FOR OHIO EPA USE
FACILITY ID: _____

EMISSIONS ACTIVITY CATEGORY FORM
SURFACE COATING OPERATIONS

This form is to be completed for each operation in which coatings are applied to parts, substrates, or other materials for functional, decorative, or protective purposes. State/Federal regulations which may apply to surface coating operations are listed in the instructions. Note that there may be other regulations which apply to this emissions unit which are not included in this list.

1. Reason this form is being submitted (Check one)

❒ New Permit ❒ Renewal or Modification of Air Permit Number(s) (e.g. K001)_____

2. Maximum Operating Schedule: _____hours per day; _____days per year

If the schedule is less than 24 hours/day or 365 days/year, what limits the schedule to less than maximum? See instructions for examples. _____

3. What type of material(s) are being coated or painted in this operation? Check all that apply.

❒ Metal ❒ Plastic ❒ Wood ❒ Rubber ❒ Ceramic ❒ Paper ❒ Fabric
❒ Other, describe_____

4. Does this operation involve coating any of the following? Check all that apply.

❒ Automobiles/trucks (at assembly plants)
❒ Used automobiles (body/collision repair shops)
❒ Customized motor vehicles
❒ Large appliances
❒ Aluminum or copper wire for electromagnetic coils
❒ Paper web (roll)
❒ Fabric web (roll)
❒ Metal cans
❒ Metal coils
❒ Metal furniture
❒ Marine vessels (exterior)
❒ Airplanes (exterior)
❒ Vinyl
❒ Miscellaneous metal parts

5. Is any type of curing or flash-off oven associated with this coating operation?

❒ Yes. Complete oven information below. ❒ No, coatings are air-dried.

Oven #1: ❒ Electric ❒ Infrared (IR) ❒ Ultraviolet (UV) ❒ Gas-fired, total burner rating (BTU/hr)_____
Oven #2: ❒ Electric ❒ Infrared (IR) ❒ Ultraviolet (UV) ❒ Gas-fired, total burner rating (BTU/hr)_____
Oven #3: ❒ Electric ❒ Infrared (IR) ❒ Ultraviolet (UV) ❒ Gas-fired, total burner rating (BTU/hr)_____

For fuel fired ovens only: Do coating or solvent vapors come in direct contact with flame? ❒ Yes ❒ No
If "yes", list applicable oven numbers _____

6. How are parts cleaned prior to coating application?

❒ Not done
❒ Water-based parts washer
❒ Manual wipe with solvent
❒ Solvent bath immersion
❒ Solvent vapor immersion
❒ Bake oven

If a solvent is used for cleaning the parts, list the type and annual usage (in gallons) below.

Name of solvent:_____ Annual usage:_____ gallons
Solvent density : _____ lb/gal

7. Does the coating operation employ a booth or enclosure for coating application?

❒ Yes ❒ No, explain_____

If "Yes", complete the table below: (see instructions)

Booth Manufacturer	Make or Model Number	Exhaust Equipment

8. Check the method(s) of coating application and provide the accompanying information:

❒ Spray ____ Air gun ____ Airless ____ Electrostatic ____ High Volume Low Pressure (HVLP)
____ Other, describe_____

❒ Electrodeposition: Tank capacity (gallons) _____
Tank Dimensions (feet): length ____ height ____ width ____

❒ Dip tank: Capacity (gallons) _____
Dimensions (feet): length _____ height _____ width _____

❒ Roll coating ❒ Brush

❒ Powder coating ❒ Other, describe _____

9. How are parts transferred in and out of coating operation? ❒ Manually ❒ Conveyor

10. **Coating Type and Usage Data**

Complete Table 1 on the following page identifying the types and usages of all coatings, thinners, reducers, etc. used in this coating operation. **See Instructions for completing this section.**

Table 1: Coating Type and Usage Data

Name of coating	Coating type[a]	VOC content[b] (lbs/gal)	Solids content (% by wt)	Water content (% by wt)	Is coating thinned (reduced) prior to application? (yes/no)	VOC content of thinner or reducer (lbs/gal)	Max. amount of reducer added to one gallon of coating (specify units)	Maximum coating usage rates:[c]		
								gallons/hour	gallons/day	gallons/year

Notes:

[a] Examples: primer, top coat, clear coat, surfacer, varnish, catalyst, sealer, adhesive, etc.

[b] VOC content minus water and exempt solvents. Consult supplier MSDS, Product Data Sheet, or Environmental Data Sheet. EPA Method 24 or formulation data should be used to determine VOC content. See Instructions.

[c] Usage equals beginning inventory, minus final inventory, plus purchases, minus credits for documented disposal or returns to suppliers

11. Are any of the coatings listed in Table 1 required to be baked, heat-cured, or heat polymerized at temperatures above 250°F?

❒ Yes ❒ No

If yes, list all coatings required to be baked, heat cured, or heat polymerized:

_____

_____

12. Are any photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), used in this air contaminant source (including cleanup)? ❒ Yes ❒ No

13. Complete the following table for all cleanup materials and solvents used in the coating operation to clean paint guns, booth walls, etc. Do not include the amounts of solvents used for parts cleaning (question 6) or for thinning or reducing coatings (question 10, Table 1).

Name of cleanup material/solvent	Solvent density (lb/gal)	Maximum Monthly Use (gallons)	Maximum Annual Use (gallons)

14. If any used solvents from this operation are reclaimed on-site using a solvent reclaiming unit (still), provide the capacity of the still and the approximate number of gallons reclaimed annually.

Still capacity = _____ gallons Amount reclaimed = _____ gal/yr

15. If any used solvents from this operation are sent off-site for disposal, provide the following information:

Minimum amount of solvent waste disposed of throughout the year: _____ gallons

Average solvent content of solvent waste: _____ percent by volume

INSTRUCTIONS FOR COMPLETION OF THE EMISSIONS ACTIVITY CATEGORY FORM FOR SURFACE COATING OPERATIONS

GENERAL INSTRUCTIONS:

Provide complete responses to all applicable questions. If an item does not apply to the emissions unit, write in "Not Applicable" or "NA." If the answer is not known, write in "Not Known" or "NK." If you need assistance in understanding a question after reading the instructions below, contact your Ohio EPA District Office or Local Air Agency for assistance. Submittal of an incomplete application will delay application review and processing. In addition, the application may be returned as incomplete if all applicable questions are not answered appropriately.

APPLICABLE REGULATIONS:

The following State and Federal Regulations may be applicable to surface coating operations. Note that there may be other regulations which apply to this emissions unit which are not included in this list.

Federal: 40 CFR 60, (NSPS) Subpart A (General Provisions), Subpart EE (metal furniture), Subpart MM (automobile/light duty truck assembly plants), Subpart RR (pressure sensitive tape and labels), Subpart SS (large appliances), Subpart TT (metal coil), Subpart WW (beverage cans), Subpart SSS (magnetic tape), Subpart TTT (plastic parts for business machines), Subpart VVV (polymeric coating of supporting substrates)

40 CFR 63, (NESHAP/MACT) Subpart A (General Provisions), Subpart EE (magnetic tape), Subpart GG (aerospace manufacturing and rework), Subpart II (shipbuilding and repair) and Subpart JJ (wood furniture).

State: OAC rule 3745-31-02 (Permit to Install)
OAC rule 3745-35-02 (Permit to Operate)
OAC rule 3745-21-07(G) - Operations using liquid organic materials
OAC rule 3745-21-09 - Control of emissions of volatile organic compounds from stationary sources
OAC rule 3745-21-10 - Compliance test methods and procedures

If you would like a copy of these regulations, contact your Ohio EPA District Office or Local Air Agency. State regulations may also be viewed and downloaded from the Ohio EPA website at http://www.epa.state.oh.us/dapc/regs/regs.html. Federal regulations may be viewed and downloaded at http://www.epa.gov/docs/epacfr40/chapt-I.info/subch-C.htm.

CALCULATING EMISSIONS:

Manufacturers of some types of emissions units and most types of control equipment develop emissions estimates or have stack test data which you can request. Stack testing of the emissions may be done. Emissions unit sampling test data may be either for this emissions unit or a similar one located at the facility or elsewhere. You may develop your own emission factors by mass balance or other knowledge of your process, if you can quantify inputs and outputs accurately. You may be able to do this on a small scale or over a short period of time, if it is not practical during regular production. If you have control equipment, you may be able to quantify the amount of pollutants collected over a known time period or production amount. Any emission factor calculation should include a reference to the origin of the emission factor or control efficiency.

Ohio EPA Engineering Guides #45 and #48 may be consulted when determining emissions from surface coating operations. Engineering Guides may be found online at ***http://www.epa.state.oh.us/dapc/engineer/eguides.html.***

Basic fundamentals for determining surface coating composition:

%VOC = 100 - % water - % solids - % exempt solvents

Volatile content = % VOC + % water + % exempt solvents*

**see OAC 3745-21-01(B)(6) for those compounds not considered as VOC.*

VOC content (lbs/gal.) = % wt. VOC x coating density (lbs/gal.)

VOC content (lbs/gal.) = % vol. VOC x density of solvent blend (lbs/gal.)

$$\text{VOC content, minus water} = \frac{\%\text{ wt. VOC} \times \text{coating density (lbs/gal)}}{1 - \%\text{ volume water}}$$

$$\text{VOC content, minus water and exempt solvents} = \frac{\%\text{ wt. VOC} \times \text{coating density (lbs/gal)}}{1 - \%\text{ volume water} - \%\text{ volume exempt solvents}}$$

The following example can be used to calculate the VOC content of a 2-part coating or a coating which is reduced prior to application:

Given: Paint: 3.3 lbs VOC/gal; Reducer: 6.5 lbs VOC/gal
For spraying, 4 gallons of paint are mixed with 1 gallon of reducer.

$$\text{Then: VOC/gal (as applied)} = \frac{(4\text{ gal.})(3.3\text{ lbs VOC/gal}) + (1\text{ gal.})(6.5\text{ lbs VOC/gal})}{(4\text{ gal.} + 1\text{ gal.})} = \frac{3.94\text{ lbs VOC}}{\text{gal.}}$$

These fundamental equations can be used to determine VOC emissions from surface coating operations which do not have add-on emission control devices:

VOC emissions = VOC content of coating (lbs/gal.) x usage (i.e., gal/yr, gal/hr, or gal/day)

Total VOC emissions from surface coating operation = VOC emissions (from coatings) + VOC emissions (from cleanup)

SPECIFIC INSTRUCTIONS:

1. Indicate whether this is an application for a new permit or an application for permit renewal. If applying for a permit renewal, provide the 4-character OEPA emissions unit identification number.

2. Provide the maximum number of hours per day and days per year the surface coating operation is expected to operate. The following are examples of why the maximum number of hours per day may be less than 24 or the maximum number of days per year may be less than 365 (this list is not all-inclusive):

   - The facility can only operate during daylight hours.
   - The process can only operate within a certain range of ambient temperatures.
   - The process is limited by another operation (i.e., a bottleneck).

3. Check appropriate composition material of parts being coated. If part is a composite, i.e., plastic and

metal, check both plastic and metal boxes.

4. Special regulations apply when coating the products and items listed. For definitions of these products, see OAC Rule 3745-21-01.

5. Indicate the type of oven associated with the coating operation. For natural gas-fired ovens or dryers, enter the combined total of all individual burner ratings which are part of the oven. The burner rating can be found on the burner or in the oven manufacturer's specifications and is often expressed in terms of British Thermal Unit (BTU) per hour. For fuel fired ovens only, indicate if solvent laden exhaust from the ovens is recycled back through the burners.

6. Check the box which describes how parts are cleaned prior to being coated. If a solvent is used, provide the name of the solvent and the approximate annual usage.

7. Identify the name of the manufacturer of the booth(s) or enclosure(s) and the make or model number. If the booth(s) or enclosure(s) were fabricated by the owner, indicate owner name as the manufacturer.

   For the exhaust equipment column, enter "water wash" if overspray is removed by a water spray or curtain, "exhaust filters" if the exhaust from the booth must go through filters (e.g., paper, fiberglass, or other media), "baffles" if the exhaust from the booth must go around a series of plates designed to reduce the exit velocity so that the overspray will drop out, "other" if some other type of particulate control is used, and "none" if there is no means of overspray emission control.

8. Enter the type of application equipment used by this coating operation. For the method(s) selected, complete the additional information requested in the area to the right of the selection. Definitions for many of these terms may be found in OAC rule 3745-21-01.

9. Describe how parts are moved in and out of the coating operation.

10. Provide <u>all</u> data requested concerning coating composition and usage in Table 1. Group coatings according to coating type. If a type of coating, such as top coat, includes multiple colors with similar formulations, only list the coating having the highest volatile organic compound (VOC) content and combine the total maximum anticipated usage of all similar formulations of the same coating and list these values on a single line in Table 1.

    "VOC Content" means VOC, lbs/gallon of coating, minus water and exempt solvents. See OAC Rule 3745-21-01(B)(6) for a list of solvents not considered as VOC.

    If possible, obtain an "Environmental Data Sheet" or "Product Data Sheet" from your coating supplier. These documents usually list all required coating formulation data. Material Safety Data Sheets (MSDS) are usually not designed or intended to meet EPA requirements and may not contain all information required.

    <u>Thinning/Reducing information:</u> If a coating is thinned/reduced prior to application, provide the amount and units of thinning/reducing material added on a per gallon basis, i.e., one <u>quart</u> of reducer to one <u>gallon</u> of coating.

    <u>Coating usage information:</u> Provide maximum number of gallons of coating applied hourly, daily, and annually based on <u>maximum anticipated usage</u>. For new installations, provide best estimate of maximum anticipated usage. The quantity of coatings disposed, not used, or returned to supplier may be subtracted from annual usage.

11. List all coatings from Table 1 which require baking or heat-curing. In general a “baked” coating requires heating to such temperatures, usually above 250^{o}F, so that a chemical reaction takes place and the coating is no longer soluble in the original solvent. A flash-off or drying oven is an oven used only to accelerate evaporation of the solvent from the coating and usually operates at a temperature no greater than 250^{o}F.

12. The definition of photochemically reactive materials is complex but the information is usually available on the MSDS or from the material supplier. If you have other questions, contact your Ohio EPA District Office or Local Air Agency.

13. Provide information on the solvents and other materials used for routine cleaning of spray guns, coating applicators, booth walls, etc. Do not include solvents used for parts cleaning - report this in question 6. Do not include quantities of reducer/thinner used for mixing paint prior to application - report this in question 10.

14. This question is applicable only if waste solvents are reclaimed for reuse in facility operations.

15. Provide all data on solvent waste from the coating operation which is shipped off-site for disposal. Waste shipping manifests and any waste analysis results should be consulted for this information.