

SMAQMD BACT CLEARINGHOUSE

CATEGORY Type:

OVEN

BACT Category: Small Emitter BACT (PTE < 10 lb/day)

BACT Determination Number: 292	BACT Determination Date: 8/17/2021
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Equipment Information

Permit Number: 26924

Equipment Description: TORTILLA OVEN EXPIRED

Unit Size/Rating/Capacity: Tortilla Oven ≤ 500 Deg. F

Equipment Location: BERBER FOOD MANUFACTURING DBA MI RANCHO
10115 IRON ROCK WAY ELK GROVE, CA

BACT Determination Information

District Contact: Felix Trujillo Phone No.: (916) 874 - 7357 email: ftrujillo@airquality.org

ROCs	Standard:	
	Technology Description:	
	Basis:	
NOx	Standard:	30 ppmvd @ 3% O2
	Technology Description:	Low NOx Burner
	Basis:	Achieved in Practice
SOx	Standard:	500 ppmvd @ 3% O2
	Technology Description:	Natural gas fuel or equivalent
	Basis:	Achieved in Practice
PM10	Standard:	Natural gas fuel or equivalent
	Technology Description:	Natural gas fuel or equivalent
	Basis:	Achieved in Practice
PM2.5	Standard:	
	Technology Description:	
	Basis:	
CO	Standard:	400 ppmvd @ 3% O2
	Technology Description:	Natural gas fuel or equivalent
	Basis:	Achieved in Practice
LEAD	Standard:	
	Technology Description:	
	Basis:	

Comments: T-BACT is equivalent to BACT for VOC.



BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION

EXPIRED

DETERMINATION NO.: 292
DATE: August 17, 2021
ENGINEER: Felix Trujillo, Jr.

Category/General Equip Description: Tortilla Oven
Equipment Specific Description: Tortilla Oven ≤ 500 °F
Equipment Size/Rating: Small Emitter (PTE < 10 lb/day of VOC, NO_x, SO_x, PM₁₀, or PM_{2.5} and less than 550 lbs/day of CO)
Previous BACT Det. No.: 206

This BACT determination was determined under the project A/Cs 26924 and 26925 (Berber Food Manufacturing dba Mi Rancho) for tortilla ovens ≤ 500 °F where the products of combustion come into direct contact with the tortillas. Tortillas don't contain yeast leavened products.

This BACT/T-BACT determination will update BACT Determination #206 which was made on 11/16/2018 under the minor source category. This BACT determination will be reevaluated under the small emitter category, since the tortilla ovens permitted under this project and in the past, emit under the small emitter threshold of 10 lb/day, except for CO which has a threshold of 550 lbs/day. The 4.5 MMBtu/hr ovens proposed under A/Cs 26924 and 26925 are the largest tortilla ovens that have been permitted or proposed in the District.

The District's Small Emitter and "Otherwise-Exempt Equipment" BACT Determinations policy states that units which are classified as small emitters (less than 10 lbs/day of VOC, NO_x, SO_x, PM₁₀, or PM_{2.5} and less than 550 lbs/day of CO) and are located at non-major stationary sources are only required to meet BACT standards that have been achieved in practice. Therefore, this BACT determination will only be based on what is achieved in practice and will be only applied to small emitters at non-major sources. BACT will be evaluated on a case-by-case basis for units that do not fit this criteria.

BACT/T-BACT ANALYSIS

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

The following control technologies are currently employed as BACT/T-BACT for tortilla ovens by the following air pollution control districts:

US EPA

BACT

Source: [EPA RACT/BACT/LAER Clearinghouse](#)

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

T-BACT

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

RULE REQUIREMENTS:

[40 CFR Part 60 – New Source Performance Standards \(NSPS\):](#)

There are currently no 40 CFR, Part 60 NSPS sections that apply to this source category.

[40 CFR Part 61 – National Emission Standards for Hazardous Air Pollutants \(NESHAPS\):](#)

There are currently no 40 CFR, Part 61 NESHAPs that apply to this source category.

[40 CFR Part 63 – NESHAPS for Source Categories \(MACT Standards\):](#)

There are currently no 40 CFR, Part 63 NESHAPs that apply to this source category.

Air Resources Board (ARB)

BACT

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

T-BACT

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

RULE REQUIREMENTS:

[ARB Airborne Toxic Control Measures \(ATCM\):](#)

There are currently no ATCMs that apply to this source category.

Sacramento Metropolitan AQMD

BACT

Source: [SMAQMD BACT Clearinghouse #206 \(11/16/18\)](#)

Tortilla Ovens ≤ 500 °F and < 19 MMBtu/hr	
VOC	Natural gas fuel or equivalent (A)
NOx	30 ppmvd @ 3 %O ₂
SOx	Natural gas fuel or equivalent
PM10	Natural gas fuel or equivalent
PM2.5	Natural gas fuel or equivalent (A).
CO	400 ppmvd @ 3% O ₂

(A)The BACT standard listed was listed as Cost Effective and not Achieved in Practice standard.

T-BACT

T-BACT was determined to be equivalent to BACT for VOC under BACT 206.

RULE REQUIREMENTS:

[Rule 419 – NOx from Miscellaneous Combustion Units \(Adopted 7/26/2018\)](#)

This rule applies to any miscellaneous combustion unit or cooking unit with a total rated heat input capacity of 2 million Btu per hour or greater that is located at a major stationary source of NOx and to any miscellaneous combustion unit or cooking unit with a total rated heat input capacity of 5 million Btu per hour or greater that is not located at a major stationary source of NOx. The NOx and CO emission limits for cooking units are summarized in the following table.

TABLE 2: COOKING UNIT EMISSION LIMITS EXPRESSED AS PPMV, corrected to 3% O ₂			
Equipment Category	NOx Limit ppmv, corrected to 3% O ₂ (lb/MMBtu)		CO Limit ppmv, corrected to 3% O ₂ (lb/MMBtu)
	Effective (see Section 401)		
	Process Temperature		800 (0.60)
	< 500 °F	≥ 500 °F	
Cooking Unit	40 (0.049)	60 (0.073)	

[Rule 406 – Specific Contaminants \(Amended 12/6/1978\)](#)

This rule limits the emission of sulfur compounds and combustion contaminants.

A person shall not discharge into the atmosphere from any single source of emission equipment whatsoever:

1. Sulfur compounds in any state or combination thereof exceeding in concentration at the point of discharge: sulfur compounds, calculated as sulfur dioxide: 0.2% volume.
2. Combustion contaminants in any state or combination thereof exceeding in concentration at the point of discharge: 0.23 grams per dry standard cubic meter (0.1 grains per dry standard cubic foot) of gas calculated to 12% carbon dioxide at standard conditions.

South Coast AQMD

BACT

Source: [SCAQMD BACT Guidelines for Non-Major Polluting Facilities, page 53 \(Last Revised 2/2/2018\)](#)

Food Oven	
VOC	No Standard
NOx	<u>For Ribbon Burners ≤ 500°F</u> 30 ppmvd @ 3% O ₂
	<u>Other Direct Fired Burner</u> 30 ppmvd @ 3% O ₂
	<u>Infrared Burner</u> 30 ppmvd @ 3% O ₂
SOx	Natural gas
PM10	Natural Gas
PM2.5	No standard
CO	Compliance with applicable SCAQMD Rules 407 or 1153.1

(A) SCAQMD's does not require a permit for combustion equipment that has a rated maximum heat input capacity of 2.0 MMBtu/hr or less.

T-BACT

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

RULE REQUIREMENTS:

[Reg IV, Rule 407 – Liquid and Gaseous Air contaminants \(Last amended 4/2/1982\)](#)

A person shall not discharge into the atmosphere from any equipment:

1. Carbon Monoxide (CO) exceeding 2,000 ppm by volume measured on a dry basis, averaged over 15 consecutive minutes
2. Sulfur compounds which would exist as liquid or gas at standard conditions exceeding 500 ppm, calculated as sulfur dioxide (SO₂) and averaged over 15 consecutive minutes

[Reg IV, Rule 1147 – NOx Reductions from Miscellaneous Sources \(Last amended 7/7/2017\)](#)

This rule is to reduce NOx emissions from gaseous and liquid fuel fired combustion equipment. Per section (g)(2), this rule does not apply to charbroilers or food ovens. Therefore, this rule is not applicable to this BACT Determination.

[Reg XI, Rule 1153.1 – Emissions of Oxides of Nitrogen from Commercial Food Ovens \(Last amended 11/7/2014\)](#)

This rule applies to **in-use** ovens, dryers, smokers, and dry roaster with NOx emissions from fuel combustion and are used to prepare food or products for making beverages for human consumption. This rule is not applicable to new units.

Any person owning or operating an in-use unit subject to this rule shall not operate the unit in a manner that exceeds CO emissions of 800 ppm by volume at 3% O₂.

NOx Emission Limits	
PPM @ 3% O₂, dry or pound/mmBTU heat input	
Process Temperature	
≤ 500°F	> 500°F
40 ppm or 0.042 lb/mmBTU	60 pm or 0.073 lb/mmBTU

(A) SCAQMD's does not require a permit for combustion equipment that has a rated maximum heat input capacity of 2.0 MMBtu/hr or less.

San Diego County APCD

BACT

Source: [NSR Requirements for BACT \(June 2011\)](#)

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

T-BACT

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

RULE REQUIREMENTS:

[Regulation 4, Rule 68 – Fuel-Burning Equipment – Oxides of Nitrogen \(9/20/1994\)](#)

This rule does not apply to fuel burning equipment which has a maximum input rating of < 50 mmBTU/hr.

Emissions of nitrogen oxides, from any non-vehicular fuel burning equipment subject to this rule, calculated as nitrogen dioxide at three percent oxygen on a dry basis, shall not exceed the following levels:

Type of Fuel	Nitrogen Oxides, Concentration	
	Volume (ppm)	Mass (mg/m ³ , at 20°C)
Gaseous	125	240
Liquid or Solid	225	430

When more than one type of fuel is used, the allowable NOx concentration shall be determined by proportioning the gross heat input for each fuel to its respective allowable concentration.

[Regulation 4, Rule 53 – Specific Air Contaminants – \(1/22/1997\)](#)

A shall not discharge into the atmosphere from any single source of emission equipment whatsoever:

1. Sulfur compounds calculated as sulfur dioxide: 0.05 percent, by volume, on a dry basis.
2. Combustion particulates: 0.1 grains per dry standard cubic foot of gas which is standardized to 12% of carbon dioxide by volume.

Bay Area AQMD

BACT

Source: [BAAQMD BACT Guidelines](#)

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

T-BACT

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

RULE REQUIREMENTS:

[Reg 8, Rule 2 – Organic Compounds from Miscellaneous Operations](#)

Preparation of Food: Emissions from the preparation of food for human consumption provided best modern practices are used, are exempt from this Rule.

[Reg 9, Rule 3 – Inorganic Gaseous Pollutants; NOx from Heat Transfer Operations §9-3-301](#)

This rule does not apply to any new or modified heat transfer operation designed for a maximum heat input of less than 264 GJ (250 million BTU) per hour.

San Joaquin Valley APCD

BACT

Source: [SJVAPCD Guidelines](#)

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

T-BACT

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

RULE REQUIREMENTS:

[Rule 4309 – Dryers, Dehydrators, and Ovens \(12/15/05\)](#)

This rule applies to any dryer, dehydrator, or oven that has a total rated heat input of ≥ 5.0 MMbtu/hr. Per Section 4.1.4 the requirements of this rule shall not apply to units used to bake or fry food for human consumption. Therefore, this rule does not apply.

[Rule 4801 – Sulfur Compounds \(Amended 12/17/1992\)](#)

A person shall not discharge into the atmosphere sulfur compounds, which would exist as a liquid or gas at standard conditions, exceeding in the concentration at the point of discharge: two-tenths (0.2) percent by volume calculated as sulfur dioxide, on a dry basis averaged over 15 consecutive minutes.

Ventura County APCD

BACT

Source: [CARB BACT Clearinghouse](#) (Category searched: "Dryer or Oven, Direct or Indirect")

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

T-BACT

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

RULE REQUIREMENTS:

[Reg 4, Rule 74.34 – NOx Reductions from Miscellaneous Sources \(12/13/16\)](#)

This rule reduces the emissions of NOx and CO, and applies to dryers, furnaces, heaters, incinerators, kilns, ovens, and duct burners. This rule applies to any unit where the total heat input for the unit is 5 MMBtu/hr or greater.

NOx Emission Limits	
PPM @ 3% O₂, dry or pound/mmBTU heat input	
Process Temperature	
< 1,200°F	≥ 1,200°F
30 ppm or 0.036 lb/mmBTU	60 pm or 0.072 lb/mmBTU

Carbon monoxide emissions from units subject to this rule shall not exceed 400 ppm (0.30 lb/MMBtu heat input) at 3% O₂.

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

SUMMARY OF ACHIEVED IN PRACTICE CONTROL TECHNOLOGIES	
VOC	No Standard (A) – [SMAQMD, SCAQMD, SDCAPCD, BAAQMD, SJVAPCD, VCAPCD]
NOx	<p><u>For Ribbon Burners ≤ 500°F</u></p> <ol style="list-style-type: none"> 30 ppmvd @ 3% O₂ [SCAQMD, VCAPCD, SMAQMD] Gaseous fuel: 125 ppm and 240 mg/m³ at 20°C, Liquid or Solid fuel: 225 ppm and 430 mg/m³ at 20°C. [SDAPCD] No Standard – [EPA, ARB, SMAQMD, BAAQMD] <p><u>Other Direct Fired Burner</u></p> <ol style="list-style-type: none"> 30 ppmvd @ 3% O₂ [SCAQMD, VCAPCD, SMAQMD] Gaseous fuel: 125 ppm and 240 mg/m³ at 20°C, Liquid or Solid fuel: 225 ppm and 430 mg/m³ at 20°C. [SDAPCD] No Standard – [EPA, ARB, SMAQMD, BAAQMD] <p><u>Infrared Burner</u></p> <ol style="list-style-type: none"> 30 ppmvd @ 3% O₂ [SCAQMD, VCAPCD, SMAQMD] Gaseous fuel: 125 ppm and 240 mg/m³ at 20°C, Liquid or Solid fuel: 225 ppm and 430 mg/m³ at 20°C. [SDAPCD] No Standard – [EPA, ARB, SMAQMD, BAAQMD]

SUMMARY OF ACHIEVED IN PRACTICE CONTROL TECHNOLOGIES	
SOx	<ol style="list-style-type: none"> 1. Natural Gas Fuel or equivalent and 0.05% by volume (500 ppmvd @ 3% O₂) [SCAQMD, SMAQMD] 2. 0.2% by volume [SMAQMD, BAAQMD] 3. 0.5% by volume [SDAPCD] 4. No Standard – [EPA, ARB, SDCAPCD, SJVAPCD, VCAPCD]
PM10	<ol style="list-style-type: none"> 1. Natural Gas Fuel or equivalent [SCAQMD, SMAQMD] 2. 0.1 grains per dry standard cubic foot at 12% carbon dioxide by volume [SMAQMD, SDAPCD] 3. No Standard – [EPA, ARB, BAAQMD, SJVAPCD, VCAPCD]
PM2.5	No Standard (A) – [EPA, ARB, SMAQMD, SCAQMD, SDCAPCD, BAAQMD, SJVAPCD, VCAPCD]
CO	<ol style="list-style-type: none"> 1. 400 ppm @ 3% O₂ or 0.3 lb/MMBtu [VCAPCD, SMAQMD] 2. 800 ppm @ 3% O₂ [SCAQMD] 3. No Standard – [EPA, ARB, SDCAPCD, BAAQMD, SJVAPCD]
Organic HAP/VHAP (T-BACT)	T-BACT is equivalent to BACT for VOC – [SMAQMD]

(A) The BACT standard was listed as Cost Effective and no standard for Achieved in Practice was listed.

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

BEST CONTROL TECHNOLOGIES ACHIEVED		
Pollutant	Standard	Source
VOC	No Standard	EPA, ARB, SMAQMD, SCAQMD, SDCAPCD, BAAQMD, SJVAPCD, VCAPCD
NOx	<u>For Ribbon Burners ≤ 500°F</u> 30 ppmvd @ 3% O ₂ <u>Other Direct Fired Burner</u> 30 ppmvd @ 3% O ₂ <u>Infrared Burner</u> 30 ppmvd @ 3% O ₂	SCAQMD, SJVAPCD, VCAPCD, SMAQMD
SOx	Natural Gas Fuel or equivalent and 500 ppmvd @ 3% O ₂ (0.05% by volume)	SCAQMD, SMAQMD
PM10	Natural Gas Fuel or equivalent	SCAQMD, SMAQMD

BEST CONTROL TECHNOLOGIES ACHIEVED		
Pollutant	Standard	Source
PM2.5	No Standard	EPA, ARB, SMAQMD, SCAQMD, SDCAPCD, BAAQMD, SJVAPCD, VCAPCD
CO	400 ppmvd @ 3% O ₂	VCAPCD, SMAQMD
Organic HAP/VHAP (T-BACT)	T-BACT is equivalent to BACT for VOC	SMAQMD

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

The District's Small Emitter and "Otherwise-Exempt Equipment" BACT Determinations policy (dated 5/16/2019) states that units which are classified as small emitters (less than 10 lbs/day of VOC, NO_x, SO_x, PM₁₀, or PM_{2.5} and less than 550 lbs/day of CO) and are located at non-major stationary sources are only required to meet BACT standards that have been achieved in practice. Therefore, this BACT determination will only be based on what is achieved in practice and will only be applied to small emitters at non-major sources. BACT will be evaluated on a case-by-case basis for units that do not fit these criteria.

C. SELECTION OF BACT/T-BACT:

Based on the review of EPA, ARB, SMAQMD, SCAQMD, SDCAPCD, BAAQMD, and SJVAPCD BACT Clearinghouses, BACT for VOC, NOx, SOx, PM10, and PM2.5 will be the following:

BACT For Tortilla Ovens ≤ 500 °F		
Pollutant	Standard	Source
VOC	No Standard	
NOx	30 ppmvd @ 3% O ₂	SCAQMD, VCAPCD, SMAQMD
SOx	Natural Gas Fuel or equivalent and 500 ppmvd @ 3% O ₂ (0.05% by volume)	SCAQMD, SMAQMD
PM10	Natural gas fuel or equivalent	SCAQMD, SMAQMD
PM2.5	No Standard	
CO	400 ppmvd @ 3% O ₂	VCAPCD, SMAQMD

T-BACT For Tortilla Ovens ≤ 500 °F		
Pollutant	Standard	Source
Organic HAP/VHAP (T-BACT)	T-BACT is equivalent to BACT for VOC	SMAQMD

APPROVED BY: *Brian F Krebs* DATE: 08-17-2021

Attachment A

BACT Determinations Published by SCAQMD

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

2-2-2018 Rev. 0

Equipment or Process: Food Oven

Subcategory ¹	Rating/ Size	Criteria Pollutants					Inorganic
		VOC	NOx	SOx	CO	PM10	
Ribbon Burner	> 500°F		60 ppmvd @ 3% O ₂ (2-2-2018)	Natural Gas (2-2-2018)	Compliance with applicable SCAQMD Rules 407 or 1153.1(2-2-2018)	Natural Gas (2-2-2018)	
	≤ 500°F		30 ppmvd @ 3% O ₂ (2-2-2018)	Same as above	Same as above	Same as above	
Other Direct Fired Burner			30 ppmvd @ 3% O ₂ (2-2-2018)				
Infrared Burner			30 ppmvd @ 3% O ₂ (2-2-2018)				
Add-on Control for Bakery Oven processing yeast leavened products with emissions ≥ 30 lb VOC/day		Catalytic oxidizer with 95% overall control efficiency (mass basis); catalyst inlet temperature ≥ 600°F; ceramic prefilter (2-2-2018)	Compliance with SCAQMD Rule 1147 at the time of applicability (2-2-2018)				

(Continued on next page)

¹Indirect Fired units may be subject to Rules 1146 and 1146.1 and BACT for Process Heater

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