**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**

# Best Available Control Technology Guidelines

## Part D: BACT Guidelines for Non-Major Polluting Facilities

October 20, 2000 (Revised June 6, 2003; December 5, 2003; July 9, 2004; December 3, 2004; July 14, 2006; October 3, 2008; **DRAFT May 4, 2016**)


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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Abrasive Blasting – Enclosed

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Baghouse; or Cartridge Dust Collector (07-11-97) | |

* Means those facilities that are minor ~~not major polluting~~ facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Absorption Chiller

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | ≤ 20 ppmv dry corrected to 3% O2 (10-20-2000) | Natural Gas (10-20-2000) | ≤50 ppmv for firetube type, ≤ 100 ppmv for watertube type, dry corrected to 3% $O_2$ (10-20-2000) | Natural Gas (10-20-2000) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Air Stripper – Ground Water Treatment

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Carbon Adsorber, Thermal Oxidizer, or Catalytic Oxidizer (10-20-2000) | | | | | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Aluminum Melting Furnace

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Crucible or Pot | | Natural Gas (07-11-97) | Natural Gas (07-11-97) | | Natural Gas with Ingots or Non-contaminated Scrap Charge, or Baghouse (10-20-2000) | |
| Reverberatory, Non-Sweating < 5 MM BTU/HR | | Natural Gas (1990) | Natural Gas (1990) | | Same as above. (10-20-2000) | |
| Reverberatory, Non-Sweating ≥ 5 MM BTU/HR | | Natural Gas with Low NOx Burner ≤ 60 ppmvd @ 3% $O_2$ (10-20-2000) | Natural Gas (1990) | | Same as above. (10-20-2000) | |
| Reverberatory or Rotary, Sweating < 5 MM BTU/HR | Afterburner (≥ 0.3 sec. Retention Time at ≥ 1400° F) or Secondary Combustion Chamber (1990) | Natural Gas (1990) | Natural Gas (1990) | | Natural Gas with Baghouse and:<br>- Afterburner (≥ 0.3 sec. Retention Time at ≥ 1400° F); or<br>- Secondary Combustion Chamber (1990) | |
| Reverberatory or Rotary, Sweating ≥ 5 MM BTU/HR | Same as Above (1990) | Natural Gas with Low NOx Burner ≤ 60 ppmvd @ 3% $O_2$ (10-20-2000) | Natural Gas (1990) | | Same as above. (1990) | |

Note: Some of this equipment may also subject to 40 CFR 63, Subpart RRR – National Emission Standards for Hazardous Air Pollutants for Secondary Aluminum Production

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Ammonium Bisulfate and Thiosulfate Production

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Packed Column Scrubber with Heat Exchanger and Mist Eliminator (1990) | Packed Column Scrubber for NH3 (1990) |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Asbestos Machining Equipment

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Air Cleaning Equipment (40 CFR Part 61 Subpart M) (07-11-97) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Asphalt Batch Plant

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | Natural Gas with Low NOx Burner<br>≤ 36 ppmvd @ 3% $O_2$<br>(10-20-2000) | | | Baghouse<br>(1990) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Asphalt Roofing Line

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | Natural Gas (1990) | Natural Gas (1990) | | Natural Gas with High Velocity Filter and Mist Eliminator (1990) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Asphaltic Day Tanker

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Fiberglass or Steel Wool Filter (07-11-97) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Auto Body Shredder

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Baghouse with Water Sprays in Hammermill (1988) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Ball Mill

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Baghouse (07-11-97) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Beryllium Machining Equipment

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | High Efficiency Particulate Air Filter and Compliance with 40CFR Part 61, Subpart D (1988) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
10-03-2008 Rev. 1
XX-XX-2016 Rev. 2

Equipment or Process: Boiler

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/Rating/ Size** | **VOC** | **NOx[1]** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Natural Gas ~~or Propane~~ Fired, > 2 and < 20 MM Btu/HR | | ≤ 9~~12~~ ppmv ~~dry~~ d corrected to 3% $O_2$[2] (~~10-20-2000~~X-XX-2015)) | Natural Gas (10-20-2000) | ≤50 ppmvd for firetube type, ≤ 100 ppmvd for watertube type, ~~dry~~ corrected to 3% $O_2$ (04-10-98) | Natural Gas (04-10-98) | |
| Propane Fired, > 2 and < 20 MMBtu/HR | | ≤ 12 ppmvd corrected to 3% $O_2$[2] (10-20-2000) | | ≤50 ppmvd for firetube type, ≤ 100 ppmvd for watertube type, corrected to 3% $O_2$ (04-10-98) | | |
| Natural Gas or Propane Fired, ≥ 20 ~~<~~ and < 75 MM Btu/HR | | With Low-NOx Burner: ≤ 9 ppmv dry corrected to 3% $O_2$ With Add-On Controls: ≤ 7 ppmv dry corrected to 3% $O_2$ (10-20-2000) | Natural Gas (10-20-2000) | Same as above. (04-10-98) | Natural Gas (04-10-98) | With Add-On Controls: ≤ 5 ppmvd NH3, corrected to 3% O2 ≤ 1 ppmvd ozone, corrected to 3% O2 (10-20-2000) |
| Natural Gas or Propane Fired, ≥ 75 MM Btu/HR | | ≤ 5 ppmv ~~dry~~d corrected to 3% $O_2$ Rule 1146 (X-XX-2015) | Natural Gas (10-20-2000) | Same as above. (04-10-98) | Natural Gas (04-10-98) | With Add-On Controls: ≤ 5 ppmvd NH3, corrected to 3% O2 ≤ 1 ppmvd ozone, corrected to 3% O2 |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/Rating/ Size** | **VOC** | **NOx[1]** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| | | | | | | (10-20-2000) |

(Continued on next page)

| | | | | | | |
|---|---|---|---|---|---|---|
| Oil Fired[3] | | Compliance with SCAQMD Rule 1146 or 1146.1 (10-20-2000) | Fuel Sulfur Content ≤ ~~0.05% by Weight (10-20-2000) or~~ 0.0015% by weight ~~if purchased after May 31, 2004~~ (10-03-2008) | ≤ 50 ppmvd for firetube type ~~,~~ ≤ 100 ppmvd for watertube type, ~~dry~~ corrected to 3% $O_2$ (04-10-98) | | |
| Atmospheric Unit, ≥ 2 and ≤ 10 MMBtu/HR | | ≤ 12 ppmvd dry corrected to 3% $O_2$ SCAQMD Rules 1146 and 1146.1 (REVISION DATE) | | Compliance with SCAQMD Rules 1146 and 1146.1(REVISION DATE) | | |
| Landfill ~~or Digester~~ Gas Fired, < 75 MMBTU/Hr | | ≤ ~~30~~ 25 ppmvd at 3% $O_2$ ~~dry~~. SCAQMD Rules 1146 and 1146.1(REVISION DATE)~~(04-10-98)~~ | | ≤ 100 ppmvd at 3% $O_2$ dry. (04-10-98) | ≤ 0.1 gr/scf at 12% $CO_2$ (Rule 409) (04-10-98) | |
| Digester Gas Fired, < 75 MMBTU/Hr | | 15 ppmvd at 3% $O_2$ ~~dry~~. SCAQMD Rules 1146 and 1146.1(REVISION DATE) | | ≤ 100 ppmvd at 3% $O_2$ dry. (04-10-98) | ≤ 0.1 gr/scf at 12% $CO_2$ (Rule 409) (04-10-98) | |

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1) ~~Rules 1146 and 1146.1 require that boilers rated >2 and <75 MMBtu/hr meet 9 ppm NOx beginning 1/1/2012 for some categories, that natural gas-fired boilers rated at ≥75 MMBtu/hr meet 5 ppm by 1/1/2015 (except boilers at schools and universities), that natural-draft boilers rated >2 and ≤10 MMBtu/hr with unsealed combustion chambers meet 12 ppm by 1/1/2014, and that boilers firing landfill or digester gas meet 25 or 15 ppm, respectively, by 1/1/15 (all ppm are dry, corrected to 3% O2).~~ Electric utility boilers, refinery boilers rated >40 MMBtu/hr and sulfur plant reaction boilers rated ≥5 MMBtu/hr are excluded; and there are exceptions for low-use boilers and boilers that met a 12-ppm limit prior to 9/5/08. Applicants are advised to review these rules for further details.

2) A higher NOx limit may be allowed for facilities required to have a standby fuel, where use of a clean standby fuel is not possible and an ultra low-NOx burner is not available.

3) See Clean Fuels Policy in Part C of the BACT Guidelines. Oil firing is only allowed as a standby fuel, and where use of a clean standby fuel is not possible.

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Brakeshoe Debonder

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Afterburner or Secondary Combustion Chamber with ≥0.3 Second Retention Time at ≥1,400°F Achieved within 15 Minutes of Primary Burner Ignition (07-11-97) | Natural Gas (07-11-97) | Natural Gas (07-11-97) | | Natural Gas (07-11-97) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Brass Melting Furnace

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Crucible, ≤ 300 Lbs/Hr Process Rate | | Natural Gas (1990) | Natural Gas (1990) | | Natural Gas, Charge Clean Metal Only and Maintain Slag Cover Over Entire Melt Surface (1990) | |
| Crucible, > 300 Lbs/Hr Process Rate | | Low-NOx Burner (10-20-2000) | Natural Gas (1990) | | Natural Gas, with Baghouse (1990) | |
| Reverberatory or Rotary, Non-Sweating | | Natural Gas and Low NOx Burner (10-20-2000) | Natural Gas (1990) | | Natural Gas with Baghouse (1990) | |
| Reverberatory or Rotary, Sweating | Afterburner (≥ 0.3 Second Retention Time at ≥ 1400 °F) (1990) | Natural Gas with Low NOx Burner (1990) | Natural Gas (1990) | Afterburner (≥ 0.3 Second Retention Time at ≥ 1400 °F) (1990) | Natural Gas with Baghouse (1990) | |
| Tilting Induction, ≤ 300 Lbs/Hr Process Rate | | | | | Charge Clean Metal Only and Slag Cover Maintained Over Entire Melt Surface (1988) | |
| Tilting Induction, > 300 Lbs/Hr Process Rate | | | | | Baghouse (7-11-97) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Bulk Solid Material Handling – Other

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory[3)]/Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **PM10** | **Inorganic** |
| Animal Feed Mfg. – Dry Material Handling | | | | | Baghouse (07-11-97) | |
| Clay, Ceramics and Refractories Handling (Except Mixing) | | | | | Baghouse (1988) | |
| Coal, Coke and Sulfur Handling | | | | | Compliance with SCAQMD Rule 1158 (10-20-2000) | |
| Feed and Grain Handling | | | | | Baghouse (1988) | |
| Natural Fertilizer Handling [1)] | | | | | Baghouse or Equivalent Material Moisture (07-11-97) | |
| Paper and Fiber Handling | | | | | High Efficiency Cyclone with Baghouse (10-20-2000) | |
| Pneumatic Conveying, Except Paper and Fiber | | | | | Baghouse (1988) | |
| Railcar Dumper | | | | | Enclosed Dump Station and Water Spray for Wet Material (1988) | |
| Other Dry Materials Handling [2)] | | | | | Enclosed Conveyors and Baghouse (7-11-97) | |
| Other Wet Materials Handling [2)] | | | | | Water Spray or Adequate Material Moisture (1988) | |

1. Includes conveying, size reduction, classification and packaging.
2. Includes conveying, size reduction and classification.
3. Also see Catalyst Manufacturing, Coffee Roasting, Non-Metallic Mineral Processing, Nut Roasting, Rendering, Pharmaceutical Operations, and Rock-Aggregate Processing for other bulk solid material handling.

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Bulk Solid Material Ship Loading

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **PM10** | **Inorganic** |
| Non-White Commodities | | | | | Enclosed Conveyor and<br>- Water Spray; or<br>- Adequate Material Moisture<br>(1988) | |
| White Commodities | | | | | Enclosed Conveyor and Baghouse Venting Ship Holds and Transfer Points (07-11-97) | |

Notes:
1. Non-White commodities include coal, copper concentrate, sulfur, iron slag, iron ore, iron pellets, green petroleum coke and other wet commodities
2. White commodities include soda ash, salt cake, potash and other dry commodities.

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Bulk Solid Material Ship Unloading

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **PM10** | **Inorganic** |
| Bulk Cement | | Shore Utility Power (1988) | Shore Utility Power (1988) | | Enclosed, Self-Unloading Ship (1988) | |
| Other Bulk Solid Materials | | | | | Enclosed Hold and Baghouse; or Material Moisture Equivalent to an Enclosed Hold and Baghouse (1988) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Bulk Solid Material Storage

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **PM10** | **Inorganic** |
| Coal, Petroleum Coke, Sulfur | | | | | Enclosed Storage in Compliance with SCAQMD Rule 1158 (10-20-2000) | |
| Other Non-White Commodities | | | | | Water Spray and Chemical Additives or Charged Fog Spray (1988) | |
| White Commodities | | | | | Enclosed Storage and Baghouse (1988) | |
| Storage Tanks and Silos | | | | | Baghouse or Filtered Vent for Dry Material; Water Spray or Adequate Moisture for Wet Material (07-11-97) | |
| Other Open Storage | | | | | Water with Chemical Additives (1988) | |

Notes:
1. Other non-white commodities include copper concentrate, iron slag, iron ore, and iron pellets.
2. White commodities include cement, gypsum, lime, soda ash, borax and flour.

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Burnoff or Burnout Furnace (Excluding Wax Furnace)

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Afterburner or Secondary Combustion Chamber with ≥0.3 Second Retention Time at ≥1,400°F Achieved within 15 Minutes of Primary Burner Ignition (07-11-97) | Natural Gas (07-11-97) | Natural Gas (07-11-97) | | Natural Gas (07-11-97) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Calciner

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Petroleum Coke | Afterburner (≥ 0.3 Second Retention Time at ≥ 1400 °F) (1988) | 44 ppmv, Dry, Corrected to 3% $O_2$ (1988) | Natural Gas with Flue Gas Desulfurization (> 90% Removal Efficiency) (1988) | Afterburner (≥ 0.3 Second Retention Time at ≥ 1400 °F) (1988) | 0.005 gr/dscf Corrected to 3% $O_2$ (1988) | |
| Other | | 45 ppmv, Dry, Corrected to 3% $O_2$ (1988) | Natural Gas (1988) | | Natural Gas with Baghouse (1988) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Carpet Beating and Shearing

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Baghouse (1988) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Catalyst Manufacturing and Regeneration

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Calcining | | Three-Stage NOx Reduction Scrubber (1990) | Natural Gas (1990) | | Baghouse (10-20-2000) | |
| Reactor | | $NO_x$ Scrubber (07-11-97) | | | | |
| Rotary or Spray Dryer | | | | | Baghouse (07-11-97) | |
| Regeneration, Hydrocarbon Removal | Flare, Firebox, or Afterburner (≥ 0.3 Second Retention Time at ≥ 1,400 °F) (07-11-97) | | | | | |
| Catalyst Solids Handling | | | | | Baghouse (07-11-97) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Charbroiler, Chain-driven (conveyorized)

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Catalytic Oxidizer (12-12-97) | | | | Catalytic Oxidizer (12-12-97) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Chemical Milling Tanks

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Aluminum and Magnesium[1] | | | | | | |
| Nickel Alloys, Stainless Steel and Titanium | | Packed Chemical Scrubber (10-20-2000) | | | High Efficiency Mist Eliminator (10-20-2000) | |

1) At the date of the last revision for this category, there was no Achieved In Practice BACT Determination for this subcategory. Technologically Feasible options listed in historic SCAQMD BACT Guidelines for this subcategory require cost effective analyses before they can be listed in these current Guidelines.

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Chip Dryer

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Afterburner (≥ 0.3 Sec. Retention Time at ≥ 1400°F) (10-20-2000) | Natural Gas with Low NOx Burner (10-20-2000) | Natural Gas (1989) | | Natural Gas with:<br>- Baghouse and Limestone Filter Coating; or<br>- Baghouse and Afterburner (≥ 0.3 Sec. Retention Time at ≥ 1400°F)<br>(1989) | |

Note: This equipment may also subject to 40 CFR 63, Subpart RRR – National Emission Standards for Hazardous Air Pollutants for Secondary Aluminum Production

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Chrome Plating

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Decorative Chrome | | | | | Packed Scrubber and Mist Suppressant (1988) Compliance with SCAQMD Rule 1469 (10-20-2000) | |
| Hard Chrome | | | | | Packed Scrubber and Mist Suppressant (1988) Compliance with SCAQMD Rule 1469 (10-20-2000) | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Circuit Board Etcher

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Batch Immersion Type, Subtractive Process | | | | | Packed Water Scrubber and Etchant Solution Temperature Control (10-20-2000) | |
| Conveyorized Spray Type, Subtractive Process | | | | | Packed Water Scrubber and Etchant Solution Temperature Control (1988) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Cleaning Compound Blender

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Baghouse or Wet Centrifugal Collector or Cyclone (07-11-97) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Coffee Roasting

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Roaster, < 110,000 BTU/Hr | | Natural Gas (1988) | Natural Gas (1988) | | Natural Gas (1988) | |
| Roaster, ≥ 110,000 BTU/Hr | Afterburner (0.3 Sec Retention Time at 1200 °F) (1990) | Natural Gas, with Heat Recovery on Afterburner Exhaust to Reduce Fuel Consumption (10-20-2000) | Natural Gas (1990) | | Natural Gas with Cyclone and Afterburner (≥ 0.3 Second Retention Time at ≥ 1200 °F) (1990) | |
| Handling Equipment, < 1,590 Lbs/Hr All[1] | | | | | | |
| Handling Equipment, ≥ 1,590 Lbs/Hr All | | | | | Cyclone (1990) | |

1) At the date of the last revision for this category, there was no Achieved In Practice BACT Determination for this subcategory. Technologically Feasible options listed in historic SCAQMD BACT Guidelines for this subcategory require cost effective analyses before they can be listed in these current Guidelines.

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

Equipment or Process: Composting

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic (Ammonia)** |
| Co-composting[a)] | Compliance with SCAQMD Rule 1133.2[b)] (12-5-2003) | | | | | Compliance with SCAQMD Rule 1133.2[b)] (12-5-2003) |

a) Co-composting is composting where biosolids and/or manure are mixed with bulking agents to produce compost.

b) Not required for design capacity <1,000 tons per year.

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Concrete Batch Plant

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Central Mixed, < 5 Cubic Yards/Batch | | | | | Water Spray (1988) | |
| Central Mixed, ≥ 5 Cubic Yards/Batch | | | | | Baghouse for Cement Handling and Adequate Moisture in Aggregate (1988) | |
| Transit-Mixed | | | | | Baghouse Venting the Cement Weigh Hopper and the Mixer Truck Loading Station; and Adequate Aggregate Moisture (07-11-97) | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

Equipment or Process: Concrete Blocks and Forms Manufacturing

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Baghouse (1988) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Cotton Gin

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Rotary Drum Filter and Cyclone (1988) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Crematory

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Secondary Combustion Chamber, ≥ 1500 °F (1990) | Natural Gas (1990) | Natural Gas (1990) | | Natural Gas with Secondary Combustion Chamber, ≥ 1500 °F (1990) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Degreaser – Other

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC/ODC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Batch-Loaded or Conveyorized Cold Cleaners | Use of solvents containing 50 grams of VOC or less per liter of material (12-12-97) | | | | | |
| Film Cleaning Machine | Carbon Adsorber (10-20-2000) | | | | | |
| Solvent Spraying[1)], 1,1,1 Trichloroethane | Carbon Adsorber (1990) and Compliance with 40 CFR 63, Subpart T – National Emission Standards for Halogenated Solvent Cleaning (10-20-2000) | | | | | |
| Solvent Spraying[1)], Other VOCs | Compliance with SCAQMD Rule 1171 (10-20-2000) | | | | | |

Note: Use of certain halogenated solvents is also subject to 40 CFR 63, Subpart T – National Emission Standards for Halogenated Solvent Cleaning

1) This subcategory includes solvent spray booths and remote reservoir cleaners.

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Degreaser –Vapor Cleaning, Volatile Organic Compounds

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Batch | Tier 1: Use of an automatically operated airtight or airless cleaning system that emits no more than [4.3 x $V^{0.6}$] lb/month of VOCs, where V is the cleaning chamber volume in cubic feet. Use of alternative equipment is allowed provided such equipment is subject to the same emissions limitation (lb/month of VOCs) as calculated above.<br><br>Tier 2: Use of equipment that does not exceed [22 x A] lb/month of VOCs, where A is the solvent surface area in square feet, provided it is technically infeasible to use Tier 1 equipment because of part deformation, inherent part pressure, part type or geometry, soil type or amount, cleanliness sensitivity, or other reasons.<br>(4-10-98) | | | | | |
| Conveyorized | Use of a conveyorized vapor degreaser that does not exceed [17 x A] lb/month of VOCs, where, A is the solvent surface area in square feet<br>(04-10-98) | | | | | |

Notes:

1. Use of certain halogenated solvents is also subject to 40 CFR 63, Subpart T – National Emission Standards for Halogenated Solvent Cleaning
2. Use of VOCs not subject to the above-described NESHAP is also subject to SCAQMD Rule 1122.
3. Any permit applicant may demonstrate that the Tier 1 BACT may not be technologically feasible for the applicant's permit unit. For batch-loaded vapor degreasing equipment, SCAQMD will consider the following three factors taken together as a whole, as well as any other technical factors presented by the applicant: a) Part Type and Geometry – In that different parts and part geometries lend themselves to different cleaning methods that may be acceptable to achieve proper cleanliness, SCAQMD will consider information presented by the applicant regarding the type and geometry of the part(s) proposed to be cleaned in determining what cleaning technologies are available for the part(s) in questions; b) Soil Type and Amount – In that different types and quantities of soils being cleaned from parts lend themselves to different cleaning methods, SCAQMD will consider information presented by the applicant regarding the soil type and soil quantity of the part(s) proposed to be cleaned in determining what cleaning technologies are available for the part(s) in question; c) Cleanliness Sensitivity – In that (i) different parts have different levels of sensitivity to cleanliness (e.g., medical and high technology device parts may need to achieve an extremely high level of cleanliness, whereas standard plumbing supplies may tolerate a lower level of cleanliness), and (ii) the integrity of certain parts may be compromised by exposure to the reduced pressure environment of airless cleaning systems; SCAQMD will consider information presented by the applicant regarding the cleanliness sensitivity of the part(s) proposed to be cleaned in determining what cleaning technologies are available for the part(s) in question.

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Detergent Manufacturing

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Solids Handling | | | | | Cyclone and Baghouse (07-11-97) | |
| Spray Dryer | | Natural Gas with Low-NOx Burner (1988) | Natural Gas (1988) | | Natural Gas with:<br>- Cyclone and Baghouse; or<br>- Cyclone, Scrubber and Electrostatic Precipitator<br>(1988) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Drum Reclamation Furnace

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Afterburner (≥ 0.3 Sec. Retention time at ≥ 1400 °F) (1990) | Natural Gas (1990) | Natural Gas (1990) | | Natural Gas with After-burner (> 0.3 Sec. Retention Time at ≥ 1400 °F) and Baghouse (1990) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
7-9-2004 Rev. 1

Equipment or Process: Dry Cleaning

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC/ODC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Perchloroethylene | Delisted as a VOC. See SCAQMD Rule 1421 – Control of Perchloroethylene Dry Cleaning Operations[1] (06-13-97) | | | | | |
| Petroleum Solvent[2] | Closed Loop, Dry-to-Dry Machine with a Refrigerated Condenser (10-20-2000) or Evaporatively Cooled Condenser (7-9-2004) | | | | | |

[1] Rule 1421 implements the federal National Emission Standard for Hazardous Air Pollutant for Perchloroethylene Dry Cleaning Facilities (40 Code of Federal Regulations [CFR] 63.320, *et seq*) and the state Airborne Toxic Control Measure (ATCM) for Emissions of Perchloroethylene from Dry Cleaning Operations (17 California of Regulation [CCR] 93109, *et seq*).

[2] This Equipment may also be subject to AQMD Rule 1102 – Dry Cleaners Using Solvent Other Than Perchloroethylene.

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Dryer – Kiln

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | Natural Gas with Low NOx Burner (10-20-2000) | Natural Gas (1988) | | Natural Gas (1988) | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Dryer or Oven

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Carpet Oven | | 80 ppmvd, corrected to 3% $O_2$ (10-20-2000) | Natural Gas (1990) | | Natural Gas (1990) | |
| Rotary, Spray and Flash Dryers[1)] | | Natural Gas with Low NOx Burner (10-20-2000) | Natural Gas (1990) | | Natural Gas with Baghouse (1990) | |
| Tray, Agitated Pan, and Rotary Vacuum Dryers | | Natural Gas with Low NOx Burner (10-20-2000) | Natural Gas (1990) | | Natural Gas (1990) | |
| Tenter Frame Fabric Dryer | | 60 ppmvd Corrected to 3% $O_2$~~02~~ (10-20-2000) | Natural Gas (10-20-2000) | | Natural Gas (10-20-2000) | |
| Other Dryers and Ovens – Direct and Indirect Fired | | 30 ppmvd corrected to 3% $O_2$~~02~~ (04-10-98) | Natural Gas (10-20-2000) | | Natural Gas (10-20-2000) | |

1. Dryers for foodstuff, pharmaceuticals, aggregate & chemicals.

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

Equipment or Process: Electric Furnace – Pyrolyzing, Carbonizing and Graphitizing

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Afterburner (≥ 0.3 Sec. Retention Time at ≥ 1400 °F) (1988) | | | | | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Electrical Wire Reclamation – Insulation Burn-Off Furnace

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Afterburner (≥ 0.3 Second Retention Time at ≥ 1400 °F); Or Secondary Combustion Chamber (≥ 0.3 Second Retention Time at ≥ 1400 °F) (1988) | Natural Gas (1988) | Natural Gas (1988) | | Natural Gas with Baghouse and:<br>- Afterburner ((≥ 0.3 Second Retention Time at ≥ 1400 °F) or<br>- Secondary Combustion Chamber (≥ 0.3 Second Retention Time at ≥ 1400 °F)<br>(1988) | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Ethylene Oxide Sterilization

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Aeration | Recirculation Vacuum Pump-Seal Fluid with Fluid Reservoir Vented to: Chemical Scrubber; or Afterburner (≥ 0.3 second retention time at ≥ 1,400°F); or Catalytic Afterburner (at ≥ 280°F) (07-11-97) | | | | | |
| Quarantine Storage | Unvented Enclosure with Internal Circulation Through Activated Carbon Impregnated with Sulfuric Acid (1989) | | | | | |

Note: Ethylene Oxide Sterilization may also be Subject to 40 CFR 63, Subpart O – Emission Standards for Ethylene Oxide Sterilization Facilities.

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Expanded Polystyrene Manufacturing Using Blowing Agent

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | For VOC Emissions: Incineration (≥ 0.3 Sec. Retention Time at ≥ 1400 °F) (1990) | | | | | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Fatty Acid – Fat Hydrolyzing and Fractionation

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Condenser or Afterburner (≥ 0.3 Sec. Retention Time at ≥ 1300 °F) (10-20-2000) | | | | | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Fatty Alcohol

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Afterburner (≥ 0.3 second retention time at ≥ 1,400°F) (07-11-97) | | | | | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Fermentation, Beer and Wine

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All Closed Systems | Carbon Adsorber (10-20-2000) | | | | | |
| All Open Systems | Scrubber with Approved Liquid Waste Disposal (10-20-2000) | | | | | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Fiberglass Operations

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Fabrication – Hand and Spray Layup | Compliance with SCAQMD Rule 1162 (10-20-2000) | | | | Airless Spray Equipment and Spray Booth with Mesh Type Filter (1988) | |
| Panel Manufacturing | Curing Oven, Impregnation Tables and Mixing Tanks Vented to an Afterburner (≥ 0.3 Sec. Retention Time at ≥ 1400 °F). Storage and Holding Tanks Vented to a Carbon Adsorber (1988) | Natural Gas Fired Curing Oven, Electrically Heated Cellophane Oven and Laminating Table (1988) | Natural Gas (10-20-2000) | | Natural Gas Fired Curing Ovens, Cellophane Ovens Vented to an Electrostatic Precipitator and Panel Cutting Saw Vented to Baghouse (1988) | |
| Pultrusion | Styrene Suppressed Resin (1988), and Compliance with SCAQMD Rule 1162 (10-20-2000) | | | | | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Fish Reduction

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Cooker | Scrubber with Chlorinated Solution (≤ 20 ppmv $Cl^-$ Outlet Conc., ≥ 0.6 Sec. Retention Time and ≤ 200 °F Outlet Temp.) (1988) | | | | | |
| Digestor, Evaporator and Acidulation Tank | Afterburner (≥ 0.3 Sec. Retention Time at ≥ 1200 °F) (1990) | | | | Natural Gas with Afterburner (≥ 0.3 Sec. Retention Time at ≥ 1200 °F) (1990) | |
| Dryer | Scrubber with Chlorinated Solution (≤ 20 ppmv $Cl^-$ Outlet Conc., ≥ 0.6 Sec. Retention Time and ≤ 200 °F Outlet Temp.) (1990) | | | | Natural Gas and Scrubber with Chlorinated Solution (≤ 20 ppmv $Cl^-$ Outlet Conc., ≥ 0.6 Sec. Retention Time and ≤ 200 °F Outlet Temp.) (1990) | |
| Meal Handling[1] | | | | | | |
| Rendering – Presses, Centrifuges, Separators, Tanks, Etc. | Water Condenser and Vent to Dryer Firebox (1988) | | | | | |

1) At the date of the last revision for this category, there was no Achieved In Practice BACT Determination for this subcategory. Technologically Feasible options listed in historic SCAQMD BACT Guidelines for this subcategory require cost effective analyses before they can be listed in these current Guidelines.

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Flare

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Digestor Gas or Landfill Gas from Non-Hazardous Waste Landfill | Ground Level, Shrouded, ≥ 0.6 Sec. Retention Time at ≥ 1400 °F, Auto Combustion Air Control, Automatic Shutoff Gas Valve and Automatic Re-Start System (1988) | 0.06 lbs/MM Btu (1988) | | Ground Level, Shrouded, ≥ 0.6 Sec. Retention Time at ≥ 1400 °F, and Auto Combustion Air Control (1988) | Knockout Vessel (1988) | |
| Landfill Gas from Hazardous Waste Landfill | Ground Level, Shrouded, ≥ 0.6 Sec. Retention Time at ≥ 1500 °F, Auto Combustion Air Control, Automatic Shutoff Gas Valve and Automatic Re-Start System (1988) | 0.06 lbs/MM Btu (1988) | | Ground Level, Shrouded, ≥ 0.6 Sec. Retention Time at ≥ 1500 °F, and Auto Combustion Air Control (1988) | Knockout Vessel (1988) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Flow Coater, Dip Tank and Roller Coater

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| < 36 lbs/day VOC | Compliance with Regulation XI (10-20-2000) | | | | | |
| ≥ 36 lbs/day VOC | Coating with Lower VOC Content than Required by Applicable Rules, and Emissions from Coating Area, Flash Off Area, Drying Area , and Oven Vented to Control Device Achieving ≥ 90% Overall Efficiency (1988)<br><br>Or Super ~~Clean~~ Compliant Materials with ≤ 5% VOC by Weight (10-20-2000) | | | | | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Foundry Sand Mold – Cold Cure Process

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | Packed Column Scrubber with pH of Solution Maintained at a Minimum of 8.0 (1988) | | | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Fryer – Deep Fat

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| < 2 MM Btu/hr | Integrated Afterburner/Oil Heater (≥ 0.3 Sec. Retention Time at ≥ 1400 °F) (10-20-2000) | Natural Gas (1990) | Natural Gas (1990) | | Integrated Afterburner/Oil Heater (≥ 0.3 Sec. Retention Time at ≥ 1400 °F) (10-20-2000) | |
| ≥ 2 MM Btu/hr | Integrated Afterburner/Oil Heater (≥ 0.3 Sec. Retention Time at ≥ 1400 °F) (10-20-2000) | Natural Gas (1990) | Natural Gas (1990) | | Integrated Afterburner/Oil Heater (≥ 0.3 Sec. Retention Time at ≥ 1400 °F), and Electrostatic Precipitator or High Efficiency Mist Eliminator (10-20-2000) | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
12-5-2003 Rev. 1

Equipment or Process: Fugitive Emission Sources at Natural Gas Plants and Oil and Gas Production Fields

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **PM10** | **Inorganic** |
| Compressors, Centrifugal Type | Seal System with a Higher Pressure Barrier Fluid (04-10-98); and Compliance with SCAQMD Rule 1173 (12-5-2003) | | | | | |
| Compressors, Rotary Type | Enclosed Seal System Connected to Closed Vent System (04-10-98); and Compliance with SCAQMD Rule 1173 | | | | | |
| Pressure Relief Valves | Connected to Closed Vent System or Equipped with Rupture Disc if Applicable (4-10-98); and Compliance with SCAQMD Rule 1173 (12-5-2003) | | | | | |
| Pumps – In Heavy Liquid Service | Single Mechanical (4-10-1998); and Compliance with SCAQMD Rule 1173 (12-5-2003) | | | | | |
| Pumps – In Light Liquid Service | Sealless Type if Available and Compatible; or Double or Tandem Seals, and Vented to Closed Vent System (4-10-98); and Compliance with SCAQMD Rule 1173 (12-5-2003) | | | | | |
| Sampling Connections | Closed-Purge, Closed-Loop, or Closed-Vent System (4-10-98); and Compliance with SCAQMD Rule 1173 (12-5-2003) | | | | | |
| Valves, Fittings, Diaphragms, Hatches, Sight-Glasses, Open-Ended Pipes and Meters in VOC Service | Compliance with SCAQMD Rule 1173 (12-5-2003) | | | | | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
12-5-2003 Rev. 1

Equipment or Process: Fugitive Emission Sources at Organic Liquid Bulk Loading Facilities

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **PM10** | **Inorganic** |
| Compressors, Centrifugal Type | Seal System with a Higher Pressure Barrier Fluid; < 500 ppmv by USEPA Method 21 with Quarterly I&M Program[1)] (04-10-98) | | | | | |
| Compressors, Rotary Type | Enclosed Seal System Connected to Closed Vent System; < 500 ppmv by USEPA Method 21 with Quarterly I&M Program[1)] (04-10-98) | | | | | |
| Connectors[2)] in Gas, Vapor or Light Liquid VOC Service | < 500 ppmv by USEPA Method 21 with Quarterly I&M Program[1)] (04-10-98) | | | | | |
| Open Ended Valves and Pipes | Compliance with SCAQMD Rule 1173 where Applicable (10-20-2000) | | | | | |
| Pressure Relief Valves | Connected to Closed Vent System or Equipped with Rupture Disc if Applicable (4-10-98); and Compliance with SCAQMD Rule 1173 (10-20-2000) | | | | | |
| Process Valves – Gate, Globe and Ball | Compliance with SCAQMD Rule 1173, where Applicable (10-20-2000) | | | | | |
| Pumps – In Heavy Liquid Service | Single Mechanical; < 1000 ppmv by USEPA Method 21 with Quarterly I&M (4-10-1998) | | | | | |
| Pumps – In Light Liquid Service | 1. Sealless Type if Available and Compatible, or<br>2. Double or Tandem Seals and Vented to Closed Vent System; < 1000 ppmv by USEPA Method 21 with Approved SCAQMD I&M; <1000 ppmv by USEPA Method 21 with Approved SCAQMD I&M (4-10-98) | | | | | |
| Sampling Connections | Closed-Purge, Closed-Loop, or Closed-Vent System (4-10-98) | | | | | |

1) Quarterly I&M shall be consistent with SCAQMD Rule 1173 and other applicable requirements except that leaks between 500 and 1000 ppmv must be repaired within 14 days after detection.
2) Connectors include flanges, screwed or other joined fittings

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

Equipment or Process: Fugitive Emission Sources, Other Facilities

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **PM10** | **Inorganic** |
| Compressors, Fittings, Open Ended Pipes, Pressure Relief Devices, , Valves, Pumps, Sampling Connections, Diaphragms, Hatches, Sight-Glasses and Meters in VOC Service | Compliance with Rule 1173, where Applicable by Rule (12-5-2003) | | | | | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Galvanizing Furnace

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Batch Operations | | Natural Gas with Low NOx Burner (10-20-2000) | Natural Gas (1988) | | Natural Gas with Baghouse with Lime Coating (1988) | |
| Continuous Sheet Metal Operations | | Natural Gas with Low NOx Burner (10-20-2000) | Natural Gas (1988) | | Natural Gas with Packed Column Scrubber Serving the Caustic, Acid Pickling Tanks and/or Metal Preparation Tanks (1988, 2000) | |
| Continuous Wire Operations | | Natural Gas with Low NOx Burner (10-20-2000) | Natural Gas (1988) | | Natural Gas with Noncombustible Covering on Molten Metal Surface, Baghouse, and Packed Column Scrubber Serving the Metal Preparation Tanks (1988, 2000) | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Garnetting Equipment

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Baghouse or Rotary Drum Filter (1988) | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
12-3-2004 Rev. 1

Equipment or Process: Gas Turbine

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Natural Gas Fired, < 3 MWe | | 9 ppmvd @ 15% $O_2$ (10-20-2000) | | 10 ppmvd @ 15% $O_2$ (10-20-2000) | | 9 ppmvd ammonia @ 15% $O_2$ (10-20-2000) |
| Natural Gas Fired, ≥ 3 MWe and < 50 MWe | | 2.5 ppmvd @ 15% $O_2$ x efficiency (%)[1)] / 34% (6-12-98) | | 10 ppmvd @ 15% $O_2$ (6-12-98) | | 5.0 ppmvd ammonia @ 15% $O_2$ (10-20-2000) |
| Natural Gas Fired, ≥ 50 MWe | 2.0 ppmvd (as methane) @ 15% $O_2$, 1-hour avg. OR 0.0027 lbs/MMBtu (higher heating value) (10-20-2000) | 2.5 ppmvd @ 15% $O_2$, 1-hour rolling avg. OR 2.0 ppmvd @ 15 %$O_2$, 3-hour rolling avg. x efficiency (%)[1)] / 34% (10-20-2000) | | 6.0 ppmvd @ 15% $O_2$, 3-hour rolling avg. (10-20-2000) | | 5.0 ppmvd ammonia @ 15% $O_2$ (10-20-2000) |
| Emergency | | See Clean Fuels Policy in Part C of the BACT Guidelines (10-20-2000) | See Clean Fuels Policy in Part C of the BACT Guidelines (10-20-2000) | | See Clean Fuels Policy in Part C of the BACT Guidelines (10-20-2000) | |
| Landfill or Digester Gas Fired | | 25 ppmv, dry, corrected to 15 %$O_2$ (1990) | Compliance with Rule 431.1 (10-20-2000) | 130 ppmv, dry, corrected to 15 %$O_2$ (10-20-2000) | Fuel Gas Treatment for Particulate Removal (1990) | |

Notes: 1) The turbine efficiency correction for NOx is limited to 1.0 as a minimum. The turbine efficiency is the demonstrated percent efficiency at full load (corrected to the higher heating value of the fuel) without consideration of any downstream heat recovery (12-3-2004).

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

Equipment or Process: Glass Melting Furnace

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Decorator Glass | | Natural Gas with Low NOx Burner (10-20-2000); Cullet in Raw Material Charged > 80% (1988) | | | Baghouse (10-20-2000) | |
| Flat Glass | | Natural Gas with Heating Modifications:<br>- Excess Oxygen in Ports < 5%<br>- Cullet in Raw Material Charged > 15%<br>- Hot Spot Temperature < 2,700 °F<br>(1988) | Process Modification: Sulfur Content of Batch Charged < 0.25% by Weight of Total Batch (1988) | | Baghouse (10-20-2000) | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Incinerator – Hazardous Waste

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Automatic Combustion Air Control, ≥ 2 Sec. Retention Time and ≥ 1800 °F (1988) | Natural Gas Supplemental Fuel with Selective Non-catalytic Reduction (1988) | Natural Gas Supplemental Fuel and Spray Dryer with Lime Injection (1988) | Automatic Combustion Air Control, ≥ 2 Sec. Retention Time and ≥ 1800 °F (1988) | 0.002 gr/dscf at 12% $CO_2$ (1988) | |

Note: The equipment may also be subject to 40 CFR 264, Subpart O--Incinerators

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Incinerator – Infectious Waste

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| ≤ 300 lbs/hr | Multiple Chamber Starved Air Design (≥ 0.5 Sec. Retention Time at ≥ 1800 °F) (1988) | Natural Gas as Auxiliary Fuel (1988) | Natural Gas as Auxiliary Fuel with Wet Scrubber (1988) | Multiple Chamber Starved Air Design (≥ 0.5 Sec. Retention Time at ≥ 1800 °F) (1988) | | |
| > 300 lbs/hr | Same as Above | Same as Above | Same as Above | Same as Above | 0.04 gr/dscf Corrected to 12% $CO_2$, with Enclosed Automatic Feed and Ash Removal System (1988) | |

Note: The equipment may also be subject to 40 CFR 60, Subpart Ec--Standards of Performance for Hospital/Medical/Infectious Waste Incinerators for Which Construction Is Commenced After June 20, 1996

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
7-9-2004 Rev. 1

Equipment or Process: Incinerator – Non-Infectious, Non-Hazardous Waste

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| ≤ 300 lbs/hr | Multiple Chamber Starved Air Design (≥ 0.5 Sec. Retention Time at ≥ 1600 °F} (1988) | Natural Gas as Auxiliary Fuel (1988) | Natural Gas as Auxiliary Fuel with Wet Scrubber (1988) | Multiple Chamber Starved Air Design (≥ 0.5 Sec. Retention Time at ≥ 1600 °F) (1988) | Natural Gas as Auxiliary Fuel with Enclosed Automatic Feed and Flyash Removal System (1988) | |
| > 300 lbs/hr and < 750 lbs/hr | Same as Above | Same as Above | Same as Above | Same as Above | 0.04 gr/dscf Corrected to 12% $CO_2$, with Enclosed Automatic Feed and Ash Removal System (1988) | |
| ≥ 750 lbs/hr | Multiple Chamber Starved Air Design (≥ 0.5 Sec. Retention Time at ≥ 1800 °F) (1988) | Same as Above | Same as Above | Multiple Chamber Starved Air Design (≥ 0.5 Sec. Retention Time at ≥ 1800 °F) (1988) | Same as Above | |

Note: The equipment may also be subject to 40 CFR 60, Subpart CCCC--Standards of Performance for New Stationary Sources: Commercial and Industrial Solid Waste Incineration Units.

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
7-14-2006 Rev. 1
X-XX-2016 Rev. 2

Equipment or Process: I.C. Engine, Portable [1]

| | | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|---|
| **Subcategory~~/~~** | **Rating/Size** | **VOC** | **NOx** | **NOx + ~~NMHC[1]~~NMHC[2]~~)~~** | **SOx** | **CO** | **PM** |
| Compression-~~Ignition[2]~~Ignition[3]~~)~~ | 50 ≤ HP < 75~~100~~ | | | ~~Tier 2:~~<br>~~7.5 grams/kW-hr~~<br>~~(5.6 grams/bhp-hr)~~<br>Tier 4 Final: ~~3 (After 12/31/2007):~~<br>4.7 grams/kW-hr<br>(3.5 grams/bhp-hr)<br>(~~7~~X-~~14~~XX-~~2006~~20XX) | Diesel fuel with a sulfur content no greater than 0.0015% by weight (Rule 431.2). (6-6-2003) | Tier 4 Final~~2 or Tier 3~~:<br>5.0 grams/kW-hr<br>(3.7 grams/bhp-hr)<br>(~~7~~X-~~14~~XX-~~2006~~20XX) | Tier 4 Final~~2 or Tier 3~~:<br>0.03 ~~0.40~~ grams/kW-hr<br>(0.02~~2~~ ~~0.30~~ grams/bhp-hr)<br>and CARB ATCM for portable diesel ~~engines[3]~~engines[4]~~)~~<br>(~~7~~X-~~14~~XX-~~2006~~20XX) |
| | 75~~100~~ ≤ HP < 175 [5] | | Tier 4 ~~Final~~Interim:<br>~~0~~3.4 grams/kW-hr<br>(~~0.3~~2.5 grams/bhp-hr)<br>(X-XX-20XX) | Tier 4 ~~Final~~Interim~~2~~:<br>NMHC only:<br>0.19 ~~6.6~~ grams/kW-hr<br>~~———~~(0.16 ~~4.9~~ grams/bhp-hr)<br>~~Tier 3 (After 12-31-2006):~~<br>~~(X-XX-20XX)NOx:~~<br>~~0.44.0 grams/kW-hr~~<br>~~(0.33.0 grams/bhp-hr)~~<br>~~(7-14-2006)~~ | | Tier 4 ~~Final~~Interim~~2 or Tier 3~~:<br>5.0 grams/kW-hr<br>(3.7 grams/bhp-hr)<br>(~~7~~X-~~14~~XX-~~2006~~20XX) | Tier 4 ~~Final~~Interim~~2 or Tier 3~~:<br>0.02 ~~0.30~~ grams/kW-hr<br>(~~0.22~~0.01~~5~~ grams/bhp-hr)<br>and CARB ATCM for portable diesel ~~engines[3]~~engines[4]~~)~~<br>(~~7~~X-~~14~~XX-~~2006~~20XX) |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

| | | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|---|
| **Subcategory~~/~~** | **Rating/Size** | **VOC** | **NOx** | **NOx + ~~NMHC[1]~~NMHC[2]~~)~~** | **SOx** | **CO** | **PM** |
| | 175 ≤ HP < 750 | | Tier 4 Final: 0.40 grams/kW-hr (0.30 grams/bhp-hr) (X-XX-20XX) | Tier ~~-~~4 Final~~3~~: NMHC only: 0.19 ~~4.0~~ grams/kW-hr (0.16 ~~3.0~~ grams/bhp-hr)~~:~~ (X-XX-20XX)~~NOx: 0.4grams/kW-hr (0.3grams/bhp-hr) (7-14-2006)~~ | | Tier 4 Final~~3~~: 3.5 grams/kW-hr (2.6 grams/bhp-hr) (X-XX-20XX) ~~(7-14-2006)~~ | Tier ~~-~~4 Final~~3~~: 0.02~~-0.20~~ grams/kW-hr (0.01~~5~~ ~~0.15~~ grams/bhp-hr) and CARB ATCM for portable diesel ~~engines[3]~~engines[4]~~)~~ (X-XX-20XX) ~~(7-14-2006)~~ |

(Continued on Next Page)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Compression-Ignition[23] | ≥750 HP [5]~~All~~ | ~~1.5 grams/bhp-hr, or 240 ppmvd as methane @ 15% O2 (4-10-1998)~~ | Tier 4 ~~Final~~Interim: **For Generator Sets > 1200 HP:** 0.67 grams/kW-hr (0.50 grams/bhp-hr)<br><br>**For All Engines Except "Generator Ssets > 1200 HP":** 3.5 grams/kW-hr (2.6 grams/bhp-hr) (X-XX-20XX)~~1.5 grams/bhp-hr, or 80 ppmvd @ 15% O2 (4-10-1998)~~ | Tier 4 ~~Final~~Interim: NMHC only: 0.~~19~~4 grams/kW-hr (0.~~16~~30 grams/bhp-hr) (X-XX-20XX) | Diesel fuel with a sulfur content no greater than 0.0015% by weight (Rule 431.2). (6-6-2003) | Tier 4 ~~Final~~Interim: 3.5 grams/kW-hr (2.6 grams/bhp-hr) (X-XX-20XX)~~2.0 grams/bhp-hr, or 176 ppmvd @ 15% O2 (4-10-1998)~~ | Tier 4 ~~Final~~Interim: ~~**For Generator Sets:**~~ 0.~~03~~10 grams/kW-hr (0.0~~22~~7 grams/bhp-hr)<br><br>~~**For All Engines Except Gensets:** 0.04 grams/kW-hr (0.03 grams/bhp-hr)~~ and CARB ATCM for portable diesel engines[34] (X-XX-20XX) |
| Spark Ignition | All | 1.5 grams/bhp-hr, or 240 ppmvd | 1.5 grams/bhp-hr, or 80 ppmvd | | | 2.0 grams/bhp-hr, or 176 ppmvd | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

| | | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|---|
| **Subcategory~~/~~** | **Rating/Size** | **VOC** | **NOx** | **NOx + ~~NMHC[1]~~NMHC[2]~~)~~** | **SOx** | **CO** | **PM** |
| | | as methane @ 15% O2 (4-10-1998) | @ 15% O2 (4-10-1998) | | | @ 15% O2 (4-10-1998) | |

Notes:

1) BACT for "I.C. Engine, Portable" is determined by deemed complete date of permit application not date of manufacture or installation.

~~1)~~2) NMHC + NOx- means the sum of non-methane hydrocarbons and oxides of nitrogen emissions, unless specified as "NMHC only", which only includes NMHC emissions.

~~2)~~3) ~~Limits with an associated "after" date are required for an engine for which the application is deemed complete after that date. Limits without an associated "after" date are required now.~~ The engine must be certified by U.S. EPA or CARB to meet the Tier ~~2 or 3~~4 emission requirements of 40 CFR Part 89 – Control of Emissions from New and In-use Nonroad Compression-Ignition Engines shown in the table– or otherwise demonstrate that it meets the Tier ~~2 or 3~~4 emission limits. If, because of the averaging, banking, and trading program, there is no new engine from any manufacturer that meets the above standards, then the engine must meet the family emission limits established by the manufacturer and approved by U.S. EPA. Based on the model year, t~~T~~he CARB Airborne Toxic Control Measure (ATCM) for Portable Diesel Engines (see ~~http://~~www.arb.ca.gov/diesel/peatcm/peatcm.htm) requires in-use portable diesel engines to be certified to Tier 1, 2, 3 or ~~3~~ 4 by ~~1/1/2010~~their respective deadlines, all of which have passed. All exceptions allowed in the ATCM are also allowed in this guideline.

~~3)~~ The CARB ATCM also requires in-use portable diesel engines to meet fleet-average PM standards beginning 1/1/2013. The PM limits in the table apply only to filterable PM.

4)

5) CARB has extended the Tier 4 Final requirements deadline "until further notice" for Portable, Compression-Ignition Engines for 75 ≤ HP < 175 and HP ≥ 750.

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
6-6-2003 Rev. 1
12-3-2004 Rev. 2
7-14-2006 Rev. 3
10-3-2008 Rev. 4
XX-XX-2016 Rev. 5

Equipment or Process: I.C. Engine, Stationary, Emergency [1]~~)~~

| | | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|---|
| **Subcategory** | **Rating/Size** | **NMHC or VOC** | **NOx** | **NOx + NMHC[2]** | **SOx** | **CO** | **PM** |
| Compression Ignition, Fire Pump [3, 4~~, 7~~] | 50 ≤ HP < 100 | | | Compliance with SCAQMD Rule 1470 (XX-XX-2015) ~~Tier 2: 7.5 grams/kW-hr (5.6 grams/bhp-hr)~~ Tier 3~~ (After 12/31/2010)~~: 4.7 grams/kW-hr (3.5 grams/bhp-hr) (10-03-2008) | Diesel fuel ~~sulfur content ≤ 0.05% by weight (4-10-98) On or after June 1, 2004 the user may only purchase diesel fuel~~ with a sulfur content no greater than 0.0015% by weight (SCAQMD Rule 431.2). (6-6-2003) | Compliance with SCAQMD Rule 1470 (XX-XX-2015) Tier 2 or Tier 3: 5.0 grams/kW-hr (3.7 grams/bhp-hr) (10-03-2008) | Compliance with SCAQMD Rule 1470 (12-3-2004) Tier 2 or Tier 3: 0.40 grams/kW-hr (0.30 grams/bhp-hr) (10-03-2008) |
| | 100 ≤ HP < 175 | | | Compliance with SCAQMD Rule 1470 (XX-XX-2015) ~~Tier 2: 6.6 grams/kW-hr (4.9 grams/bhp-hr)~~ Tier 3~~ (After 12/31/2009)~~: 4.0 grams/kW-hr (3.0 grams/bhp-hr) | | Compliance with SCAQMD Rule 1470 (XX-XX-2015) Tier 2 or Tier 3: 5.0 grams/kW-hr (3.7 grams/bhp-hr) (10-03-2008) | Compliance with SCAQMD Rule 1470 (12-3-2004) Tier 2 or Tier 3: 0.30 grams/kW-hr (0.22 grams/bhp-hr) (10-03-2008) |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

| | | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|---|
| **Subcategory** | **Rating/Size** | **NMHC or VOC** | **NOx** | **NOx + NMHC[2]** | **SOx** | **CO** | **PM** |
| | | | | (10-03-2008) | | | |
| | | | | (Continued on next page) | | | |
| Compression Ignition, Fire Pump [3, 4] (continued) | 175 ≤ HP < 750 | | | Compliance with SCAQMD Rule 1470 (XX-XX-2015) ~~Tier 2: 6.6 grams/kW-hr (4.9 grams/bhp-hr)~~ Tier 3 ~~(After 12/31/2009)~~: 4.0 grams/kW-hr (3.0 grams/bhp-hr): (10-03-2008) | Diesel fuel with a sulfur content no greater than 0.0015% by weight (SCAQMD Rule 431.2). (6-6-2003) | Compliance with SCAQMD Rule 1470 (XX-XX-2015) Tier 2 or Tier 3: 3.5 grams/kW-hr (2.6 grams/bhp-hr) (10-03-2008) | Compliance with SCAQMD Rule 1470 (12-3-2004) Tier 2 or Tier 3: 0.20 grams/kW-hr (0.15 grams/bhp-hr) (10-03-2008) |
| | ≥750 HP | | | Compliance with SCAQMD Rule 1470 (XX-XX-2015) Tier 2: 6.4 grams/kW-hr (4.8 grams/bhp-hr) (10-03-2008) | ~~Same as above~~ | Compliance with SCAQMD Rule 1470 (XX-XX-2015) Tier 2: 3.5 grams/kW-hr (2.6 grams/bhp-hr) (10-03-2008) | Compliance with SCAQMD Rule 1470 (XX-XX-2015) Tier 2: 0.20 grams/kW-hr (0.15 grams/bhp-hr) (10-03-2008) |
| Compression-Ignition, Other[3] ~~,) 4) 7)~~ | 50 ≤ HP < 100 | | | Compliance with SCAQMD Rule 1470 (XX-XX-2015) Tier 3: 4.7 grams/kW-hr (3.5 grams/bhp-hr) (10-03-2008) | ~~Same as above~~ | Compliance with SCAQMD Rule 1470 (XX-XX-2015) Tier 3: 5.0 grams/kW-hr (3.7 grams/bhp- | Compliance with SCAQMD Rule 1470 (12-3-2004) Tier 3: 0.20 ~~0.40~~ grams/kW-hr |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

| | | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|---|
| **Subcategory** | **Rating/Size** | **NMHC or VOC** | **NOx** | **NOx + NMHC[2]** | **SOx** | **CO** | **PM** |
| | | | | | | hr)<br>(10-03-2008) | (~~-~~0.15 ~~0.30~~ grams/bhp-hr)<br>(10-03-2008) |

(Continued on next page)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Compression-Ignition, Other[3, 4~~,~~ ~~7~~]<br><br>(continued) | 100 ≤ HP < 175 | | | Compliance with SCAQMD Rule 1470 (XX-XX-2015)<br><br>Tier 3:<br>4.0 grams/kW-hr<br>(3.0 grams/bhp-hr)<br>(10-03-2008) | Diesel fuel with a sulfur content no greater than 0.0015% by weight (Rule 431.2).<br>(6-6-2003) | Compliance with SCAQMD Rule 1470 (XX-XX-2015)<br><br>Tier 3:<br>5.0 grams/kW-hr<br>(3.7 grams/bhp-hr)<br>(10-03-2008) | Compliance with SCAQMD Rule 1470<br>(12-3-2004)<br><br>Tier 3:<br>0.30 grams/kW-hr<br>(0.22 grams/bhp-hr)<br>(10-03-2008) |
| | 175≤ HP < 300 | | | Compliance with SCAQMD Rule 1470 (XX-XX-2015)<br><br>Tier 3:<br>4.0 grams/kW-hr<br>(3.0 grams/bhp-hr)<br>(10-03-2008) | | Compliance with SCAQMD Rule 1470 (XX-XX-2015)<br><br>Tier 3:<br>3.5 grams/kW-hr<br>(2.6 grams/bhp-hr)<br>(10-03-2008) | Compliance with SCAQMD Rule 1470<br>(12-3-2004)<br><br>Tier 3:<br>0.20 grams/kW-hr<br>(0.15 grams/bhp-hr)<br>(10-03-2008) |
| | 300≤ HP < 750 | | | Compliance with SCAQMD Rule 1470 (XX-XX-2015)<br><br>Tier 3~~5)~~:<br>4.0 grams/kW-hr | | Compliance with SCAQMD Rule 1470 (XX-XX-2015)<br><br>Tier 3: | Compliance with SCAQMD Rule 1470<br>(12-3-2004)<br><br>Tier 3: |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

| | | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|---|
| **Subcategory** | **Rating/Size** | **NMHC or VOC** | **NOx** | **NOx + NMHC[2]** | **SOx** | **CO** | **PM** |
| | | | | (3.0 grams/bhp-hr) (7-14-2006) | | 3.5 grams/kW-hr (2.6 grams/bhp-hr)(7-14-2006) | 0.20 grams/kW-hr (0.15 grams/bhp-hr) (7-14-2006) |

(Continued on next page)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Compression-Ignition, Other[3, 4] (continued) | ≥750 HP | | | Compliance with SCAQMD Rule 1470 (XX-XX-2015)<br><br>Tier 2:<br>6.4 grams/kW-hr (4.8 grams/bhp-hr) (10-03-2008) | Diesel fuel with a sulfur content no greater than 0.0015% by weight (Rule 431.2). (6-6-2003) | Compliance with SCAQMD Rule 1470 (XX-XX-2015)<br><br>Tier 2:<br>3.5 grams/kW-hr (2.6 grams/bhp-hr) (10-03-2008) | Compliance with SCAQMD Rule 1470 (12-3-2004)<br><br>Tier 2:<br>0.20 grams/kW-hr (0.15 grams/bhp-hr) (10-03-2008) |
| Spark Ignition[5] | < 130 HP | VOC: 1.5 grams/bhp-hr (10-20-2000) | 1.5 grams/bhp-hr (10-20-2000) | | See Clean Fuels Policy in Part C of the BACT Guidelines (10-20-2000) | 2.0 grams/bhp-hr (10-20-2000) | See Clean Fuels Policy in Part C of the BACT Guidelines (10-20-2000) |
| | ≥ 130 HP | VOC: 1.0 grams/bhp-hr (X-XX-2015) ~~VOC: 1.5 grams/bhp-hr (10-20-2000)~~ | 1.5 grams/bhp-hr (10-20-2000) | | See Clean Fuels Policy in Part C of the BACT Guidelines (10-20-2000) | 2.0 grams/bhp-hr (10-20-2000) | See Clean Fuels Policy in Part C of the BACT Guidelines (10-20-2000) |

1) An emergency engine is an engine which operates as a temporary replacement for primary mechanical or electrical power sources during periods of fuel or energy shortage or while a primary power source is under repair. This includes fire pumps, emergency electrical generation and other emergency uses.

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

2) NMHC + NOx means the sum of non-methane hydrocarbons and oxides of nitrogen emissions.

3) SCAQMD restricts operation of emergency compression-ignition engines to 50 hours per year, or less if required by Rule 1470, for maintenance and testing and a maximum of 200 hours per year total operation. For engines used to drive standby generators, operation beyond 50 hours per year for maintenance and testing is allowed only in the event of a loss of grid power or up to 30 minutes prior to a rotating outage provided that the electrical grid operator or electric utility has ordered rotating outages in the control area where the engine is located or has indicated that it expects to issue such an order at a certain time, and the engine is located in a control area that is subject to the rotating outage. ~~A new stationary compression-ignition engine will also be subject to a proposed federal New Source Performance Standard - Title 40, Part 60, Subpart IIII of the Code of Federal Regulations.~~

4) ~~Limits with an associated "after" date are required for an engine for which the application is deemed complete after that date. Limits without an associated "after" date are required now.~~ The engine must be certified by U.S. EPA or CARB to meet the Tier 1, 2 or 3 emission requirements of 40 CFR Part 89 – Control of Emissions from New and In-use Nonroad Compression-Ignition Engines shown in the table– or otherwise demonstrate that it meets the Tier 1, 2 or 3 emission limits. If, because of the averaging, banking, and trading program, there is no new engine from any manufacturer that meets the above standards, then the engine must meet the family emission limits established by the manufacturer and approved by U.S. EPA. The PM limits apply only to filterable PM.

~~5) A USEPA settlement with certain engine manufacturers caused Tier 3 engines to become available one year earlier than the date specified in Part 89 for engines in the 300 hp to <750 hp size range.~~

~~6)~~ ~~65)~~ SCAQMD restricts operation of emergency spark-ignition engines to 50 hours per year for maintenance and testing and a maximum of 200 hours per year total operation. ~~For emergency spark-ignition engines used to drive standby generators, operation beyond 50 hours per year for maintenance and testing is allowed only during emergencies resulting in an interruption of service of the primary power supply or during Stage II or III electrical emergencies declared by the electrical grid operator. Operators are allowed to use emergency spark-ignition engines as part of an interruptible electric service program. An interruptible electric service program is a program in which the facility receives payment or reduced rates in return for a requirement to reduce its electric load on the grid when requested to do so by the utility, the grid operator, or other organization.~~

~~7)~~ Since some requirements are based upon the California Airborne Toxic Control Measure for Stationary Compression Ignition Engines, applicants are referred to Title 17, Section 93115.3 of the California Code of Regulations for possible exemptions.

~~8)~~

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

10-20-2000 Rev. 0
7-9-2004 Rev. 1
12-3-2004 Rev. 2

Equipment or Process: I.C. Engine, Stationary, Non-Emergency

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| < 2064 bhp | 0.15 grams/bhp-hr (4-10-98) | 0.15 grams/bhp-hr (4-10-98) | See Clean Fuels Policy in Part C of the BACT Guidelines (10-20-2000) | 0.60 grams/bhp-hr (4-10-98) | See Clean Fuels Policy in Part C of the BACT Guidelines (10-20-2000) Compliance with Rule 1470. (12-3-2004) | |
| ≥ 2064 bhp | 25 ppm @ 15% $O_2$ (7-9-2004) | 9 ppmvd @ 15% $O_2$ (7-9-2004) | Same as Above (10-20-2000) | 33 ppmvd @ 15% $O_2$ (5-8-98) | Same as Above (7-9-2004) | Ammonia: 10 ppmvd @ 15% $O_2$ (7-9-2004) |
| Landfill or Digester Gas Fired | 0.8 grams/bhp-hr (4-10-98) | 0.60 grams/bhp-hr (4-10-98) | Compliance with Rule 431.1 (10-20-2000) | 2.5 grams/bhp-hr (4-10-98) | | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

Equipment or Process: I.C. Engine, Stationary, Non-Emergency, Non-Electrical Generators~~1~~ [1]

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **PM10** | **Inorganic** |
| > 50 bhp~~< 2064 bhp~~ | 30 ppmvd @15% $O_2$, compliance with SCAQMD Rule 1110.2 (X-XX-2015)~~0.15 grams/bhp-hr (4-10-98)~~ | 11 ppmvd @15% $O_2$, compliance with SCAQMD Rule 1110.2 (X-XX-2015)~~0.15 grams/bhp-hr (4-10-98)~~ | See Clean Fuels Policy in Part C of the BACT Guidelines (X-XX-2015)~~(10-20-2000)~~ | 70 ppmvd~~,~~ @15% $O_2$, compliance with SCAQMD Rule 1110.2 (X-XX-2015)~~0.60 grams/bhp-hr (4-10-98)~~ | See Clean Fuels Policy in Part C of the BACT Guidelines (X-XX-2015)~~(10-20-2000)~~<br><br>Compliance with Rule 1470~~.~~ (X-XX-2015)~~(12-3-2004)~~ | |
| Landfill or Digester Gas Fired~~≥ 2064 bhp~~ | ~~30 ppmvd~~0.8 grams/bhp-hr (X-XX-2015)~~Compliance with SCAQMD Rule 1110.2(4-10-98)25 ppm @ 15% $O_2$ (7-9-2004)~~ | ~~11 ppmvd Compliance with SCAQMD Rule 1110.2~~0.60 grams/bhp-hr (X-XX-2015)~~(4-10-98)9 ppmvd @ 15% $O_2$ (7-9-2004)~~ | Compliance with SCAQMD Rule 431.1 ~~(~~(X-XX-2015)~~10-20-2000)Same as Above (10-20-2000)~~ | ~~250 ppmvd Compliance with SCAQMD Rule 1110.~~2.5 grams/bhp-hr (X-XX-2015) ~~33 ppmvd @ 15% $O_2$ (5-8-98)~~ | ~~Same as Above (7-9-2004)~~ | ~~Ammonia: 10 ppmvd @ 15% $O_2$ (7-9-2004)~~ |

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1) This BACT listing was adapted from the "I.C. Engine, Stationary, Non-Emergency." An additional listing for "I.C. Engine, Stationary, Non-Emergency, Electrical Generators," is currently under development. Until the amendment is developed, Stationary, Non-Emergency,- Electrical Generators will be subject to "I.C. Engine, Stationary, Emergency."

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Jet Engine Test Facility

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Experimental High Altitude Testing | | | | | Venturi Scrubber with Water Spray in Exhaust (1988) | |
| Experimental Sea Level (Low Altitude) Testing[1] | | | | | | |
| Performance Testing[1] | | | | | | |

1) At the date of the last revision for this category, there was no Achieved In Practice BACT Determination for this subcategory. Technologically Feasible options listed in historic SCAQMD BACT Guidelines for this subcategory require cost effective analyses before they can be listed in these current Guidelines.

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Landfill Gas Gathering System

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Compliance with SCAQMD Rule 1150.1 - Control of Gaseous Emissions from Municipal Solid Waste Landfills (10-20-2000) | | | | | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Latex Manufacturing - Reaction

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Catalytic Incinerator and Caustic Scrubber (1988) | | | | | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Lead Melting Furnace

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Pot or Crucible, Non-Refining Operations | | Natural Gas (1990) | Natural Gas (1990) | | Natural Gas and Melt only Sows, Pigs, Ingots or Clean Scrap (1990) | |
| Pot or Crucible, Refining Operations | | Natural Gas (1990) | Natural Gas with Scrubber; or Natural Gas with Sulfur Free Refining Agents (1990) | | Natural Gas with Baghouse (1990) | |
| Reverberatory, Secondary Melting Operations | | Natural Gas with Low NOx Burner (10-20-2000) | Natural Gas with Scrubber (1990) | | Natural Gas with Baghouse (1990) | |

Note: Some secondary lead smelting operations must also comply with the National Emission Standards for Hazardous Air Pollutants, 40 CFR Part 63, Subpart X.

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Lead Oxide Manufacturing – Reaction Pot Barton Process

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | Natural Gas (1988) | Natural Gas (1988) | | Natural Gas with Baghouse (1988) | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

Equipment or Process: Liquid Transfer and Handling

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Marine, Loading | For VOC Emissions: Vapor Collection System Vented to Incinerator (1990) | | | | | |
| Tank Truck and Rail Car Bulk Loading, Class A (SCAQMD Rule 462) | Compliance with SCAQMD Rule 462 (0.08 Lbs/1000 Gals) (10-20-2000) | | | | | For Ammonia: Bottom Loading with Vapor Collection System Vented to Packed Column Scrubber (10-20-2000) |
| Tank Truck and Rail Car Bulk Loading, Classes B and C (SCAQMD Rule 462) | Bottom Loading with Vapor Collection System Vented to:<br>- Incinerator; or<br>- Compression/absorption with Tail Gas Vented to Incinerator; or<br>- Refrigeration System; or<br>- Carbon Adsorption system<br>and Compliance with SCAQMD Rule 462<br>(10-20-2000) | | | | | Same as Above |
| Gasoline Transfer and Dispensing | Compliance with Rule 461 | | | | | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Metal Heating Furnace

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | Natural Gas with Low NOx Burner ≤ 50 ppmvd at 3% $O_2$, dry. (10-20-2000) | Natural Gas(1990) | | | Natural Gas(1990) |

Note: This category includes metal aging, annealing, forging, heat treating, and homogenizing.

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Metallizing Spray Gun

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Water Wash Spray Booth or Scrubber (1988) | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Mixer, Blender or Mill

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Dry | | | | | Baghouse (07-11-97) | |
| Wet | Carbon Adsorber; or Refrigerated Condenser; or Afterburner (VOC Emissions Only); or Vapor Recovery (07-11-97) | | | | Baghouse if Dry Ingredients are Added (07-11-97) | Packed Column Scrubber (07-11-97) |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Nitric Acid Manufacturing

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | Catalytic Reduction Furnace (07-11-97) | | | | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

Equipment or Process: Non-Metallic Mineral Processing – Except Rock or Aggregate

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Baghouse for Enclosed Operations<br><br>Water Fog Spray for Open Operations (1988) | |

Notes:
1. Non-metallic Minerals are minerals such as rock salt, sodium compounds, pumice, gilsonite, talc and pyrophyllite, boron, barite, fluorspar, feldspar, diatomite, perlite, vermiculite, mica, carbon black, silicon and kyanite.
2. This category includes conveying, size reduction and classification.

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Nut Roasting

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Roaster | | Natural Gas (1988) | | | Afterburner (≥ 0.3 second Retention Time at ≥ 1,400°F) (10-20-2000) | |
| Handling Equipment | | | | | Baghouse (10-20-2000) | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

Equipment or Process: Oil and Gas Production

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Combined Tankage | All Tanks Vented to:<br>- Vacuum Gas Gathering System; or<br>- Positive Pressure Gas Gathering System; or<br>- Incinerator or Firebox (1988)<br><br>Compliance with SCAQMD Rules 1148 and 1148.1 (X-XX-2015) | | | | | |
| Wellhead | All Wellheads Vented to:<br>- Vacuum Gas Gathering System; or<br>- Positive Pressure Gas Gathering System; or<br>- Incinerator or Firebox (10-20-2000)<br><br>Compliance with SCAQMD Rules 1148 and 1148.1 (X-XX-2015) | | | | | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

10-20-2000 Rev. 0

Equipment or Process: Open Spraying – Spray Gun

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Compliance with Regulation XI (10-20-2000) | | | | Compliance with Regulation XI (10-20-2000)* | |

* The open spraying must be conducted in a spray booth where feasible.

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Perlite Manufacturing System

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | Natural Gas with Low NOx Burner (10-20-2000) | Natural Gas (10-20-2000) | | Baghouse (1988) | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

Equipment or Process: Pharmaceutical Manufacturing

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Operations Involving Solvents | Afterburner (≥0.3 second Retention Time at ≥1,400°F), Refrigerated Condenser, or Carbon Adsorber (07-11-97) | | | | | |
| Solids Handling | | | | | Baghouse (07-11-97) | |
| Solids Storage Tanks | | | | | Baghouse or Vent Filter (07-11-97) | |

Note: This equipment may also be subject to SCAQMD Rule 1103 and 40 CFR 63 Subpart GGG – National Emission Standards Pharmaceuticals Production. (7-9-2004)

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Phosphoric Acid - Thermal Process

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Fiber Mist Filter, Electrostatic Precipitator, or Packed Scrubber with Mist Eliminator (07-11-97) | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Phthalic Anhydride

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Afterburner (≥0.3 Second Retention Time at ≥1,400°F) or Water Cooled Condenser (07-11-97) | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Plasma Arc Metal Cutting Torch

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| > 30 KVA Electrical Input | | | | | Water Table and Nozzle Water Shroud; or Electrostatic Precipitator (1988) | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Polyester Resin Operations - Molding and Casting

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Compliance with SCAQMD's Rule 1162 and Use of Aqueous Emulsion Cleaner or Acetone for Clean-Up to Maximum Extent Possible (1988/10-20-2000) | | | | | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Polystyrene Extruder

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Electrostatic Precipitator or Fiber Mist Filter (07-11-97) | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Polystyrene Manufacturing

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Water Cooled Condenser (07-11-97) | | | | | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Powder Coating Booth

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| < 37 Lbs/Day Throughput | | | | | Pocket or Bag-Type Filters (10-20-2000) | |
| ≥ 37 Lbs/Day Throughput | | | | | Powder Recovery System with a Cyclone Followed by a Baghouse or Cartridge Dust Collector or HEPA Filters (≥ 99% efficiency) (1988/10-20-2000) | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Precious Metal Reclamation

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Incineration | | Natural Gas (1988) | Natural Gas (1988) | | Natural Gas with Baghouse and:<br>- Afterburner (≥ 0.3 sec. Retention Time at ≥ 1400° F); or<br>-Secondary Combustion Chamber (≥ 0.3 sec. Retention Time at ≥ 1400° F)<br>(1988) | |
| Chemical Recovery and Chemical Reactions | | 3-Stage NOx Reduction Scrubber (07-11-97) | | | | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
12-5-2003 Rev. 1
7-14-2006 Rev 2

Equipment or Process: Printing (Graphic Arts)

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Flexographic | Inks with ≤ 1.5 Lbs VOC/Gal, Less Water and Less Exempt Compounds (1990) Compliance with SCAQMD Rules 1130 and 1171 (12-5-2003) | | | | | |
| Letterpress | Compliance with SCAQMD Rules 1130 and 1171 (12-5-2003) | | | | | |
| Lithographic or Offset, Heatset | Low VOC Fountain Solution (≤ 8% by Vol. VOC); Low Vapor Pressure (≤ 10 mm Hg VOC Composite Partial Pressure[1)]) or Low VOC (≤ 100 g/l) Blanket and Roller Washes; Oil-Based or UV-Curable Inks; and Compliance with SCAQMD Rules 1130 and 1171 (7-14-2006) | | | | Oven Venting to an Afterburner (≥ 0.3 Sec. Retention Time at ≥ 1400 $^0$F; 95% Overall Efficiency) (10-20-2000) | |
| Lithographic or Offset, Non-Heatset | Same As Above | | | | | |
| Rotogravure or Gravure—Publication and Packaging | Compliance with SCAQMD Rules 1130 and 1171 (10-20-2000) | | | | | |
| Screen Printing and Drying | Compliance with SCAQMD Rules 1130.1 and 1171 (12-5-2003) | | | | | |

(Continued on Next Page)

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

1) VOC COMPOSITE PARTIAL PRESSURE is the sum of the partial pressures of the compounds defined as VOCs. VOC Composite Partial Pressure is calculated as follows:

$$PPc = \sum_{i=1}^{n} \frac{\dfrac{(Wi)(VPi)}{MWi}}{\dfrac{Ww}{MWw} + \dfrac{We}{MWe} + \sum_{i=1}^{n} \dfrac{Wi}{MWi}}$$

| | | | |
|---|---|---|---|
| Where: | PPc | = | VOC composite partial pressure at 20ºC in mm Hg |
| | Wi | = | Weight of the "i"th VOC compound in grams |
| | MWi | = | Molecular weight of "i"th VOC compound in grams per gram-mole |
| | VPi | = | Vapor pressure of the "i"th VOC compound at 20ºC in mm Hg |
| | Ww | = | Weight of water in grams |
| | MWw | = | Molecular weight of water in grams per gram-mole |
| | We | = | Weight of exempt compound in grams |
| | MWe | = | Molecular weight of exempt compound in grams per gram-mole |

For multiple exempt compounds: $We / MWe = \sum_{j=1}^{n} Wej / MWej$

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

10-20-2000 Rev. 0
10-03-2008 Rev. 1
XX-XX-2016 Rev. 2

Equipment or Process: Process Heater – Non-Refinery

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/Rating/ Size** | **VOC** | **NOx** [1)] | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Natural Gas or Propane Fired, < 20 MM Btu/nr | | ~~≤ 20 ppmv dry corrected to 3% $O_2$~~ [2)] ~~(10-20-2000)~~ Compliance with SCAQMD Rule 1146 and 1146.1 | Natural Gas (10-20-2000) | ≤50 ppmv for firetube type, ≤ 100 ppmv for watertube type, dry corrected to 3% $O_2$ (10-20-2000) | Natural Gas (10-20-2000) | |
| Natural Gas or Propane Fired, ≥ 20 MM Btu/hr | | ~~With Low-NOx Burner: ≤ 9 ppmv dry corrected to 3% $O_2$ With SCR or LTO: ≤ 7 ppmv dry corrected to 3% $O_2$ (10-20-2000)~~ Compliance with SCAQMD Rule 1146 and 1146.1 | Natural Gas (10-20-2000) | Same as above. (10-20-2000) | Natural Gas (10-20-2000) | With SCR: ≤ 5 ppmvd NH3, corrected to 3% O2 With LTO: ≤ 1 ppmvd ozone, corrected to 3% O2 (10-20-2000) |

1) Rules 1146 and 1146.1 require that boilers rated >2 and <75 MMBtu/hr meet 9 ppm NOx beginning 1/1/2012 for some categories, that natural gas-fired boilers rated at ≥75 MMBtu/hr meet 5 ppm by 1/1/2015 (except boilers at schools and universities), that natural-draft boilers rated >2 and ≤10 MMBtu/hr with unsealed combustion chambers meet 12 ppm by 1/1/2014, and that boilers firing landfill or digester gas meet 25 or 15 ppm, respectively, by 1/1/15 (all ppm are dry, corrected to 3% O2). Electric utility boilers, refinery boilers rated >40 MMBtu/hr and sulfur plant reaction boilers rated ≥5 MMBtu/hr are excluded; and there are exceptions for low-use boilers and boilers that met a 12-ppm limit prior to 9/5/08. Applicants are advised to review these rules for further details.

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

2) A higher NOx limit may be allowed for facilities required to have a standby fuel, where use of a clean standby fuel is not possible and an ultra low-NOx burner is not available.

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
12-5-2003 Rev. 1

Equipment or Process: Reactor with Atmospheric Vent [a)]

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC/ODC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | - Carbon Adsorber; or<br>- Afterburner (VOC Only); or<br>- Refrigerated Condenser; or<br>- Scrubber with Approved Liquid Waste Disposal (VOC only)<br>(1990) | | | | | |

a) Also see "Resin Manufacturing" and "Surfactant Manufacturing". (12-5-2003)

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Rendering

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Processing Equipment[1)] | | | | | Vent to Afterburner or Boiler Fire Box (≥ 0.3 sec. Retention Time at ≥ 1200 °F) (1988) | |
| Meal Grinding and Handling System | | | | | Enclosed Grinding and Screening Operation with Mechanical Conveyors Transporting Meal (1988) | |
| Tanks and Miscellaneous Equipment | | | | | Maintain Internal Temperature Below 140 °F (1988) | |

1) Processing equipment includes crax pressing, filtering, centrifuging, evaporators, cookers, dryers, and grease and blood processing.

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

12-5-2003 Rev. 0

Equipment or Process: Resin Manufacturing

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Continuous Polystyrene Process | Compliance with SCAQMD Rule 1141:<br>≤0.12 Pounds VOC per 1000 Pounds Completed Resin Product from Vacuum Devolatilizer and Styrene Recovery Systems<br>(12-5-2003) | | | | | |
| Liquid-Phase, High-Density Polyethylene Slurry Process | Compliance with SCAQMD Rule 1141:<br>≥98% Reduction from Reactors, Recycle Treaters, Thinning Tanks, Blending Tanks and Product Finishing Section<br>(12-5-2003) | | | | | |
| Liquid-Phase Polypropylene Process | Compliance with SCAQMD Rule 1141:<br>≥98% Reduction From Organic Resin Reactors, Slurry Vacuum Filter System, Diluent Recovery Section and Product Finishing Section<br>(12-5-2003) | | | | | |
| Other Resin Manufacturing | Compliance with SCAQMD Rule 1141:<br>≤0.5 Pounds VOC per 1000 Pounds Completed Resin Product,<br>or ≥95% Reduction from Resin Reactors, Thinning Tanks and Blending Tanks<br>(12-5-2003) | | | | | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Rock – Aggregate Processing

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Baghouse Venting Jaw Crushers, Cone Crushers, and Material Transfer Points Adjacent to and after these Items; and Water Sprays at Other Material Transfer Points (1990) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Rocket Engine Test Cell

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | Chemical Packed Scrubber (1988) | | | Chemical Packed Scrubber and Water Spray in Exhaust with Steam Ejectors (1988) | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Rubber Compounding – Banbury Type Mixer

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Baghouse (1988) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Sand Handling System with Shakeout and/or Muller in System

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Baghouse (1988) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Sewage Treatment Plants

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Carbon Adsorber or Scrubbing System, Covers for Primary Raw Sewage Processing, and Digester Gas Incineration or Recovery (1988) | | Ferrous Chloride Injection and Caustic Scrubber for Hydrogen Sulfide Removal (1988) | | | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Smokehouse

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Afterburner (≥ 0.3 sec. Retention Time at ≥ 1200° F) (1990) | Steam Heated Smokehouse and Electrically Heated Smoke Generator (1990) | | Afterburner (≥ 0.3 sec. Retention Time at ≥ 1200° F) (1990) | Afterburner (≥ 0.3 sec. Retention Time at ≥ 1200° F) (1990) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Solder Leveling –Hot Oil or Hot Air

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Electrostatic Precipitator (1988) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Solvent Reclamation

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Refrigerated or Water Cooled Condenser (07-11-97) | | | | | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Spray Booth

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Automotive, Down-Draft Type, < 660 Lbs/Month of VOC Emissions | Compliance with Applicable SCAQMD Regulation XI Rules (10-20-2000) | | | | Dry Filters or Waterwash (1990) | |
| Other Types, < 1170 Lbs/Month of VOC Emissions | Compliance with Applicable SCAQMD Regulation XI Rules (10-20-2000) | | | | Same as Above (1990) | |
| Automotive, Down-Draft Type, ≥ 22 Lbs/Day of VOC Emissions | - Compliance with Applicable SCAQMD Regulation XI Rules, and VOC Control System with ≥ 90% Collection Efficiency and ≥ 95% Destruction Efficiency, or<br>- Use of Super ~~Clean~~ Compliant Materials (< 5% VOC by weight): or<br>- Use of Low-VOC Materials Resulting in an Equivalent Emission Reduction<br>(10-20-2000) | | | | Same as Above (1990) | |
| Other Types, ≥ 1170 Lbs/Month of VOC Emissions | Same as Above (10-20-2000) | | | | Same as Above (1990) | |

Note: The sum of all VOC emissions from all spray booths within the same subcategory applied for in the previous two years at the same facility are considered toward the emission threshold.

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Steel Melting Furnace

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Electric Arc | | | | | Baghouse (1988) | |
| Induction, ≤ 300 Lb. Capacity | | | | | Charge Only Ingots or Clean Returns, or Baghouse (10-20-2000) | |
| Induction, > 300 Lb. Capacity | | | | | Baghouse (07-11-97) | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Storage Tanks - Liquid

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Asphalt | | | | | Cool Gases to < 120 °F and Vent to a Fiberglass or Steel Wool Filter. (07-11-97) | |
| External Floating Roof, VP ≤ 11 psia | Category A Tank Seals and Compliance with Rule 463 (10-20-2000) | | | | | |
| Fixed Roof | Vapor Recovery System with an Overall System Efficiency of ≥ 95% (7-11-97) | | | | | |
| Fuming Sulfuric Acid | | | | | Scrubber Followed by Fiber Mist Filter; or Water Spray Followed by Fiber Mist Filter (1988) | |
| Grease or Tallow | | | | | Maintain Temperature ≤ 140 °F (1988) | |
| Internal Floating Roof | Category A Tank Seals and Compliance with Rule 463 (10-20-2000) | | | | | |
| Sulfuric Acid | | | Caustic Scrubber and Mist Eliminator (1988) | | | |
| Underground, > 250 Gallons | ≥ 95% Removal Efficiency for VOC (1990) | | | | | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

12-5-2003 Rev. 0

Equipment or Process: Surfactant Manufacturing

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Compliance with SCAQMD Rule 1141.2[a]: ≤ 0.5 Pounds per 1000 Pounds of Surfactant Product, or ≥ 95% (Wt.) Reduction From All Surfactant Manufacturing Equipment Vented to Atmosphere (12-5-2003) | | | | | |

a) Does not apply to soap manufacturing operations or facilities that only blend and package surfactants.

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Tank – Grease or Tallow Processing

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Water Cooled or Atmospheric Condenser and Afterburner (≥ 0.3 sec. Retention Time at ≥ 1200 °F) (1990) | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Tire Buffer

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Cyclone and Water Spray at Rasp (07-11-97) | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Vegetable Oil Purification

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Scrubber and Barometric Condenser (1988) | | | | | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Vinegar Manufacturing

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Scrubber with SCAQMD- and Sanitation District-Approved Liquid Disposal (1988) | | | | | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
12-5-2003 Rev. 1

Equipment or Process: Wastewater System

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Oil/Water Separator | Cover and Vent to Vapor Disposal System (1988); and Compliance with SCAQMD Rule 1176 (12-5-2003) | | | | | |
| Other Equipment | Compliance with SCAQMD Rule 1176 if Applicable by Rule[a)] (12-5-2003) | | | | | |

a) Not required for sanitary sewer system.

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Wax Burnoff Furnace

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | Natural Gas with Low Nox Burner (1988)] | Natural Gas (1988) | | Natural Gas with Afterburner or Secondary Combustion Chamber (≥ 0.3 sec. Retention Time at ≥ 1200° F) (1988) | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Wood Processing Equipment

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Baghouse (1988) | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

Equipment or Process: Woodworking

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Pneumatic Conveyance System | | | | | Compliance with SCAQMD Rule 1137[a)]: Baghouse with No Visible Emissions Except During Startup and Shutdown (12-5-2003) | |

a) Not required if system vents solely to stand-alone control device or into a closed room.

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Zinc Melting Furnace

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Crucible or Pot | | Natural Gas (1990) | Natural Gas (1990) | | Natural Gas with Ingot and/or Clean Scrap Charge Only, or Baghouse (1988/2000) | |
| Reverberatory, Non-Sweating Operations | | Natural Gas (1990) | Natural Gas (1990) | | Same as Above (10-20-2000) | |
| Reverberatory, Sweating Operations | | Natural Gas (1990) | Natural Gas (1990) | | Natural Gas with Baghouse and: Afterburner (≥ 0.3 sec. Retention Time at ≥ 1400° F); or Secondary Combustion (≥ 0.3 sec. Retention Time at ≥ 1400° F); (1990) | |
| Rotary, Sweating Operations | | Natural Gas (1990) | Natural Gas (1990) | | Same as Above (1990) | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions