

**GENERAL INSTRUCTIONS
10-YEAR MACT SURFACE COATING CATEGORIES
QUESTIONNAIRE**

The questionnaire forms in this package were designed specifically for gathering information for the development of Maximum Achievable Control Technology (MACT) Standards for the emissions of Hazardous Air Pollutants (HAP) from nine surface coating categories, as required under Section 112 of the Clean Air Act (CAA) as amended in 1990. These regulations are expected to be promulgated in November of the year 2000. The nine source categories are:

- **Automobile and Light-duty Trucks*** - Surface coating of automobile and light duty truck bodies at assembly plants, or other facilities and associated operations including the mixing and storage of coatings, and treatment of wastewater generated from coating operations. Off-line coating of nonbody parts is not included. Other HAP and/or Volatile Organic Compounds (VOC) using operations at assembly plants, including the application of adhesives, and fluid fills are included.
- **Fabric** - This source category includes textile manufacturing processes with potential HAP emissions performed in the production or conversion of yarn and thread; woven, knit, and nonwoven fabric; and carpet. The processes include, but are not limited to, nonwoven fabric bonding, slashing, preparation, printing, dyeing, wet finishing (including carpet back coating), coating, laminating, and spot cleaning.
- **Large Appliances*** - The surface coating of Large Appliances manufactured from various metals, coiled or sheet metal, precoated coil, and precut, powder-precoated pieces.
- **Metal Can** - This source category includes facilities that coat or print metal cans or metal parts for any type of can (e.g., metal ends for composite cans). It includes the coating/printing of metal sheets for subsequent processing into cans or can parts, but not the coating of metal coils for cans or can parts. (Coil coating for cans and can parts is included in the Metal Coil source category.) For purposes of this data-gathering effort, this source category also includes the coating/printing of metal decorative tins, crowns, and closures (except for coil coating). Note that the coating/printing of pails and drums falls in the Miscellaneous Metal Parts and Products source category.
- **Metal Coil** - Coating done on a continuous metal substrate which is greater than 0.006 in. thick.
- **Metal Furniture*** - The surface coating of furniture manufactured from various metals.
- **Miscellaneous Metal Parts and Products*** - This category encompasses all metal parts and products not covered in one of the other categories in which the surface coating of metal parts or products are included (Aerospace, Automobile and Light-duty Trucks, Boat Manufacturing, Large Appliances, Metal Can, Metal Coil, Metal Furniture, or Shipbuilding).
- **Plastic Parts*** - The surface coating of plastic parts produced by either machining from stock plastic, or casting and molding.
- **Wood Building Products*** - This source category involves any finished or laminated wood product that is used in the construction, either interior or exterior, of any residential, commercial, or institutional building. This source category does not include wood substrate, wood furniture, or wood furniture component manufacturing.

*Indicates source categories also subject to Section 183(e) requirements.

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The coatings in seven of these categories will also be subject to the regulations for VOC being developed under Section 183(e) of the CAA. The format was designed to be specific to coating operations. This complete packet (the Questionnaire, the Section 114 Letter, and all the attachments and enclosures) is referred to as the "Questionnaire Packet" in these instructions.

This questionnaire is the best opportunity for industries that will be regulated under these requirements to describe their surface coating operations and ancillary activities so that the regulations will be logistically workable, technically effective, and cost effective. It is the hope of the EPA that all targeted industries will respond in the time allotted, with information that will allow EPA to develop regulations that make sense to the industries being regulated.

To Whom were the Questionnaire Packets Sent?

The mailing list was developed through the efforts of the project teams on each of the 10-Year Surface Coating MACT Categories, and were derived from the facilities listed in databases from the EPA and State and Local agencies, from the mailing lists of trade associations, and from individual companies that have been members of the stakeholder groups for the various projects. The Questionnaire packets have been addressed to an identified contact person or the Corporate Environmental Official, and not to the individual facilities for several purposes: (1) to alert corporate owners of the data collection effort and allow them the opportunity to provide a coordinated response from all of their facilities, (2) to reduce the amount of mailing to individual facilities, and (3) to ensure that individual facilities are not missed.

Guidelines for Completing the Questionnaire

Dependent upon your corporate/company structure, it may be that responses for individual facilities will be completed at the facilities themselves or from some corporate level. Regardless of how the forms are completed, there are some general guidelines that should be followed.

- Each response (one per facility/plant) should have a unique Facility Tracking Number. The initial Facility Tracking Number can be found on the mailing label and on the cover letter sent with this Questionnaire Packet. If you are reporting for one facility, simply use the Facility Tracking Number assigned. If you are reporting for more than one facility, add a letter to the end of the assigned Facility Tracking Number to create a unique ID. For example, if the assigned Tracking Number is ABC001, and you are reporting for three facilities, their individual Tracking Numbers would be ABC001A, ABC001B, and ABC001C.
- Each copy of each page of a Form should have the Tracking Number at the top of the page.

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Format of the Questionnaire

The questionnaire consists of several forms that are inter-related. Figure 1 shows the basic types of information being requested, and how that information relates to the questionnaire forms. There will be one Form A (Facility General Information) for each response. A separate copy of Form B is needed for each material (or group of like-materials) used in the facility that can contribute to the emissions of VOC and/or HAP. The information on Form B is not limited to only coatings and coating components (although it is expected that most materials will be coatings), but includes materials or products used in surface preparation, equipment cleaning, etc. Forms D through H are designed to describe the types of activities that are most expected to contribute to emissions (Storage, Mixing, Surface Preparation, Coating Application, and Cleaning Operations). Control Devices (Form C) are treated separately due to the wide variety of ways that they may be configured for use with an individual activity that may be described in Forms D through H, or with a combination of activities. A single copy of Form I is expected per response to describe the Waste and Wastewater handling throughout the facility.

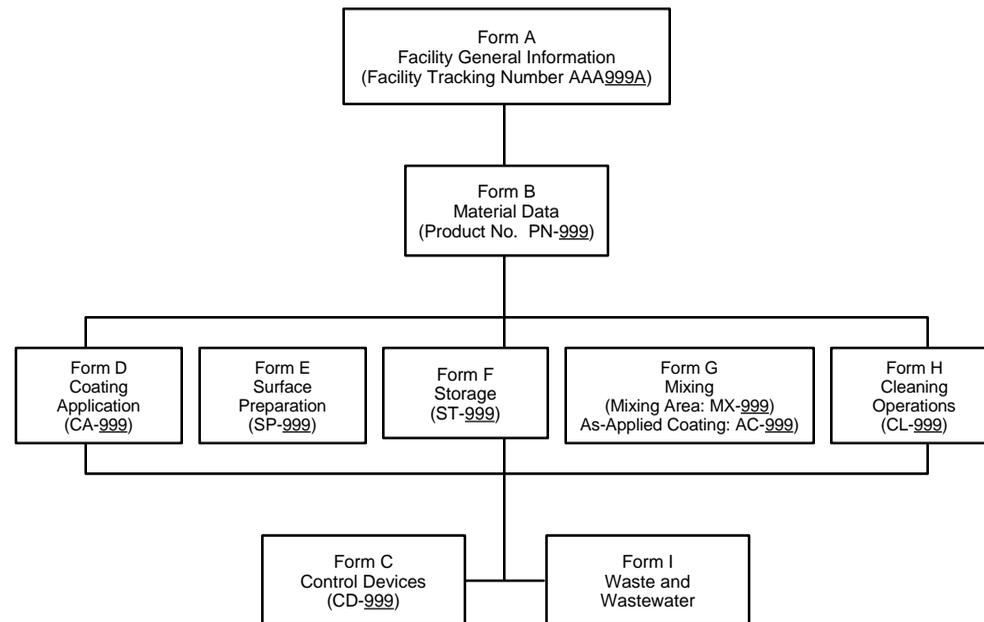


Figure 1. Questionnaire Organization

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Except for Form A (Facility General Information), and Form I (Waste and Wastewater), the Forms are expected to be copied as needed for each facility. Only one copy of Form A and Form I are needed per facility. There is a space provided at the top of each form to indicate the Facility Tracking Number, and it will probably be most expedient to have the Tracking Number entered at the top of the forms prior to copying. Many Forms consist of more than one page, and this is also indicated at the top of each page. To distinguish individual "copies" of each Form, a space has been provided to indicate a "Sheet" number and the total number of sheets/copies for any particular Form; this was done to ensure no information is lost in handling.

A single standardized "Comments Sheet" was developed for use where needed with any of the Forms (see Page 5). Please use a separate Comments Sheet for each individual "Sheet" in a set of forms, where one is needed. If more than one Comments Sheet is needed for an adequate response, please number and indicate the total number of Comments Sheets used for that particular comment.

Form D (Coating Application and Drying) has the greatest variability between projects, which is due to the specific characteristics of each of the nine different industries being polled. For example, many of the questions regarding coating application for a wood building product will be irrelevant to the dyeing of fabric, and vice versa. However, each of the critical elements needed for EPA to complete the needed analysis of data are represented in each version of Form D. The other activities described in the other Forms are much more generic and differ far less between the various industry categories than does the coating application itself.

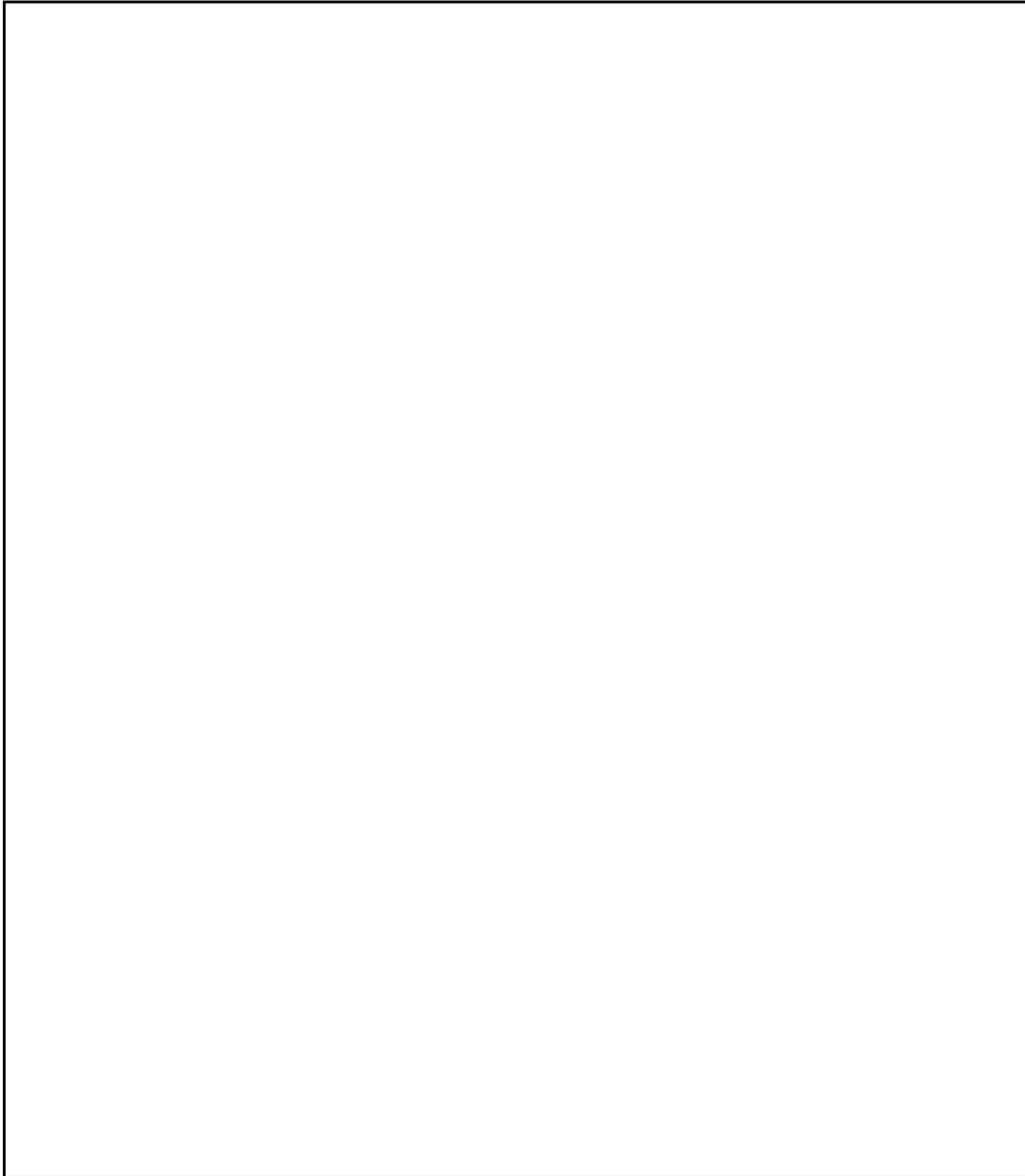
Comments Sheet

Facility Tracking Number: _____

Form _____

Sheet _____

Comment Sheet ____ of ____

A large, empty rectangular box with a black border, occupying the lower half of the page. It is intended for the user to write their comments.

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Add-on control device efficiency - The ratio of the (pollutant) emissions recovered or destroyed by an add-on air pollution control device to the total (pollutant) emissions that are introduced to the control device, expressed as a percentage.

Additives - Any substance added in small quantities to another substance, usually to improve properties. Examples of additives include plasticizers, fungicides, and dryers.

Adhesion promoter - A very thin coating applied to a substrate to promote wetting and form a chemical bond with the subsequently applied material.

Adhesive - A substance capable of holding materials together by surface attachment. Various descriptive adjectives are used with the term adhesive to indicate certain characteristics: physical (liquid adhesive, tape adhesive), chemical type (silicate adhesive, resin adhesive), materials bonded (paper adhesive), and conditions of use (hot-set adhesive). For purposes of this data-gathering effort, adhesives should be considered a type of coating.

Aerosol coating - A hand-held, pressurized, nonrefillable container that expels an adhesive or a coating in a finely divided spray when a valve on a container is depressed.

Air-dried coatings - Coatings which are not heated above 194 F (90 C) for coating or drying. Air-dried coatings also include forced-air dried coatings.

Alkali - Any substance that neutralizes acids. Alkalis are helpful in aqueous cleaning by speeding soil removal and suspension. Alkali is synonymous with caustic.

Alkyd - A binder based on resins formed by the condensation of polyhydric alcohols with polybasic acids. They may be regarded as complex polyesters (Thermoset).

Amino resins - Resins used to crosslink polyesters, epoxies, acrylics, and alkyds to enhance their durability.

As-applied - The condition of a coating at the time of application to the substrate, including any added thinning solvent. Multi-component coatings are supplied as individual components that have to be mixed prior to application.

As-supplied - The condition of a coating as purchased and delivered to the user. Multi-component coatings are supplied as separate components and later mixed according to manufacturers instructions (e.g., 1:3). The mixing ratio affects the pollutant emissions from the final coating product (i.e., the *as-applied* product).

Baked coatings - Coatings that are cured or dried above an oven air temperature of 194 F (90 C).

Binder - The solid (non-volatile) material in a coating that binds the pigment and additive particles together to form a film. In general, binders are resins.

Capture efficiency - The fraction of all organic vapors, HAP emissions, or other pollutants generated by a process that are directed to an add-on air pollution control device, expressed as a percentage.

Caulk - Material used to fill, close, or plug cracks and spaces within or between components.

Cellosolve - The generic term for the solvent family of mono-alkyl ethers of ethylene glycol. For example, a widely-used solvent is butyl cellosolve, which chemically is ethylene glycol monobutyl ether. Cellosolves are HAPs.

Chlorinated solvents - Organic solvents that contain chlorine. Examples include 1,1,1-trichloroethane and methylene chloride.

Clean (verb) - To remove foreign material from a substrate.

Clean Air Act (CAA) - The Clean Air Act, as amended in November 1990, provides the foundation for

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Cleaning activity - Action used to clean a substrate. This term focuses on how the substrate is being cleaned, and includes actions such as wiping, brushing, flushing, spraying or dipping.

Cleaning operation - A unit operation in which a substrate is cleaned. This term focuses on what is being cleaned (e.g. spray booth cleaning operations or parts cleaning operation). Cleaning may be performed to prepare surface for coating (Form E) or for other operations (Form H).

Cleaning solvent - Organic solvent used for cleaning.

Clear coat - A transparent coating usually applied over a colored opaque coat to give improved gloss and protection to the color coat below. In some cases a clear coat simply refers to any transparent coating without regard to the substrate.

Closed pipe - Completely closed piping with no opening to the atmosphere.

Coating - A protective, decorative, or functional film applied as a thin layer to a substrate or surface and which cures to form a continuous solid film. This term applies to paints such as lacquers or enamels, but also is used to refer to films applied to paper, plastics, or foil. Inks, Adhesives and Caulks are being treated as Coatings for purposes of this data-gathering effort.

Coating Categories:

Automobile and light-duty trucks - Surface coating of automobile and light duty truck bodies at assembly plants, or other facilities and associated operations including the mixing and storage of coatings, and treatment of wastewater generated from coating operations. Off-line coating of non-body parts is not included. Other HAP and/or VOC using operations at assembly plants, including the application of adhesives, and fluid fills are included.

Fabric - This source category includes textile manufacturing processes with potential HAP emissions performed in the production or conversion of yarn and thread; woven, knit, and non-woven fabric; and carpet. The processes include, but are not limited to, non-woven fabric bonding, slashing, preparation, printing, dyeing, wet finishing (including carpet back coating), coating, laminating, and spot cleaning.

Large appliances - The surface coating of Large Appliances manufactured from various metals, coiled or sheet metal, pre-coated coil, and pre-cut, powder-precoated pieces.

Metal can - This source category includes facilities that coat or print metal cans or metal parts for any type of can (e.g., metal ends for composite cans). It includes the coating/printing of metal sheets for subsequent processing into cans or can parts, but not the coating of metal coils for cans or can parts. (Coil coating for cans and can parts is included in the Metal Coil source category.) For purposes of this data-gathering effort, this source category also includes the coating/printing of metal decorative tins, crowns, and closures (except for coil coating). Note that the coating/printing of pails and drums falls in the Miscellaneous Metal Parts and Products source category.

Metal coil - Coil manufacturing begins with a coil or roll of bare sheet metal and ends with a coil of metal coated on one or both sides.

Metal furniture - The surface coating of furniture manufactured from various metals.

Miscellaneous metal parts and products - This category encompasses all metal parts and products not covered in one of the other categories in which the surface coating of metal parts or products are included (Aerospace, Automobile and Light-duty Trucks, Boat Manufacturing, Large Appliances, Metal Can, Metal Coil, Metal Furniture, or Shipbuilding).

Plastic parts - The surface coating of plastic parts produced by either machining from stock plastic, or casting and molding

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building. This source category does not include wood substrate, wood furniture, or wood furniture component manufacturing.

Coating components - Products that are combined at the coating facility to create a coating (e.g., catalyst and resin in multi-component coatings). Thinning solvents are not included in this definition as a coating component, but is reported separately.

Coating technologies - The basic composition and chemistry of a coating. Some of these technologies are specific to the substrate being coated (Fabric-Specific Coatings Wood-Specific Coatings), while others are based on the carrier (Solvent-borne and Waterborne), the resin used, or application technique (Powder).

Dispersion coating - A type of coating in which the binder molecules are present as colloidal particles and spread uniformly throughout the formulation as a stable mixture.

Drier - An additive which accelerates the drying of coatings.

Emulsion - A two-phase liquid system in which small droplets of one liquid (the internal phase) are immiscible in, and are dispersed uniformly throughout, a second continuous liquid phase (the external phase). This contrasts with a latex, which consists of solids dispersed in a liquid.

Enamels - Coatings which are characterized by their ability to form a smooth surface; originally associated with a high gloss, but may also include a lower degree of gloss. Also a class of substances having similar composition to glass with the addition of stannic oxide, or other infusible substances to render the enamel opaque. Can be used to describe a coating which forms a film through chemical union of its component molecules during cure and in shop terminology can be used to describe paint which is not a lacquer. All paints that form crosslinking chemical bonds during curing are considered enamels. The majority of industrial finishes fall into this category.

Epoxies - Binders based on epoxy resins. Epoxy crosslinking is based on the reaction of the epoxide groups with other materials such as amines, alcohols, phenols, carboxylic acids, and unsaturated compounds. Also used as a thermoset powder coating.

Exempt compound - Specific organic compounds that are not considered volatile organic compounds due to negligible photochemical reactivity. Exempt compounds are specified in 40 CFR 51.100(s).

Finished (wood) product - Any wood building product to which a protective, decorative, or functional layer has been applied. Materials used include, but are not limited to, paints, stains, sealers, topcoats, basecoats, primers, enamels, inks, adhesives, and temporary protective coatings.

Flash-off time - The time required between application of successive wet-on-wet coatings or between application and baking to allow the bulk of the solvents in the coating to rise slowly and evaporate. In baked coatings, flash-off helps to prevent solvent boil off and film blistering.

Flat coatings - Coatings which register gloss less than 15 on an 85-degree meter or less than 5 on a 60-degree meter. This definition is usually found in architectural coating rules.

Full-time equivalents (FTE) - FTE are calculated by dividing the total number of man-hours worked at a facility by the number of hours expected from a full-time employee, typically 2,000 hr/yr. The equation below demonstrates an FTE calculation.

$$\frac{400,000 \text{ man-hours}}{2,000 \text{ man-hours per FTE}} = 200 \text{ FTEs}$$

Halogenated hydrocarbons (Halogenated solvents) - Formed by substituting one of the halogen elements (chlorine, bromine, or fluorine) into a chemical compound to change both the physical and chemical natures of the compound.

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HAP - Hazardous Air Pollutant. Means any air pollutant listed in or pursuant to Section 112(b) of the Clean Air Act. The current list of HAP is attached separately (see Attachment 1).

High volume low pressure (HVLP) spray equipment - Spray equipment that is used to apply coating by means of a spray gun that operates at 10.0 psig of atomizing air pressure or less at the air cap.

Holding Tank - storage tank in close proximity to the point of generation which holds wastewater but does not reuse it in the process.

High-solids - Solvent-borne coatings that contain greater than 50 percent solids by volume or greater than 62 percent (69 percent for baked coatings) solids by weight.

Hydrocarbon solvent - A solvent consisting exclusively of the elements carbon and hydrogen. They are principally derived from petroleum and coal tar, and include aliphatic, aromatic, and naphthenic solvent.

Hydroxides - The chemical opposites of acids. Also known as caustics and alkalis. Examples are sodium hydroxide and potassium hydroxide.

Lacquer - Coating composition based on synthetic thermoplastic film-forming material dissolved in organic solvent and dried primarily by solvent evaporation. Typical lacquers include those based on nitrocellulose, other cellulose derivatives, vinyl resins, acrylic resins, etc.

LAER (Lowest achievable emission rate) - Pursuant to Section 171(1) of the Clean Air Act, LAER is that rate of emissions which reflects:

- (a) the most stringent emission limitation which is contained in the implementation plan of any State for such class or category of sources, unless the owner or operator of the proposed source demonstrates that such limitations are not achievable; or
- (b) the most stringent emission limitation which is achieved in practice by such class or category of source, whichever is more stringent.

In no event, however, shall the application of this term permit a proposed new or modified source to emit any pollutant in excess of the amount allowable under applicable new source standards of performance. Areas of the country that have not attained national ambient air quality standards may require LAER on new sources of pollution.

Laminated (wood) product - Any wood building product which a protective, decorative, or functional layer has been bonded with an adhesive. Products that are produced by bonding layers to the substrate as a part of the substrate manufacturing process are not considered laminated products under this regulation.

MACT - Maximum Achievable Control Technology, as specified in Section 112 of the Clean Air Act.

Major modifications - Include any physical or operational change to an existing facility which results in an increase in the emission rate to the atmosphere of VOC or HAP. Typically, these modifications result in changes in a permit or results in the need to acquire a permit to construct.

Manufacturer's formulation data - Data on material (e.g., a coating) supplied by the material manufacturer based on knowledge of the ingredients used to manufacture that material, rather than based on testing of the material. Manufacturers formulation data may include information on density, VOC content, HAP content, solids content, etc.

Material balance - A calculation based on conservation of mass (i.e., the mass of material going into an operation is equal to the mass of material which leaves the operation). This calculation is often used to estimate volatile emissions.

Maximum design capacity emissions - These are the emissions possible when operating all equipment at its maximum design capacity on a full operational schedule (up to 8,760 hrs/year), and utilizing materials

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Open Pipe - Covered trench or pipe with openings to the open air at each end and/or through a vent, manhole, etc.

Open Trench - uncovered trench in which wastewater flows from point of generation to another point.

Permanent total enclosure - A permanently installed enclosure that completely surrounds a source of emissions such that all emissions are captured and discharged through a control device. For specific qualifying criteria, see Method 204 (62 FR 32500) (June 16, 1997).

Pigment - Finely ground insoluble particles dispersed in coatings to influence properties such as color, corrosion resistance, mechanical strength, hardness, durability, etc. Particles may be natural or synthetic and also inorganic or organic.

Polyester - A polymer in which the monomer units are linked by the functional group -COO-. Polyester has been used as thermoplastic powder coating, and as the following thermosetting powder coatings: epoxy polyester hybrid powder, urethane polyester powder, and polyester TGIC powder.

Polyethylenes - Thermoplastic resins composed of polymers of ethylene (CH₂ CH₂). Polyethylenes are normally translucent, tough, waxy solids that are unaffected by water and a large range of chemicals. Frequently used in powder coatings.

Polymers - A high-molecular-weight organic compound, natural or synthetic, with a structure that can be represented by a repeated small unit, or mer.

Polypropylenes - Tough, lightweight thermoplastic resins composed of polymers of propylene (CH₂ CHCH₂). They are commonly used in powder coating.

Powder coatings - Any coating applied as a dry (without solvent or other carrier), finely divided solid which adheres to the substrate as a continuous film when melted and fused.

Primer - The first layer and any subsequent layers of identically formulated coating applied to the surface to be coated. Primers are typically used for corrosion prevention, protection from the environment, functional fluid resistance, and adhesion of subsequent coatings. Primers that are defined as specialty coatings are not included under this definition.

Process (Process line) - The aggregate of unit operations necessary for producing a product. The emissions from a process includes all sources of air emissions (e.g., storage, transfer, handling, painting, and packaging).

Resin Type - The basic chemical classification of the coating solids.

Shelf life - The length of time a coating may normally be stored without losing any chemical/physical properties. Manufacturers typically specify the shelf life.

SIC/NAICS Codes - These refer to the Standard Industrial Classification codes (1987) and their replacements, the North American Industrial Classification System codes. For more information on SIC and NAICS codes, visit the following Internet site: <http://www.census.gov/epcd/www/naics.html>

Silicones - Resins consisting of silicon-oxygen linkages, unlike organic resins, which contain carbon.

Sludge - The waste solids generated from any process (surface preparation, coating, mixing, etc.) that it is necessary to have disposed, either on-site or off-site.

Solids - The nonvolatile portion of the coating that after drying makes up the dry film.

Solvent - The liquid or blend of liquids used to dissolve or disperse the film-forming particles in a coating and which evaporate during drying. A true solvent is a single liquid that can dissolve the coating. Solvent is often used to describe terpenes, hydrocarbons, oxygenated compounds, furans, nitroparaffins, and chlorinated solvents.

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Spray gun - A device that atomizes a coating or other material and projects the particulates onto a substrate.

Surface preparation - The removal of contaminants from the surface of a substrate or component or the activation or reactivation of the surface in preparation for the application of a coating.

Temporary total enclosure - An enclosure constructed only to measure the capture efficiency of pollutants emitted from a given source. For specific qualifying criteria, see Method 204 (62 FR 32500) (June 16, 1997).

Thermoplastic - Resin capable of being repeatedly softened by heat and hardened by cooling. These materials, when heated, undergo a substantially physical rather than chemical change. Thermoplastic resins can be completely dissolved with appropriate solvents.

Thermoset - Resin that, when cured by application of heat or chemical means, changes into a substantially infusible and insoluble material. Thermosetting resins will soften but will not dissolve in any solvents.

Thinning solvent - Organic solvent used to thin coating material prior to application to the part or product.

Topcoat - A coating that is applied over a primer on a part, product, or component for appearance or protection. Topcoats are typically the last coat applied in a coating system.

Touch-up and repair operation - That portion of the coating operation that is the incidental application of coating used to cover minor imperfections in the coating finish or to achieve complete coverage. This definition includes out-of-sequence or out-of-cycle coating.

Unit operation - An industrial operation, classified or grouped according to its function in an operating environment (e.g., a paint mixing vessel, a spray booth, etc.).

Urethanes - Materials based on resins made by the condensation of organic isocyanates with compounds or resins containing hydroxyl groups. Categories of polyurethane coatings include: single component prereacted-urethane coatings; single component moisture-cured urethane coatings; single component heat-cured urethane coatings; two-component catalyst-urethane coatings, two-component polyurethane coatings; and one-component nonreactive lacquer-urethane solution coatings.

VOC (Volatile Organic Compound) - Any compound defined as VOC in 40 CFR 51.100(s). This includes any organic compound other than those determined by the EPA to be an "exempt" compound.

Waste coatings - coating materials from equipment cleaning, excess prepared coating materials, etc. that must be treated and/or disposed.

Waste solvents - solvents that have been used in another process (surface preparation, etc.) that are collected for either recycling or disposal.

Wastewater - Any process waters or cleaning waters should be considered wastewater at the point/time they leave the process unit.

Waterborne coatings - Coatings in which water accounts for more than 5 weight percent of the volatile portion.

Work practice - Specific human activities that lead to a reduction in emissions (or waste) or have the potential to do so. The activities include operator training, management directives, work procedures or techniques for conducting emission (or waste) generating operations or for reducing or eliminating the need for or frequency of such operations.

INSTRUCTIONS
FORM A - GENERAL FACILITY INFORMATION

The purpose of this form is to provide information regarding each individual facility in your organization which has surface coating operations in one or more of the categories defined in the General Instructions (see page 1).

If you are reporting for more than one facility, a separate response should be completed for each individual facility, and a unique tracking number should be used with each facility. If reporting for more than one facility, please use the original tracking number provided and add a letter to the end to create a unique Tracking Number (see General Instructions). Instructions for each item or groups of items are provided below to assist in filling in responses.

Instructions for Specific Items

1. **Facility Name:** Enter the legal name for this facility.
2. **Facility Location**
 - a. **Street:** The street address for the main entrance to the facility.
 - b. **City:** The city in which the facility is located.
 - c. **State:** The State in which the facility is located.
 - d. **Zip Code:** The 5- or 9-digit zip code for the facility location.
 - e. **County:** The county in which the facility is located.
3. **Corporate Owner**
 - a. **Name of Corporate Owner:** The corporate owner of the facility.
 - b.- e. **Mailing Address:** The corporate mailing address.
 - f. **Corporate Annual Sales:** The total corporate annual sales for the Reporting Year designated in Item 8 below.
4. **Facility Description**
 - a. Provide a brief description of the facility, including general purpose, types of processes that are performed at this location, products made, and other information discussing the operations of the facility. Please provide additional details on a Comment sheet for this form.
 - b. **Dun & Bradstreet Number:** The 9-character Dun & Bradstreet identifier for this facility. If unknown enter "Unknown."
 - c. **SARA TRI Facility Id.:** The SARA TRI Facility Id. number that appears on Form R. This information allows EPA to cross-reference to the TRIS data base. If this facility is not required to fill out Form R, enter "N/A."
 - d. **Number of Facility Employees:** The number of production personnel employed at the facility in Full-Time Equivalents (FTEs). Calculate FTEs by dividing the total number of man-hours worked at a facility by the number of hours expected from a full-time employee, typically 2,000 hr/yr. The equation below demonstrates a FTE calculation.

$$\frac{400,000 \text{ man-hours}}{2,000 \text{ man-hours per FTE}} = 200 \text{ FTEs}$$

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FORM A - GENERAL FACILITY INFORMATION

- e. **Number of Facility Coating Employees:** Total facility production employees (FTEs) involved in coating operations. See the explanation of FTE for item 4d. If an employee's duties are split between coating and other duties, use the proportion of hours spent on the coating line to calculate FTEs.
5. **Product Description:** The principal product(s) made or serviced at this facility.
SIC/NAICS Codes: These refer to the Standard Industrial Classification codes (1987) and their replacements, the North American Industrial Classification System codes. For more information on SIC and NAICS codes, visit the following Internet site:
<http://www.census.gov/epcd/www/naics.html>
End-Use Product: Check the "Yes" check-box if the principal product will be sold on the market as a finished good; if this product is an intermediate in the manufacture of a final product, answer "No." If the product is an "intermediate," note the part name and the final product(s) in which the intermediate product manufactured in this facility is used on a Comment sheet for this form. Packaging products, such as cans or wrappers, are considered finished products if they are ready to be used or filled.
Percentage of Total Sales: Provide the percentage of total sales for the reporting year associated with each listed principal product(s).
6. **Technical Contact**
- a. **Name:** The name of the person (either for the Corporate Owner or for the individual facility) who is knowledgeable about technical information for the facility (emissions, control devices, coatings, processes, etc.) and should be consulted if questions arise in analysis of this response.
- b. **Title:** The position title of the technical contact for this facility.
- c. **Telephone:** The telephone number of the technical contact for the facility.
- d. **FAX:** The facsimile number for the technical contact for the facility.
7. **Geographic Coordinates:** Please provide the latitude and longitude for the center of the facility, indicating degrees, minutes, and seconds. If latitude and longitude are not available, UTM coordinates can be provided on a Comment Sheet for this form.
8. **Reporting Year:** The year of record associated with the reported information for the plant. Data for the year 1997 are expected; please provide an explanation on a Comments Sheet for this form to describe why another year was chosen if 1997 was not used. Also indicate whether information is being reported for the fiscal year or calendar year.
9. **Surface Coating Category:** Check the box(es) to indicate the industry(ies) for which any surface coating operations are associated at this location. Please refer to the definitions of the categories provided at the beginning of this set of instructions (particularly, wood building products).
10. **Other Regulatory Requirements:**
- a. Please list all other MACT Standards that are applicable to this facility. If there are none, enter "None."
- b. **LAER Determinations:** Indicate if a LAER determination has been made on any of the surface coating operations, and if so the date of the most recent LAER determination. Please also list on a Comments sheet for this form the coating operation(s) affected and the appropriate date(s).

INSTRUCTIONS
FORM A - GENERAL FACILITY INFORMATION

11. **Title V Status:** Indicate if your facility has submitted or is preparing an application for a Title V Permit from your State or local regulatory agency. If you are not sure, check the box marked "Unknown." Also provide a brief description of the basis for determining the Title V classification (e.g. for which pollutant(s) is the facility a major source) and whether or not any co-located activities at the facility influence the Title V status.
12. **Facility Emissions:** Please list the total actual emissions from the facility for the reporting year. Provide facility-wide totals for VOC and Total HAPs, and for each individual HAP emitted at >0.5 ton/yr. Please refer to the general instructions and the attached list of HAPs for a definition of hazardous air pollutant (HAP). Also provide any facility-wide permit limitations (if any) on emissions of any HAP or for VOC, and the maximum design capacity emissions (see definition below).

Maximum Design Capacity Emissions - These are the emissions possible when operating all equipment at its maximum design capacity on a full operational schedule (up to 8,760 hr/yr), and utilizing materials with the highest HAP and/or VOC content currently in use. Note in a Comment sheet for this form the assumptions and example calculations used to arrive at the entered value.
13. **Facility-Wide Product Usage:** Products are being categorized by very general types for the responses in Form B, but details are being asked for only the highest usage products within each "type." The information being requested here is for the total usage of products within a product "type," and the percent of that total reported in detail on Forms B.
14. **Response Summary:** Indicate in the table how many of each Form were completed for the subject facility. EPA also requests that you provide both a schematic drawing of the facility (plant layout), showing the locations of all activities related to surface coating, and a process flow diagram showing the flow of products/intermediates from one process line to another. Reference, where possible, the Form on which information for a location in the plant layout or step in the process flow diagram can be found. Use multiple pages if needed to provide clarity, and indicate in the spaces provided the total number of pages for both the Plant Layout and the Process Flow Diagram(s).
15. **R&D Activities:** Are research and development (R&D) activities conducted at the facility? R&D is defined as "research and development into new processes and products, where the R&D 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." For example, R&D could include bench scale laboratory work, pilot plants, equipment testing, testing on the production line where the specific purpose of the testing is to create or improve processes and products, and the use of batch processes run for experimental purposes. Please answer yes if any activities conducted at the facility could be considered R&D, even if the activities are a small part of the total operations. If you believe the answer is no, but are not sure, answer unsure, may be R&D.
16. **R&D Description:** If the answer to number 15 is yes or unsure, use a comment sheet (see Page 5) to briefly and qualitatively describe the R&D activities (or activities you believe may be R&D) and their purpose. (Lab scale work to develop materials for new product applications; pilot plants; product quality improvement; equipment testing; continuous or intermittent; etc.) This should be a paragraph or so description.

INSTRUCTIONS
FORM B - MATERIAL DATA

The purpose of the information being collected in this form is to gather information on the materials being used in the surface coating operations, and those operations associated with surface coating at the facility. EPA is requesting that facilities provide information on all materials **that represent at least 90 percent of the material usage** within any one "Material Type," as defined under Item B-1e below. Individual respondents may feel the need to report the usage for certain "specialty" materials for which they feel a need for special consideration; please note in a **Comments Sheet** for this form if there are any special considerations for usage of a particular material.

This form has been designed to contain information for a single material or group of materials (see discussion that follows on grouping materials). It is intended that a photo-copy of an original (preferably with the Facility Tracking Number previously entered) be filled out separately for each material/material group being reported. Please note at the top of each page the "Sheet" number and total number of "Sheets" in the response packet for this facility. "Sheets" refers to the number of copies of Form B, and will be used to verify that all information provided in the response has been received.

Rules for Grouping Materials

The option is being given to respondents to group like materials (e.g., different color coatings with similar VOC and HAP content), and report information on the grouped materials on a single Form B. However, there are some limitations on which materials may be grouped with one another.

- S All materials within a group must have a similar formulation, not varying from one to another by more than 5 percent in Total VOC or Total HAP.
- S All materials should have similar, if not identical, speciated ingredients.
- S Only materials of the same type can be grouped together (e.g., Coatings/Coating Components separate from Cleaning Solvents and Thinning Solvents).
- S Only coatings of the same resin-type or coating technology may be grouped together.
- S All materials in the group must use the same Units of Measure (either mass units or volume units) or be converted prior to being combined.

Definitions

Coating - A protective, decorative, or functional film applied as a thin layer to a substrate or surface and which cures to form a continuous solid film. This term applies to paints such as lacquers or enamels, but also is used to refer to films applied to paper, plastics, or foil. Adhesives and Caulks are being treated as Coatings in this questionnaire; however, these may be reported separately as an "Other" Product Types if desired.

Coating Components - Materials that are combined to create a coating (e.g., catalyst and resin in multi-component coatings). Thinning solvents are not included in this definition as a coating component, but is reported separately.

Coating Technologies - The basic composition and chemistry of a coating. Some of these technologies are specific to the substrate being coated (Fabric-Specific Coatings and Wood-Specific Coatings), while others are based on the carrier (Solvent-borne and Water-Reducible), the resin used, or application technique (Powder).

Cleaning Solvents - Organic solvents used in surface preparation of the part or product to be coated (as reported on Form E) or in cleaning operations (as reported on Form H).

Resin Type - The basic chemical classification of the coating solids.

INSTRUCTIONS
FORM B - MATERIAL DATA

Item-Specific Instructions

Material Number: This will be assigned by the respondent, starting with one (1) for the first and going on in sequence for each product or product group being reported.

1. **Material Identification** - This information is being requested to define the material or group of materials that will be reported upon in other forms.
 - (a) **Material Name:** The name of the material (brand names are acceptable) or group of materials.
 - (b) **Manufacturers/Suppliers Name:** Report the name of the manufacturer or supplier listed on the product label and/or on the MSDS for this product. If grouping like materials from more than one manufacturer or supplier, enter "Grouped Materials - Various," and note the names, manufacturer/supplier names, and stock numbers for all grouped materials in the **Comments** section at the end of this form.
 - (c) **Manufacturers/Suppliers Stock Number:** Enter the Stock Number listed on the product package by the manufacturer or supplier.
 - (d) **Product Type:** Indicate which one of these broad categories of products does this specific material or group of materials belong. (See the definitions previously provided.) If a Coating/Coating Component, also indicate whether the material is used as primer, base coat, etc., and use these coating-specific sub-types for grouping purposes.
2. **Material Usage**
 - (a) **Amount used in the Reporting Year:** Give the quantity of the material used for the year indicated on Form A. Please specify units.
 - (b) **Percent of Material Type:** What is the proportion (expressed as a percentage) of the total quantity of all of the materials of this type (Item A-13) that is represented by this one material or group of materials.
 - (c) **Is material modified before use?** If the material is modified before use (e.g., combined with other components to form a final coating), please further define these under Item D-4 ("As-Applied" Coatings).
3. **Coating Technology** - Details which are needed to better compare like materials. Choose the applicable Coating Technology, where applicable. Note the definitions provided previously in the instructions for this form.
4. **Composition/Formulation Data** - This information is being collected to determine the contribution of the material to the emissions of VOC and HAPs, and to allow comparisons between similar materials.
 - (a) **Material Density:** Product density is needed to convert weight-percents to mass units. Please specify units.
 - (b) **Source of Data:** Indicate the source of the data being reported in Items B-4 and B-5. The preference for data sources are Test data first, followed by Certified Product Data Sheets; Material Safety Data Sheets (MSDS); then any other data sources available. Please provide a copy of whatever source information is available. If no good source of data is available, please be certain that you have identified the manufacturer/supplier and their stock number (Items B-1b and B-1c) adequately.
 - (c) **Solids Content:** Report the solids content on both a weight-percent and volume-percent basis. This information has been used in other MACT Standards (lb HAP/lb coating solids).
 - (d) **Total VOC Content:** Report the VOC content on a weight-percent basis. Please indicate in a

INSTRUCTIONS
FORM B - MATERIAL DATA

- (e) **Water Content:** Indicate the weight-percent of water in the product.
5. **Speciated Components** - List each individual organic constituent of the material (whether it is a HAP, VOC, or neither) and any inorganic HAP constituent. List all that are present at greater than 1-percent, or at greater than 0.1 percent for carcinogens. This information should be readily available from the preferred data source (indicated in Item B-4b) or should be attainable from the manufacturer or supplier of the material. It is critical that a CAS Registry Number be given when one is available; this will allow EPA to ensure that adjustments for any VOC or HAP component that may be delisted in the future can be made, and avoid the need for another data collection effort. A good reference on the Internet for finding CAS Registry Numbers is ChemFinder© (<http://chemfinder.camsoft.com/>). Also note whether this individual constituent has been considered as a HAP or VOC in this response. (See Attachment 1 to this information request for the HAP list from Section 112(b) of the Clean Air Act.)

INSTRUCTIONS
FORM C - ADD-ON CONTROL DEVICE

Use this form to report information on the design parameters and capture and control efficiency from each control device. Complete one form for each control device. The GENERAL INFORMATION section should reflect actual operating conditions and be completed for all control devices. For the subsequent sections, complete only the section which corresponds to the type of control device being reported. The OTHER CONTROL DEVICE section should be completed only if this particular control device is not listed in any of the previous sections. A complete description of your control device may include other parameters not on this form. It is important that you attach manufacturer's specification, schematics, and any other drawings necessary to provide a complete description of this control device and its relationship to its emission source(s).

In some situations, the operating parameters (e.g., control device efficiency, inlet flow rate) vary over a wide range during normal facility operations. If you believe it is important to show how the performance of this control device varies with varying operating parameters, then report the relevant information on the Comments Sheet. Include the range over which each parameter varies and how this variation affects control device performance.

Please note at the top of each page the "Sheet" number and total number of "Sheets" in the response packet for this facility. "Sheets" refers to the number of copies of Form I, and will be used to verify that all information provided in the response has been received. Also enter the Control Device ID No. as specified on the facility flow diagram requested in Form A.

1. General Information

- (a) **Position in Series of Controls** - If there are several devices operating in a series, indicate in what position this device is located. If the exhaust air stream goes through this unit and then through a second unit then this would be the #1 of 2 units.
- (b) **Controls Emissions from Which Emission Source ID(S)** - List all emission source ID numbers whose emissions are controlled by this device. These ID numbers must correspond to those listed on Forms D through H.
- (c) **Describe Control System** - Give a brief description of the control device. Include such information as other devices used in conjunction with this device; number of compartments, etc.
- (d) **Pollutant(s) Collected** - Enter the pollutants being collected. If speciated data are not available, then enter total VOC and total HAP.
- (e) **Capture Method** - Enter the method used to capture the emissions directed to this control device (i.e., hood, lip exhaust, total enclosure, etc.).
- (f) **Capture Efficiency** - Enter the capture efficiency in percent for the pollutant listed on the next line (capture efficiency may not be the same for all pollutants in an exhaust stream).
- (g) **Control/Removal Efficiency** - Enter the control/removal efficiency in percent of the control device for each pollutant collected.
- (h) **Outlet HAP/VOC Concentration:** Enter the outlet HAP/VOC concentration exiting the control device during normal conditions when surface coating operations are being performed.
- (i) **Inlet Flow Rate (acmm)** - Enter the actual air flow rate in cubic meters per minute entering the control device during normal operation.
- (j) **Pressure Drop (kPa) Min/Max** - Enter the minimum and maximum operating pressure drop across the device in kilopascals during normal operation needed to maintain the desired efficiency.
- (k) **Inlet Temperature (C) Min/Max** - Enter the minimum and maximum inlet temperature in

INSTRUCTIONS
FORM C - ADD-ON CONTROL DEVICE

2. Basis of Capture and Control Device Efficiency - Describe the basis used to determine the capture efficiency and control device efficiency (e.g., source test, manufacturer's specifications, engineering judgement, etc.).

3. Fabric Filter

Use this section for fabric filters. A fabric filter removes particulates from a gas stream by passing the stream through a porous fabric (e.g., bagfilter, baghouse, HEPA filter). Dust particles form a more or less porous cake on the surface of the fabric.

(a) **Filter Surface Area (m²)** - The total square meters of filter surface area. Round off to nearest whole number.

4. Electrostatic Precipitator

Use this section for electrostatic precipitators (ESP). An ESP removes particulate matter from a gas stream by passing the gas stream through discharge electrodes and collection plates. Most particulates become charged and are collected on the plates.

(a) **Ash Analysis** - Enter the Mass Mean Diameter of the inlet particle distribution in micrometers, and the resistivity of the particles in ohm-cm.

(b) **Type** - Check the appropriate description for the type of ESP used. If none of the choices adequately describes this ESP, then check "Other" and provide a description on the Comments Sheet.

5. Thermal or Catalytic Incinerator

Use this section for thermal or catalytic incinerators. A control device which operates by thermal (noncatalytic) and catalytic incineration can oxidize hydrocarbons and/or toxic pollutants into carbon dioxide and water. Temperature and residence time must be sufficient to obtain the desired oxidation results

(a) **If Catalyst Used**

Type - Enter the type of catalyst material (e.g., palladium on ceramic honeycomb design).

Catalyst Space Velocity (1/hr) - Enter the catalyst space velocity. This is the volumetric gas rate divided by the volume of catalyst (this should be available from the manufacturer).

(b) **Inlet Oxygen Content (%)** - The amount of oxygen in the inlet stream, expressed as a percentage.

(c) **Inlet Moisture Content (%)** - Give the maximum percentage of moisture in the inlet emission stream.

(d) **Fuel Used** - Enter the type(s) of fuel(s) used in the device.

(e) **Actual Hourly Fuel Use** - Indicate the actual average hourly amount of fuel consumed during the reporting year. Include units for your response.

(f) **Combustion Temperature (C)** - Enter the minimum temperature in degrees Celsius in the combustion chamber during normal operation.

(g) **Residence Time (seconds)** - Enter the minimum residence time in seconds in the combustion chamber during normal operation.

(h) **Total Maximum Firing Rate (million joules/hr)** - Enter the total maximum firing rate in joules per hour for all burners based on input.

INSTRUCTIONS
FORM C - ADD-ON CONTROL DEVICE

6. Mechanical Collector

Use this section for mechanical collectors, such as settling chambers, cyclones, and multicyclones, that utilize gravity and inertia to separate particulates from a gas stream.

- (a) **Particle Density (kg/m³)** - Enter the average particle density entering the control device in kilograms per cubic meter.

7. Carbon Adsorber

Use this section for carbon adsorbers. Adsorption is a control method where gaseous pollutants are extracted from the gas phase and concentrated at the surface of a solid. Carbon is commonly used to adsorb volatile organic compounds from an airstream. If an adsorbent other than carbon is used, complete this form but explain the specifics of the control device, including the adsorbent used, on the Comments Sheet.

- (a) **Volatile Concentration Entering Unit (ppmv)** - Specify the total VOC concentration of the gas stream entering the adsorber unit in parts per million by volume (volume of VOC per million volumes of gas stream).
- (b) **HAP Concentration Entering Unit (ppmv)** - Specify the total HAP concentration of the gas stream entering the adsorber unit in parts per million by volume (volume of HAP per million volumes of gas stream).
- (c) **Breakthrough Capacity (kg vapor/kg adsorbent)** - Provide the breakthrough capacity in kilograms of vapor per kilogram of adsorbent. This is the capacity of the bed at which unreacted vapors begin to be exhausted.
- (d) **Number of Carbon Beds** - Enter the total number of carbon beds in the system, including any beds used as standby or backup.
- (e) **Describe Carbon Regeneration Procedure and How Emissions Are Controlled During Regeneration** - Describe the procedure used to regenerate the carbon, including disposition of recovered solvent. Also describe any method used to capture and control emissions produced from the regeneration of the adsorbent.

8. Packed or Plate Column Absorbers

Use this section for packed or plate column absorbers where one or more selected gaseous pollutants are removed by absorption by bringing the pollutants in contact with a liquid. Packing material or plates are used to increase the surface area on which this contact occurs.

- (a) **Type of System** - Specify type of gas absorbing system used (e.g., spray tower, cyclone spray chamber, packed columns, plate columns, venturi scrubber, sparging tank).

Packed Columns - Complete sections 8b through 8d only if the absorbing system is classified as a packed column system. This absorbing process is a continuous operation where the gas and liquid phases flow through the system in a continuous manner with intimate contact throughout.

- (b) **Type of Packing Used** - Specify packing used in your packed tower (e.g., partition tricklers, pall rings, berl saddles, tellerettes).
- (c) **Column Length (m)** - Enter the length in meters of the packed column.
- (d) **Column Diameter (m)** - Enter the column diameter in meters.

Plate Columns - Complete sections 8e through 8g only if the absorbing system is classified as a plate column system. This absorbing process is a staged operation on plates or trays where the liquid and gas are contacted in stepwise fashion in the vertical cylinders.

- (e) **Plate Spacing (cm)** - Enter the distance in centimeters between the plates in the absorbing

INSTRUCTIONS
FORM C - ADD-ON CONTROL DEVICE

- (g) **Column Diameter (m)** - Enter the column diameter in meters.
- (h) **Total Gas Pressure (kPa)** - Specify the total inlet gas pressure in kilopascals (gauge).
- (i) **Gas Dew Point (C)** - Enter the temperature in degrees Celsius at which the gas stream first changes into liquid phase.
- (j) **Gas Velocity (m/sec)** - Enter the maximum gas velocity in meters per second through the net column cross-sectional area.
- (k) **Additive Liquid Scrubbing Medium** - Specify what kind of liquid is used. Include the name of the additives (e.g., propanol, detergents, etc).
- (l) **Percent Recirculated** - If the absorber is operated with recirculating slurries, specify the percentage of the liquid returned to the system.
- (m) **Total Liquid Injection Rate (liters/min)** - Enter the total volumetric flow rate in liters per minute of the liquid.
- (n) **Make up Rate (liters/min)** - Specify the amount of new liquid in liters per minute that must be added to the system due to evaporation or discharge to a disposal system.
- (o) **Additive (liters/min)** - Specify the amount in liters per minute of new additive(s) that must be added to the system due to evaporation or discharge to a disposal system.

9. Wet Scrubber

Use this section for wet scrubbers that are used to separate particulates (sometimes gases) from an airstream. Scrubber liquids are introduced for particle collection.

- (a) **Additive Liquid Scrubbing Medium** - Specify what kind of liquid is used. Include the name of the additives (e.g., propanol, detergents, etc).
- (b) **Total Liquid Injection Rate (liters/min)** - Enter the total volumetric flow rate in liters per minute of the liquid.
- (c) **Make up Rate (liters/min)** - Specify the amount in liters per minute of new liquid that must be added to the system due to evaporation or discharge to a disposal system.
- (d) **Additive Rate (liters/min)** - Specify the amount in liters per minute of new additive(s) that must be added to the system due to evaporation or discharge to a disposal system.

10. Condenser

Use this section for condensers that are used to remove organic compounds by cooling the gas stream and condensing out the pollutants.

- (a) **Temperature of Inlet Coolant (C)** - Enter the temperature in degrees Celsius of the coolant entering the condenser.
- (b) **Temperature of Condensation (C)** - Enter the temperature in degrees Celsius of the condensed pollutant.
- (c) **Refrigeration Capacity (joules/sec)** - Enter the capacity in joules per second of the condenser.

11. Other Control Device

Use this form to describe any control device not included in one of the above sections. Use the Comments Sheet to provide additional information, if necessary.

- (a) **Filter Media** - Enter the type of filter media used, if applicable.
- (b) **Collection Surface Area (m²)** - Enter the area of filter media in square meters, if applicable.

INSTRUCTIONS
FORM C - ADD-ON CONTROL DEVICE

- (d) **Fuel Usage Rate** - Enter the maximum fuel usage rate on an hourly or annual basis. Provide units for your response.
 - (e) **Describe Any Auxiliary Materials Introduced into the Control System** - Describe any auxiliary materials (e.g., lime, caustic, acid, etc.) introduced into the control system.
12. **Monitoring** - Describe the monitoring performed on this control device to assure compliance with a regulatory or permit limit. Include the frequency at which the monitoring is performed, the parameter being monitored, and averaging time (if applicable).

INSTRUCTIONS
FORM D - COATING APPLICATION QUESTIONS

1. Assign a line ID number for each coating (application) line and provide a description of each coating line at your facility (ID number, plant layout location, process flow location).
2. For each application station (for example, spray booth, roll coater, gravure printer) on each coating line, please provide the information requested in Form D. Please ensure that the application station ID number for a coating line corresponds to the order of application. An example table is provided for a facility that has separate coating lines for flooring and moulding products. The facility has a total of two coating lines. The moulding traversing coating line 1 receives two basecoats then a topcoat. The laminate panel traversing coating line 2 receives a stain, sealer, then a topcoat.

Example Table for Coating Line (Application) Information

Line ID	Application station ID	Product(s) coated	Type of coating	Application method	Thickness applied, mils	Coating usage, gal/d	Surface area coated, ft ² /d
1	1	Moulding	Basecoat 1	Roll Coater	1	200	85,000
1	2	Moulding	Basecoat 2	Flow Coater	1	200	85,000
1	3	Moulding	Topcoat	Curtain Coater	1	500	85,000
2	1	Wall panel	Stain	Curtain Coater	1	400	50,000
2	2	Wall panel	Sealer	Air Assisted Airless	1	300	50,000
2	3	Wall panel	Topcoat	Curtain Coater	1	400	50,000

INSTRUCTIONS
FORM D - COATING APPLICATION QUESTIONS

3. For each drying/curing operation on each coating line, please provide the information requested in the table (if applicable). Please ensure that the oven identification number corresponds to the application station identification number provided in the table in Question 2. For example, if the first oven follows the first application station, then the oven identification number and the application station identification number would be 1. However, if the product is not sent to an oven until after the second coating is applied at application station 2, then the first oven listed would be oven 2.

For emission information associated with each coating line, please indicate the annual quantity (lb/yr) of total VOC and total HAP emissions for each operation unit. If only plant wide emission information exists, please fill in the table and mark PLANT WIDE in the relevant column.

Example Table for Drying/Curing Information

Line ID	Oven ID	Total oven exhaust, scfm	Oven temp., C	Type of oven	Emissions, lb/yr			
					Pollutant	1997 Actual	Permit limitation	Maximum design capacity
1	2	5,000	60	Natural gas	Total VOC	20,000	100,000	50,000
					Total HAP	10,000	Plantwide	N/A
1	3	5,500	60	Natural gas	Total VOC	20,000	“	50,000
					Total HAP	50,000	“	N/A
2	2	4,000	60	Natural gas	Total VOC	20,000	“	20,000
					Total HAP	10,000	“	N/A
2	3	2,500	55	Natural gas	Total VOC	10,000	“	20,000
					Total HAP	20,000	“	N/A
3	2	1,200	80	UV	Total VOC	~0	“	N/A
					Total HAP	~0	“	N/A

INSTRUCTIONS
FORM E - SURFACE PREPARATION

This form is designed to collect information related to the preparation of the surface of a part or product prior to the application of a surface coating (e.g., sanding). Cleaning activities (e.g., cleaning of the equipment used in surface coating operations) are to be reported on Form H, Cleaning Operations. Surface preparation is defined as the removal of contaminants from the surface of a substrate, or the activation or reactivation of the surface in preparation for the application of a coating.

1. **Surface Preparation (unit) Operation Name:** Provide a name that indicates the purpose of the operation.
2. **Surface Preparation (unit) Operation I.D.:** Enter a unique number (starting with "1") to identify each surface preparation operation by its location in a work area. A work area may contain one or more unit operations.
3. **Identify/Describe Activities:** Identify and describe each activity used in surface preparation operations

INSTRUCTIONS
FORM F - STORAGE

The purpose of this form is to provide information regarding the storage of materials used in surface coating operations. Please complete one of these forms for every storage area located in this facility. Provide the Storage Area ID number for each area on a separate "sheet" or copy of this form. The ID number should match that previously assigned on the facility diagram requested in Form A.

1. **Identification**

Name of the Storage Area: Provide the name of the storage area.

2. **Method of storage for coatings/coating components:** Indicate all methods used to store coatings and/or coating components, including inks, adhesives, caulks, and solvents. If a method other than those listed is used, please describe that method.

3. **Storage Tank Parameters:** Please provide the requested information for each storage tank located in this storage area.

4. **Emissions Capture:** Answer by using the check-off boxes and spaces for the specific Storage Area.

INSTRUCTIONS
FORM G - MIXING OPERATIONS

The purpose of this form is to provide information regarding the mixing of paints for facilities with surface coating operations. Please complete one of these forms for every mixing area located in this facility. Provide the Mixing Area ID number for each area on a separate "sheet" or copy of this form. The ID number should match that previously assigned on the facility diagram requested in Form A.

1. **Name of the Mixing Area:** Provide the name of the Mixing Area.
2. **Mixing Equipment:**

Equipment Type Description: Provide a brief description of the type of mixing equipment for each type that may be found in the mixing area. For example, if there are five (5) similar 50-gallon mixing vats and three (3) similar 10-gallon, agitated mixing vats in the Mixing Area, make two entries on Form G.

Number of this Type: How many of each type of mixing equipment are located in this Mixing Area.

Size: Indicate the size, specifying the units.

Emissions Capture Device: If emissions are captured, indicate the type of capture device (e.g., hood, total enclosure, room, etc.) and the estimated capture efficiency.

Integrated Emission Controls: These refer to Emission Controls that are an integral part of the equipment, such as a cover. Indicate any add-on control devices to which captured emissions are vented in Item G-3b.

Estimated Emissions for the Reporting Year: Indicate the Total HAP and Total VOC emission estimates for this type of equipment in this Mixing Area.
3. **Emission Capture and Add-on Control Devices**
 - a. **Is capture of emissions by mixer or for the room?:** Indicate method of emissions capture.
 - b. **Add-on Control Devices:** Indicate the Emission Control Device(s) to which captured emissions are vented, cross-referencing the Control Device ID from Form C (e.g., CD-999)
4. **Mixing/Formulation/Thinning of Components to Yield "As-Applied" Coatings:** This table is designed to provide information to define coatings in the form they are applied, from "as-supplied" components defined from Form B (Material Data).

"As-Applied" Coatings: Each "as-applied" coating will be given a unique ID, using the AC- prefix (as opposed to the PN- prefix for "as-supplied" components).

Process Description: Indicate if this activity is mixing, formulating, or thinning in nature. Definitions of each are provided below:

 - Mixing** - simple combining of two or more components to create an "as-applied" coating, such as mixing of a resin and catalyst in a two-component coating.
 - Formulation** - Creation of a coating "from scratch," using the most basic components, as is performed in creating batches of specialty coatings and in mixing fabric dyes.
 - Thinning** - Simple addition of a thinning solvent to an "as-supplied" coating to provide an appropriate viscosity, density, etc.

Components: Identify the components used to create the as-applied coating, using the appropriate ID (e.g., PN-999) from Form B (Material Data). Indicate the amount of material used and specify units. Please use the same units (if possible) for all components within a mixture.

Final Yield: Indicate the estimated amount mixed in the reporting year and specify units.

Pot Life: Many mixtures have a limited time in which they may be used. Indicate how long (hours) the mixture may remain mixed before being unusable. If this is not applicable, enter N/A.

Coating Application ID(s): Indicate the Coating Application Area(s) in which the As-Applied Coating is used, cross-referencing the area defined in Form D (Coating Application) using the ID number (e.g., CA-999).

INSTRUCTIONS
FORM H - CLEANING OPERATIONS

This form requests information on cleaning operations not covered in Form E. Cleaning operations to be reported on this form include cleaning of spray booths; spray guns; roll coaters; mixing, storage, and dip tanks; parts not subsequently coated; and cleaning of parts or assemblies after they are coated. Do not report janitorial activities.

Provide the cleaning operation ID number for each operation on a separate "sheet" or copy of this form. The ID number should match that previously assigned on the facility diagram requested in Form A.

Item-Specific Instructions

1. **Identification** - This information is being requested to define the specific equipment cleaning operation being reported.
 - (a) **Name of Cleaning Operation:** Report the name used by your facility to refer to this cleaning operation.
 - (b) **Location Key ID:** Designate location in the process flow diagram.
 - (c) **Associated Operation(s):** Enter the ID No. of the coating or production operation(s) most closely related to this cleaning operation.
2. **Type of Cleaning Activity** - Choose the description that most closely matched this cleaning operation. If you choose "Other," provide a brief description of the cleaning operation.
3. **Materials Used** - List the names of the cleaning materials used in this cleaning operation. If the material is a brand-name product, enter the name of the manufacturer. Also enter the annual usage for this operation of each cleaning material.
4. **Pollution Prevention** - Indicate whether any of the broad pollution prevention categories have been investigated or implemented for this cleaning activity. If "Yes" was indicated for choices a), b), or c), then describe the results of your assessment under d). If the pollution prevention measure was actually implemented at this cleaning operation, provide a qualitative estimate of the emission reduction achieved.
5. **Emissions and Emissions Controls** - Enter the actual reporting year total VOC and total HAP emissions for this cleaning operation. Also enter the estimated annual emissions for this operation at maximum design capacity, and any permit limitations, if applicable. Where the data are available, also provide the emissions of each individual VOC and HAP.
6. **Emissions Capture and Control** - Indicate any capture devices (hood, lip exhaust, vent, total enclosure, etc.) used to capture emissions from this cleaning activity. If the captured emissions are vented to an add-on control device, enter the ID No. listed on Form C for this add-on control device.
7. **If Rags or Wipes Are Used** - Describe the handling, storage, and disposal of rags or wipes used in this cleaning operation.

INSTRUCTIONS
FORM I - WASTE AND WASTEWATER

The purpose of this form is to provide information regarding waste and wastewater generation, treatment, and/or disposal for facilities with surface coating operations. Report information for the entire facility on this one form.

1. Waste Generation

- a. **Waste Type:** Indicate each type of waste generated at this facility. If this facility generates a type of waste other than those listed, please provide a detailed description of that waste. The following definitions pertain to this section.

Sludge - the solids generated from any process (surface preparation, coating, mixing, etc.) that it is necessary to have disposed, either on-site or off-site.

Waste Coatings - coating materials from equipment cleaning, excess prepared coating materials, etc. that must be treated and/or disposed.

Waste Solvents - solvents that have been used in another process (surface preparation, etc.) that are collected for either recycling or disposal.

Wastewater - any process waters or cleaning waters should be considered wastewater at the point/time they leave the generating operation.

If your facility has a combined waste stream (e.g. waste coatings and waste solvents), please estimate the amount of each contributed to the waste stream and include in Item 1.b. Note these combined streams and any other pertinent details in a Comments Sheet for this form.

- b. **Quantity Generated:** Give the amount of each type of waste generated in this facility in the appropriate units. If alternate units are used, state in comments section.
- c. **Is this waste treated on-site?** Please indicate by checking yes or no.
- d. **Are air emissions controlled?** Indicate if any method for controlling emissions of HAP or VOC to the air is used, including use of covers, add-on control devices, etc.
- e. **Sources of Waste:** Identify, by the Process Unit ID taken from other forms (e.g., CA-999, SP-999), each type of waste generated at this facility.
- f. and g. **Estimated Total HAP/VOC Emissions for Reporting Year:** Provide estimate of annual HAP and VOC emissions associated with each of the listed type(s) of waste generated at this facility.

2. **Mode of wastewater transport** - Indicate how wastewater is transported from the point of generation. Mode definitions:

Open Trench - uncovered trench in which wastewater flows from point of generation to another point.

Open Pipe - covered trenches and pipes with openings to the open air at each end and/or through vents, manholes, etc.

Closed Pipe - completely closed piping with no opening to the atmosphere

Holding Tank - storage tank in close proximity to the point of generation which holds wastewater but does not reuse it in the process.