ACTIVE SMAQMD BACT CLEARINGHOUSE

CATEGORY: **COATING OPERATION**

BACT Size: Minor Source BACT **PAINT SPRAY BOOTH POWDER**

BACT Determination Number: 163	**BACT Determination Date:** 2/5/2018

Equipment Information

Permit Number: 24880
Equipment Description: PAINT SPRAY BOOTH POWDER
Unit Size/Rating/Capacity: N/A
Equipment Location: PACIFIC POWDER COATING
8637 23RD AVE
SACRAMENTO, CA

BACT Determination Information

ROCs	**Standard:**	< 1.5% by weight
	Technology Description:	Low-VOC Coating (< 1.5% VOC by Weight) and Natural gas fired fusing oven
	Basis:	Achieved in Practice
NOx	**Standard:**	30 ppmvd @ 3% O2
	Technology Description:	Low-NOx burner
	Basis:	Achieved in Practice
SOx	**Standard:**	
	Technology Description:	Natural gas fired fusing oven
	Basis:	Achieved in Practice
PM10	**Standard:**	
	Technology Description:	Powder Recovery System with a Cyclone Followed by a Baghouse or Cartridge Dust Collector or HEPA Filters (≥ 99% efficiency)
	Basis:	Achieved in Practice
PM2.5	**Standard:**	
	Technology Description:	Powder Recovery System with a Cyclone Followed by a Baghouse or Cartridge Dust Collector or HEPA Filters (≥ 99% efficiency)
	Basis:	Achieved in Practice
CO	**Standard:**	
	Technology Description:	Natural gas fired fusing oven
	Basis:	Achieved in Practice
LEAD	**Standard:**	
	Technology Description:	No Standard
	Basis:	

Comments:

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777 12th Street, Third Floor

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

Sacramento, CA 95814

BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION

DETERMINATION NO.: 163

DATE: 11/1/2017

ENGINEER: Matt Baldwin

Category/General Equip Description: Powder Coating

Equipment Specific Description: Powder Coating of Miscellaneous Metal Parts

Equipment Size/Rating: N/A

Previous BACT Det. No.: None

This is a new BACT/T-BACT determination for powder coating operations.

Powder coating involves the application of a thin layer of dry powder to a metal part. The metal part is electrically charged to attract the particles, which are spray applied in a booth. The metal parts are then transferred to a curing oven, wherein the powder melts and bonds to the metal part as a hard protective coating.

Unlike conventional coatings, powder coatings do not require a carrier solvent, and are thus inherently low-VOC. Therefore, the District treats powder coatings different than liquid coatings when reviewing BACT.

Because an electrostatic charge is used to attract the coating to the substrate, the majority of powder coatings are used to coat metal parts and products. Generally, they are subject to District rules that regulate the coating of metal parts and products. Powder coatings may also be applied to plastic, wood, and other materials using a modified process that doesn't involve electrostatic spray equipment, but rather dipping the product in a fluidized bed of powder or pre-heating the item, spraying it with powder such that it begins to melt, and then further curing it in an oven. So, when being applied to other substrates, the applicable District rule changes to match the substrate. Due to this nuance, the scope of this determination will be limited to metal parts and products and will focus only on those achieved in practice BACT determinations that included powder coatings.

BACT/T-BACT ANALYSIS

A: ACHIEVED IN PRACTICE (Rule 202, §205.1a)

The following control technologies are currently employed as BACT/T-BACT for powder coating operations:

US EPA

BACT
Source: EPA RACT/BACT/LAER Clearinghouse

Powder Coating Dryer or Oven, Direct or Indirect	
VOC	780 lb/month facility wide
NOx	30 ppmvd @ 3% O2
SOx	N/A – No BACT determinations found
PM10	N/A – No BACT determinations found
PM2.5	N/A – No BACT determinations found
CO	N/A – No BACT determinations found

RBLC ID: CA-1102 (02/06/2002)

T-BACT
There are no T-BACT standards published in the clearinghouse for this category.

RULE REQUIREMENTS:
There are no NSPS or NESHAP requirements for powder coating. 40 CFR Part 63, Subpart HHHHHH – NESHAP for Paint Stripping and Miscellaneous Surface Coating Operations exempts powder coating (See definition of "Spray-applied coating operation," 40 CFR §63.11180).

Although, EPA has not promulgated a rule covering powder coating, they published Control Techniques Guidelines for Miscellaneous Metal Parts and Plastic Parts Coatings (EPA-453/R-08-003) that identify Reasonably Available Control Measures and Reasonably Available Control Technology. These guidelines establish achieved in practice control measures that are used by state and local agencies when developing rules for their State Implementation Plans, and are used by U.S. EPA when approving those rules.

The guidelines identify several jurisdictions that have adopted a VOC limit of 0.5 kg/L (0.4 lb/gal) when using powder coatings.

Air Resources Board (ARB)

BACT
Source: ARB BACT Clearinghouse

Powder Coating Dryer or Oven, Direct or Indirect	
VOC	780 lb/month facility wide
NOx	30 ppmvd @ 3% O2
SOx	N/A – No BACT determinations found
PM10	N/A – No BACT determinations found
PM2.5	N/A – No BACT determinations found
CO	N/A – No BACT determinations found

(A) See Attachment A

T-BACT
There are no T-BACT standards published in the clearinghouse for this category.

RULE REQUIREMENTS:
There are no regulations for this source category.

Sacramento Metropolitan AQMD

BACT
Source: SMAQMD BACT Clearinghouse

There are no BACT standards published in the clearinghouse for this category.

T-BACT
There are no T-BACT standards published in the clearinghouse for this category.

RULE REQUIREMENTS:

Rule 451 (Last amended 10/20/2010)
One of the following methods shall be used when applying miscellaneous metal part or product coatings to any miscellaneous metal parts and products:

A. Roll Coater
B. Dip coat
C. Electrostatic spray
D. Flow Coat
E. High-volume low-pressure (HVLP) spray
F. Low-volume low-pressure (LVLP) spray
G. Hand application method, such as brush or roller
H. Any other method which has been approved in writing by the Air Pollution Control Officer and the U.S. EPA

Sacramento Metropolitan AQMD

No person shall apply any coating to a **miscellaneous metal parts and product**, which has a VOC content exceeding the applicable limits below:

Coating Category (SMAQMD Rule 451 Definition)	Maximum Allowable VOC Content Excluding Water and Exempt Compounds grams/liter (lbs-VOC/gal)	
	Air Dried	Baked
Aluminum Coating for Window Frames and Door Frames	420 (3.5)	275 (2.3)
Camouflage	420 (3.5)	360 (3.0)
Electrical Insulating	340 (2.8)	275 (2.3)
Etching Filler	420 (3.5)	420 (3.5)
Extreme High Gloss	420 (3.5)	360 (3.0)
Extreme Performance	420 (3.5)	360 (3.0)
Heat Resistant	420 (3.5)	360 (3.0)
Metallic/Iridescent	420 (3.5)	420 (3.5)
Prefabricated Architectural Component	420 (3.5)	275 (2.3)
Pretreatment Wash Primer	420 (3.5)	420 (3.5)
Silicone Release Coating	420 (3.5)	420 (3.5)
Solar Absorbent	420 (3.5)	360 (3.0)
All Other Coatings	340 (2.8)	275 (2.3)

VOC content of coatings used for **metal furniture** shall not exceed the following limits:

Coating Category (SMAQMD Rule 451 Definition)	Maximum Allowable VOC Content Excluding Water and Exempt Compounds grams/liter (lbs-VOC/gal)	
	Air Dried	Baked
General, Multi-Component	340 (2.8)	275 (2.3)
Etching Filler	420 (3.5)	420 (3.5)
Extreme High Gloss	340 (2.8)	360 (3.0)
Extreme Performance	420 (3.5)	360 (3.0)
Heat Resistant	420 (3.5)	360 (3.0)
Metallic/Iridescent	420 (3.5)	420 (3.5)
Pretreatment Wash Primer	420 (3.5)	420 (3.5)
Solar Absorbent	420 (3.5)	360 (3.0)
All Other Coatings	275 (2.3)	275 (2.3)

Sacramento Metropolitan AQMD

VOC content for coating removers (strippers):

- A person shall not use a stripper on miscellaneous metal parts and products which contains more than 200 grams of VOC per liter of material (1.7 pounds per gallon).

VOC content surface preparation and cleanup materials:

- A person shall not perform cleanup of application equipment (including spray gun nozzles) with a material containing VOC in excess of 25 grams per liter (0.21 pounds per gallon).
- A person shall not perform product cleaning or surface preparation with a material containing VOC in excess of 25 grams per liter (0.21 pounds per gallon).

South Coast AQMD

BACT

Source: SCAQMD BACT Guidelines for Non-Major Polluting Facilities, page 43, 98

Rating/Size	VOC	NOx	SOx	CO	PM10
Powder Coating Booth					
< 37 lbs/day throughput	N/A	N/A	N/A	N/A	Pocket or Bag-Type Filters (10-20-2000)
≥ 37 lbs/day throughput	N/A	N/A	N/A	N/A	Powder Recovery System with a Cyclone Followed by a Baghouse or Cartridge Dust Collector or HEPA Filters (≥ 99% efficiency) (1988/10-20-2000)

Rating/Size	VOC	NOx	SOx	CO	PM10
Spray Booth – Other Than Automotive, Down-draft Type					
Other Dryers and Ovens – Direct and Indirect Fired	N/A	30 ppmvd corrected to 3% O2 (04-10-1998)	Natural Gas (10-20-2000)	N/A	Natural Gas (10-20-2000)

T-BACT

There are no T-BACT standards published in the clearinghouse for this category.

South Coast AQMD

RULE REQUIREMENTS:

Reg XI, Rule 1107 (Last amended 1/6/2006)

A person or facility shall not apply coatings to metal parts and products subject to the provisions of this rule unless the coating is applied with properly operating equipment, according to the equipment manufacturer's operating procedures, and by the use of one of the following methods:

A. Electrostatic application
B. Flow coat
C. Dip coat
D. Roll coat
E. High-volume, low-pressure (HVLP) spray
F. Hand Application Methods
G. Other coating application methods as are demonstrated to the Executive Officer to be capable of achieving a transfer efficiency equivalent or better to HVLP spray, and for which written approval of the Executive officer has been obtained

An operator shall not apply **any coating to metal parts and products** that exceeds the applicable limit specified below:

Coating Category (SCAQMD Rule 1107 Definition)	Maximum Allowable VOC Content Excluding Water and Exempt Compounds grams/liter (lbs-VOC/gal)	
	Air Dried	Baked
General One- Component	275 (2.3)	275 (2.3)
General, Multi-Component	340 (2.8)	275 (2.3)
Military Specification	340 (2.8)	275 (2.3)
Etching Filler	420 (3.5)	420 (3.5)
Solar Absorbent	420 (3.5)	360 (3.0)
Heat Resistant	420 (3.5)	360 (3.0)
Extreme High Gloss	420 (3.5)	360 (3.0)
Metallic	420 (3.5)	420 (3.5)
Extreme Performance	420 (3.5)	360 (3.0)
Prefabricated Architectural One-Component	420 (3.5)	275 (2.3)
Prefabricated Architectural Multi-Component	420 (3.5)	275 (2.3)

South Coast AQMD

Coating Category (SCAQMD Rule 1107 Definition)	Maximum Allowable VOC Content Excluding Water and Exempt Compounds grams/liter (lbs-VOC/gal)	
	Air Dried	Baked
Touch Up	420 (3.5)	360 (3.0)
Repair	420 (3.5)	360 (3.0)
Silicone Release	420 (3.5)	420 (3.5)
High-Performance Architectural	420 (3.5)	420 (3.5)
Camouflage	420 (3.5)	420 (3.5)
Vacuum-Metalizing	420 (3.5)	420 (3.5)
Mold-Seal	420 (3.5)	420 (3.5)
High-Temperature	420 (3.5)	420 (3.5)
Electric-Insulating Varnish	420 (3.5)	420 (3.5)
Pan Backing	420 (3.5)	420 (3.5)
Pretreatment Coatings	420 (3.5)	420 (3.5)

VOC Content for coating removers (strippers):
A person shall not use a stripper on miscellaneous metal parts and products which contains more than 200 grams of VOC per liter of material.

South Coast AQMD

Reg XI, Rule 1171 (Last amended 5/1/2009)
This rule applies to all persons who use solvent materials in solvent cleaning operations during the production, repair, maintenance, or servicing of parts, products, tools, machinery, equipment, or general work areas; all persons who store and dispose of these materials used in solvent cleaning operations; and all solvent suppliers who supply, sell, or offer for sale solvent cleaning materials for use in solvent cleaning operations.

Solvent Cleaning Activity	VOC limits g/l (lb/gal)
(A) Product cleaning during manufacturing process or surface preparation for coating, adhesive, or ink application	
(i) General	25 (0.21)
(ii) Electrical apparatus components & electronic components	100 (0.83)
(iii) Medical Devices & pharmaceuticals	800 (6.7)
(B) Repair and Maintenance Cleaning	
(i) General	25 (0.21)
(ii) Electrical apparatus components & electronic components	100 (0.83)
(iii) Medical Devices & pharmaceuticals	
(a) Tools, equipment, & machinery	800 (6.7)
(b) General work surfaces	600 (5.0)
(C) Cleaning of coatings or adhesives application equipment	25 (0.1)
(D) Cleaning of polyester resin application equipment	25 (0.21)

South Coast AQMD

Reg XI, Rule 1147 (last amended 9/9/2011)
This rule applies to ovens, dryers, dehydrators, heaters, kilns, calciners, furnaces, crematories, incinerators, heated pots, cookers, roasters, fryers, closed and open heated tanks and evaporators, distillation units, afterburners, degassing units, vapor incinerators, catalytic or thermal oxidizers, soil and water remediation units and other combustion equipment with nitrogen oxide emissions that require a District permit **and are not** specifically required to comply with a nitrogen oxide emission limit by other District Regulation XI rules.

Equipment Category	**NOx Emission Limit** PPM @ 3% O2, dry or Pound/mmBtu heat input		
	Process Temperature		
	≤ 800 °F	> 800 °F and ≤ 1200 °F	≥ 1200 °F
Oven, Dehydrator, Dryer, Heater, Kiln, Crematory, Incinerator, Calciner, Cooker, Roaster, Furnace, or Heated Storage Tank	30 ppm or 0.036 lb/mmBtu	30 ppm or 0.036 lb/mmBtu	60 ppm or 0.073 lb/mmBtu

San Joaquin Valley Unified APCD

BACT
Source: SJVUAPCD BACT Guideline 4.3.7

Powder Coating Operation = or > 1.5 MMBtu/hr	
VOC	Low-VOC Coating (< 1.5% VOC by Weight) and Natural gas fired fusing oven
NOx	Natural gas fired fusing oven
SOx	Natural gas fired fusing oven
PM10	Enclosed booth vented to 99% effective control device (cyclone vented to filter; duel *(sic)* filter system) or equal, and Natural gas fired fusing oven
PM2.5	No standard
CO	Natural gas fired fusing oven

T-BACT
There are no T-BACT standards published in the clearinghouse for this category.

San Joaquin Valley Unified APCD

RULE REQUIREMENTS:

Rule 4603 (Amended 9/17/2009)
An operator shall not apply coatings to metal parts and products subject to the provisions of this rule unless the coating is applied with properly operating equipment, according to proper operating procedures, and by the use of one of the following methods:

A. Electrostatic application
B. Electrodeposition
C. High-Volume, Low-Pressure (HVLP) spray
   i. HVLP spray equipment shall be operated in accordance with manufacturer's recommendations.
   II. For HVLP spray guns manufactured prior to January 1, 1996, the end user shall demonstrate that the gun meets HVLP spray equipment standards. Satisfactory proof will be either in the form of manufacturer's published technical material or by a demonstration using a certified air pressure tip gauge, measuring the air atomizing pressure dynamically at the center of the air cap and at the air horns.
D. Flow coating
E. Roll coating
F. Dip coating
G. Brush coating
H. Continuous coating; or
I. Other coating application methods which are demonstrated to the APCO to be capable of achieving at least 65% transfer efficiency as determined in accordance with Section 6.3.8. Prior written approval from the APCO shall be obtained for each alternative method used.

General Coating Limits
Except as otherwise provided by this rule, no operator shall apply to any metal part or product any coating with a VOC content in excess of the following limits, expressed as grams of VOC per liter (or pounds per gallon) of coating, less water and exempt compounds, as applied.

- Air-Dried Coating: 340 grams/liter (2.8 pounds/gallon).
- Baked Coating: 275 grams/liter (2.3 pounds/gallon).

VOC content limit for dip coating of steel joists (SIC 3441), air-dried.

- 340 grams of VOC/liter (2.8 pounds of VOC/gallon) for coatings with a viscosity, as applied, of more than 45.6 centistokes at 78°F or an average dry-film thickness of greater than 2.0 mils;
- 400 grams of VOC/liter (3.32 pounds of VOC/gallon) for coatings with a viscosity, as applied, of less than or equal to 45.6 centistokes at 78°F and an average dry-film thickness of less than or equal to 2.0 mils.

San Joaquin Valley Unified APCD

Solvent Cleaning
VOC content limits for organic solvents used in cleaning operations, limits are expressed as grams of VOC/liter (or pounds of VOC/gallon) of material:

Type of Solvent Cleaning Operation	VOC Content Limit
Product cleaning during manufacturing process or surface preparation for coating application	25 (0.21)
Repair and maintenance cleaning	25 (0.21)
Cleaning of coating application equipment	25 (0.21)

San Diego County APCD

BACT
Source: SMAQMD BACT Clearinghouse

There are no BACT standards published in the clearinghouse for this category.

T-BACT
There are no T-BACT standards published in the clearinghouse for this category.

RULE REQUIREMENTS:

Regulation 4, Rule 67.3 (Revised 4/9/2003)
Section (b)(1)(ii) exempts powder coating operations which use less than 0.5 gallons per day of any surface or cleaning material containing volatile organic compounds. For operations using 0.5 gallons per day or more, the operation must comply with the following:

No coatings shall be applied unless one of the following coating application methods is used:

- Electrostatic spray application
- Flow coat application
- Dip coat application
- High-volume low-pressure (HVLP) spray application
- Roll coat
- Hand application methods
- Other coating application methods that are demonstrated to have a transfer efficiency a least equal to one of the above application methods, and which are used in such a manner that the parameters under which they were tested are permanent features of the method. Such coating application methods shall be features in writing prior to use by the Air Pollution Control Officer.

San Diego County APCD

General Coating Limits
Except as otherwise provided by this rule, no operator shall apply to any metal part or product any coating with a VOC content in excess of the following limits, expressed as grams of VOC per liter (or pounds per gallon) of coating, less water and exempt compounds, as applied.

- Air-Dried Coating: 340 grams/liter (2.8 pounds/gallon).
- Baked Coating: 275 grams/liter (2.3 pounds/gallon).

Surface Preparation and Cleanup Solvents
A person shall not use VOC containing materials for surface preparation or cleanup unless:

- The material contains 200 grams or less of VOC per liter of material; or
- The material has an initial boiling point of 190°C (374°F) or greater; or
- The material has a total VOC vapor pressure of 2 mm Hg or less, at 20°C (68°F)

Cleaning of Application Equipment
A person shall not use VOC containing materials for the cleaning of application equipment used in operations subject to this rule unless:

- The material contains 200 grams or less of VOC per liter of material; or
- The material has an initial boiling point of 190°C (374°F) or greater; or
- The material has a total VOC vapor pressure of 2 mm Hg or less, at 20°C (68°F); or
- The cleaning material is flushed or rinsed through the application equipment in a contained manner that will minimize evaporation into the atmosphere; or
- The application equipment or equipment parts are cleaned in a container which is open only when being accessed for adding, cleaning, or removing application equipment or when cleaning material is being added, provided the cleaned equipment or equipment parts are drained to the container until dripping ceases; or
- A system is used that totally encloses the component parts being cleaned during the washing, rinsing, and draining processes; or
- Other application equipment cleaning methods that are demonstrated to be as effective as any of the equipment described above in minimizing the emissions of VOC to the atmosphere, provided that the device has been tested and approved prior to use by the Air Pollution Control Officer.

A person shall not use VOC containing materials for the cleaning of coating application equipment used in operations subject to this rule unless:

- The cleaning material contains 25 grams or less of VOC per liter of material; or
- The cleaning material is flushed or rinsed through the application equipment in a contained manner that will minimize evaporation into the atmosphere; or
- The application equipment or equipment parts are cleaned in a container which is open only when being accessed for adding, cleaning, or removing application equipment or when cleaning material is being added, provided the cleaned equipment or equipment parts are drained to the container until dripping ceases; or

A system is used that totally encloses the component parts being cleaned during the washing, rinsing, and draining processes.

Bay Area AQMD

BACT
Source: SMAQMD BACT Clearinghouse

There are no BACT standards published in the clearinghouse for this category.

T-BACT
There are no T-BACT standards published in the clearinghouse for this category.

RULE REQUIREMENTS:

Reg 8, Rule 19 (10/16/2002)
Any person who utilizes spray application equipment to apply coatings to miscellaneous metal parts or products shall use one or more of the following application methods, unless emissions to the atmosphere are controlled by an approved emission control system with an overall abatement efficiency of at least 85%:

A. High Volume Low Pressure (HVLP) Spray, operated in accordance with the manufacturer's recommendations; or
B. Electrostatic spray, operated in accordance with the manufacturer's recommendations; or
C. Detailing Gun; or
D. Any other coating spray application that achieves an equivalent transfer efficiency compared to the spray application methods listed above. Prior written approval from the APCO shall be obtained for each alternative method used.

No person shall apply to any **miscellaneous metal part or product**, any specialty coating with a VOC content in excess of the limits set forth below; expressed as grams VOC per liter (pounds VOC per gallon) of coating or grams VOC per liter (lbs VOC per gal) of coating applied, excluding water, unless emissions to the atmosphere are controlled to an equivalent level by air pollution abatement equipment with an abatement device efficiency of at least 85% that meets the requirements of Regulation 2, Rule 1.

Bay Area AQMD

Coating Category (BAAQMD Rule 19 Definition)	Maximum Allowable VOC Content Excluding Water and Exempt Compounds grams/liter (lbs-VOC/gal)	
	Air Dried	Baked
Camouflage	420 (3.5)	360 (3.0)
High Gloss	420 (3.5)	360 (3.0)
Heat Resistant	420 (3.5)	360 (3.0)
High Performance Architectural	420 (3.5)	420 (3.5)
Metallic Topcoat	420 (3.5)	360 (3.0)
Pretreatment Wash Primer	420 (3.5)	420 (3.5)
Silicone Release	420 (3.5)	420 (3.5)
Solar Absorbent	420 (3.5)	360 (3.0)
Extreme Performance	420 (3.5)	420 (3.5)
High Temperature	420 (3.5)	420 (3.5)
All Other Coatings	340 (2.8)	275 (2.3)

Solvent Evaporative Loss Minimization:
Unless emissions to the atmosphere are controlled by an approved emission control system with an overall abatement efficiency of at least 85%, any person using organic solvent for surface preparation and cleanup or any person mixing, using or disposing of coating containing organic solvent:

A. Shall use closed containers for the storage or disposal of cloth or paper used for solvent surface preparation and clean up.
B. The person shall not use organic solvent for the cleanup of spray equipment, including paint lines with VOC content in excess of 50 g/l (0.42 lb/gal) unless either
   i. The solvent is pressurized through the spray equipment with atomizing air off or dispensed from a small non-atomizing container, and collected and stored in a closed container until recycled or properly disposed of offsite, or
   ii. A spray gun washer subject to and in compliance with the requirements of Regulation 8, Rule 16 is used.
C. Shall close containers of coating, catalyst, or solvent when not in use.

Surface Preparation Standards:
No person shall use a solvent with a VOC content that exceeds 50 g/l (0.42 lbs/gal), as applied, for surface preparation in any operation subject to this Rule unless emissions to the atmosphere are controlled to an equivalent level by an approved emission control system with an overall abatement efficient of at least 85%.

The following control technologies have been identified and are ranked based on stringency:

SUMMARY OF ACHIEVED IN PRACTICE CONTROL TECHNOLOGIES	
VOC	1. Low-VOC Coating (< 1.5% VOC by Weight) and Natural gas fired fusing oven [SJVUAPCD] 2. 0.5 kg/L (0.4 lb/gal) [US EPA] 3. Compliance with District Rule [SMAQMD, SJVUAPCD, BAAQMD, SDAPCD]
NOx	1. 30 ppmvd @ 3% O2 [SCAQMD] 2. Natural gas fired fusing oven [SJVUAPCD]
SOx	1. Natural gas fired fusing oven [SJVUAPCD]
PM10	1. Powder Recovery System with a Cyclone Followed by a Baghouse or Cartridge Dust Collector or HEPA Filters (≥ 99% efficiency) [SCAQMD, SJVUAPCD] 2. Pocket or Bag-Type Filters for < 37 lbs/month throughput [SCAQMD]
PM2.5	Not applicable
CO	1. Natural gas fired fusing oven [SJVUAPCD]
T-BACT	No standard

The following control technologies have been identified as the most stringent, achieved in practice control technologies:

BEST CONTROL TECHNOLOGIES ACHIEVED		
Pollutant	**Standard**	**Source**
VOC	Low-VOC Coating (< 1.5% VOC by Weight) and Natural gas fired fusing oven	SJVUAPCD
NOx	30 ppmvd @ 3% O2	SCAQMD
SOx	Natural gas fired fusing oven	SJVUAPCD
PM10/PM2.5	Powder Recovery System with a Cyclone Followed by a Baghouse or Cartridge Dust Collector or HEPA Filters (≥ 99% efficiency)	SCAQMD, SJVUAPCD
CO	Natural gas fired fusing oven	SJVUAPCD
T-BACT	Not applicable	

B: TECHNOLOGICALLY FEASIBLE AND COST EFFECTIVE (Rule 202, §205.1.b.)

Technologically Feasible Alternatives:

Any alternative basic equipment, fuel, process, emission control device or technique, singly or in combination, determined to be technologically feasible by the Air Pollution Control Officer.

The table below shows the technologically feasible alternatives identified as capable of reducing emissions beyond the levels determined to be "Achieved in Practice" as per Rule 202, §205.1.a.

Pollutant	Technology	Source
VOC	No technologically feasible alternatives identified	--
NOx	No technologically feasible alternatives identified	--
SOx	No technologically feasible alternatives identified	--
PM10	No technologically feasible alternatives identified	--
PM2.5	No technologically feasible alternatives identified	--
CO	No technologically feasible alternatives identified	--
T-BACT	Not applicable	--

C: SELECTION OF BACT

Based on the above analysis, BACT for VOC, NOx, SOx, PM10, and CO will remain at what is currently achieved in practice and BACT for PM2.5 will be set to be the same as for PM10.

BACT FOR POWDER COATING OPERATIONS		
Pollutant	**Standard**	**Source**
VOC	Low-VOC Coating (< 1.5% VOC by Weight) and Natural gas fired fusing oven	SJVUAPCD
NOx	30 ppmvd @ 3% O2	SCAQMD
SOx	Natural gas fired fusing oven	SJVUAPCD
PM10	Powder Recovery System with a Cyclone Followed by a Baghouse or Cartridge Dust Collector or HEPA Filters (≥ 99% efficiency)	SJVUAPCD, SCAQMD
PM2.5	Powder Recovery System with a Cyclone Followed by a Baghouse or Cartridge Dust Collector or HEPA Filters (≥ 99% efficiency)	SJVUAPCD, SCAQMD
CO	Natural gas fired fusing oven	SJVUAPCD
T-BACT	Not applicable	

REVIEWED BY: _____ **DATE:** _____

APPROVED BY: _____ **DATE:** _____

Attachment A

Review of BACT Determinations published by EPA

List of BACT determinations published in EPA's RACT/BACT/LAER Clearinghouse (RBLC) for Fiberglass Manufacturing (except boats):

RBLC#	Permit Date	Process Code [B], [C]	Equipment	Pollutant	Standard	Case-By-Case Basis
CA-1102	02/06/2002	13.310	DRYER OR OVEN, DIRECT OR INDIRECT	NOX	30.0000 PPMVD @3% O2 30 MIN	BACT-PSD
CA-1102	02/06/2002	13.310	DRYER OR OVEN, DIRECT OR INDIRECT	VOC	780 LB/MO FACILITYWIDE	BACT-PSD

= Not applicable to this determination. Equipment is for production of fiberglass wool insulation.

= Selected as the most stringent BACT determination achieved in practice.