as applied in pounds per gallon. If a HAP appears in more than one coating, enter the highest HAP content in pounds per gallon from the multiple coatings.

#### **D. Type of Coating Table**

Refer to this table when completing Part IV.A, *Type of Coating*. If the type of coating is not listed in this table, use “NS” to designate the coating as a non-specific coating.

#### **Part V: Cleaning Solvent Information**

*Is this unit subject to RCSA sections 22a-174-20(ii) or (jj), Control of Organic Compound Emissions?* - Indicate if the unit is subject to RCSA sections 22a-174-20(ii) or (jj), Control of Organic Compound Emissions for industrial solvent cleaning or spray application equipment cleaning. If yes, provide the compliance method or exemption claimed.

##### *Solvent Data*

*Solvent ID* - Assign an identifying number to each coating (e.g., s-1, s-2 etc.). This number may be an inventory number you are currently using, or a number created for these application materials. Please use a consistent identifying number for each solvent throughout the application package.

*Solvent Name* - Provide the name of each solvent.

*Solvent Density* – Provide the solvent’s density in pounds per gallon.

*Water Content* - Provide the water content of the solvent in weight percent.

*VOC Content, Exempt* – Provide the exempt VOC content of the solvent in weight percent. Exempt VOCs are listed in RCSA section 22a-174-1.

*VOC Content, Non-Exempt* – Provide the non-exempt VOC content of the solvent in weight percent.

*Cleanup Method* – If a cleanup solvent is used, provide the method for cleaning the applicator (e.g., enclosed gun washer, automatic blanket cleaner, beaker, hand wiping, etc.)

*Maximum Solvent Usage* - Provide the maximum anticipated amount of each solvent used, in gallons per hour, gallons per day, and gallons per year.

#### **Part VI: Classification of Solvents**

This part should only be completed if the surface coating operation is not subject to requirements in RCSA sections 22a-174-20 (a) through (e), (k) through (y), or (ff) through (jj) or is not subject to reasonably available control technology as required by RCSA section 22a-174-32.

##### *Solvent Composition for Photochemical Reactivity*

If required, this part shall be completed for each coating or solvent used that has a non-exempt VOC content greater than 20% by weight to determine the coating or solvent photochemical reactivity. You may reproduce this form as necessary.

*Coating Name and ID* – Provide the name and identification number of each coating. Use the same identification system used in the previous parts.

*Applicator ID* - Provide the applicator identification number(s). Use the same numbering system that was used in the previous parts.

*Solvent Component* - Provide the name of each component in the coating solvent (e.g., acetone, methanol, toluene, etc.). Include VOC's and exempt VOC's, but exclude water. This information can be obtained from the Material Safety Data Sheet.

*Component Classification and Volume %* - Determine the classification of each component as R1, R2, R3, or non-reactive (NR). Solvents are classified in RCSA section 22a-174-20(i). Once this has been determined, provide, in the appropriate column, the percent by volume of each component in the entire solvent, excluding water.

*Examples of R1 solvents* include, but are not limited to: turpentine; isophorone; mesityl oxide; dipentene; acrolein; 1,1-dichloroethylene; divinyl ether; 2-methyl-furan; methyl methacrylate; styrene; and vinyl acetate.

*Examples of R2 solvents* include, but are not limited to: amyl toluene; cumene; cyclohexylbenzene; dibutyl phthalate; 1,4-diethyl-benzene; dimethyl aniline; ethyl benzoate; glycol monophenyl ether; and xylene.

*Examples of R3 solvents* include, but are not limited to: diacetone alcohol; di-isobutyl ketone; ethyl benzene; methoxyhexanone; methyl isobutyl ketone; toluene; and trichloroethylene.

*Nonreactive solvents:* If a solvent is not classified as R1, R2, or R3, it is classified as nonreactive. Examples of nonreactive solvents include but are not limited to: ethanol; propanol; butanol; methanol; amyl alcohol; ethyl acetate;

methyl acetate; isobutyl acetate; n-propyl acetate; acetone; methyl ethyl ketone; cyclohexanone; perchloroethylene; 1,1,1-trichloroethane; carbon tetrachloride; benzene; nitromethane; nitroethane; and tetrahydrofuran.

*To determine each component's percent by volume in the entire solvent*, divide the volume of the component in a gallon of coating, as applied, by the volume of solvent in a gallon of coating, as applied, excluding solids and water, (i.e., component volume percent) solvent volume percent. The sum of all solvent components should be 100% by volume.

*Total* - Add the entries in each column and specify the totals where indicated.

*Photochemically Reactive* - Indicate whether the material is highly photochemically reactive.

The material is highly photochemically reactive if:

- the sum of entries in the R1 column exceeds 5% by volume; or,
- the sum of entries in the R2 column exceeds 8% by volume; or,
- the sum of entries in the R3 column exceeds 20% by volume; or,
- the sum of entries in columns R1, R2, and R3 exceeds 20% by volume.

The following demonstrates the calculation with sample data for a coating:

<i>Example</i>			
<b>Components of Solvent</b> <i>(Contains No Water)</i>	<b>Class</b>	<b>% by Volume</b> <i>(In Coating)</i>	<b>% by Volume**</b> <i>(In Solvent)</i>
1-Methoxy 2-Propanol	NR	20	42.55
Toluene	R3	4	<b>8.51</b>
Methyl Ethyl Ketone	NR	20	42.55
Vinyl Acetate	R1	1	2.13
Xylene	R2	2	4.26

\*\* For toluene:  $\frac{4}{20+4+20+1+2} \times 100 = 8.51\%$

In this example, R1 components do not exceed 5%, R2 components do not exceed 8%, R3 components do not exceed 20%, nor do the sum of R1, R2, and R3 components exceed 20%. Therefore, this coating is **not** considered highly photochemically reactive

## **Part VII: Type of Control**

If any control equipment is installed on this surface coating operation, *Supplemental Application Form Air Pollution Control Equipment* (DEEP-NSR-APP-210) should also be completed.

*Particulate Control Type* – Indicate if the surface coating operation has particulate control equipment. If other, specify type.

*Particulate Overall Control Efficiency* –Provide the manufacturer’s guaranteed overall control efficiency of the particulate control equipment.

*VOC Control Type* – Indicate if the surface coating operation has VOC control equipment. If yes, specify type.

*VOC Overall Control Efficiency* –Provide the manufacturer’s guaranteed overall control efficiency of the VOC control equipment.

## **Part VIII: Attachments**

This section offers a checklist of all the attachments necessary to complete this application. Not all attachments may be applicable to the application. Where the checklist states “**IF APPLICABLE**”, your particular situation will determine if the attachment is required.

Check the appropriate box by each attachment being submitted as verification that all applicable attachments have been submitted. Please label all attachments as referenced in the permit application form and these instructions and be sure to include the name of the applicant as indicated on the application form.

### **Attachment E205-A: Process Information and Flow Diagram, REQUIRED**

Submit a process flow diagram indicating all related equipment, air pollution control equipment and stacks, as applicable. Identify all materials entering and leaving each such device indicating quantities and parameters relevant to the proper operation of the device. Indicate all monitoring devices and controls.

### **Attachment E205-B: Manufacturer Information, REQUIRED**

Submit copies of the manufacturer specification sheets for the unit, the air pollution control equipment and the monitoring systems.

### **Attachment E205-C: Transfer Efficiency Information, IF APPLICABLE**

If using a spray applicator, submit the manufacturer specification sheets for the transfer efficiency of such spray applicator.

### **Attachment E205-D: Material Safety Data Sheets, REQUIRED**

Submit a Material Safety Data Sheet for each coating, diluent, and solvent used by this unit.