SMAQMD BACT CLEARINGHOUSE

CATEGORY Type: **APC - OXIDIZER**

BACT Category: Afterburner, Degassing Unit, Remediatio

BACT Determination Number: 298	**BACT Determination Date:** 12/2/2021

Equipment Information

Permit Number: 27005
Equipment Description: APC THERMAL OXIDIZER
Unit Size/Rating/Capacity: Small Emitter BACT (PTE < 10 lb/day)
Equipment Location: AGILENT TECHNOLOGIES, INC - REGULATORY FEE #131814
91 BLUE RAVINE ROAD FOLSOM, CA

EXPIRED

BACT Determination Information

District Contact: Quintin Phan Phone No.: (279) 207-1143 email: qphan@airquality.org

ROCs	**Standard:**	
	Technology Description:	
	Basis:	
NOx	**Standard:**	30 ppm at 3% O2
	Technology Description:	Afterburner, Degassing Unit, Remediation Unit, Thermal Oxidizer, Catalytic Oxidizer or Vapor Incinerator
	Basis:	Achieved in Practice
SOx	**Standard:**	
	Technology Description:	
	Basis:	
PM10	**Standard:**	
	Technology Description:	
	Basis:	
PM2.5	**Standard:**	
	Technology Description:	
	Basis:	
CO	**Standard:**	
	Technology Description:	
	Basis:	
LEAD	**Standard:**	
	Technology Description:	
	Basis:	

Comments: Does not include tank degassing, soil vapor extraction, and vapor incinerators where vapors are directed into the burner or into a combustion chamber.

Printed: 12/3/2021

777 12th Street, Ste. 300

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

Sacramento, CA 95814

BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION

EXPIRED

DETERMINATION NO.: 298

DATE: 9/1/2021

ENGINEER: Quintin Phan

Category/General Equip Description: Afterburner, Degassing Unit, Remediation Unit, Thermal Oxidizer, Catalytic Oxidizer or Vapor Incinerator

Equipment Specific Description: Direct Fired Thermal Oxidizer (DFTO)

Equipment Size/Rating: Small Emitter BACT (PTE < 10 lb/day)

Previous BACT Det. No.: N/A

This BACT is for a replacement for a direct fired thermal oxidizer for the existing thermal oxidizer at Agilent Technologics, Inc. located at 91 Blue Ravine Road, Folsom ('the Folsom facility'). The oxidizer operated to support the Silica Bonding Operation and Spent Solvent process. The goal of this project is to replace the existing Regenerative Thermal Oxidizer (RTO) (Permit No. 24219) with a new Direct Fired Thermal Oxidizer (DFTO) (Permit No. 27005) for safety reasons.

Below is a description of the process the oxidizer is serving:

APC Filters This air pollution control system, consisting of HEPA filters, vents and controls emissions from the celite packaging line.

DFTO This air pollution control system, consisting of a DFTO, vents and controls emissions from the waste solvent transfer system associated with the silica bonding and rinsing process.

BACT/T-BACT ANALYSIS

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

The following control technologies are currently employed as BACT/T-BACT for Direct Fired Thermal Oxidizers by the following air pollution control districts:

US EPA

BACT
Source: EPA RACT/BACT/LAER Clearinghouse

For units with a rating of ≥ 325,000 MMBtu/hr	
VOC	N/A – No BACT determinations found
NOx	N/A – No BACT determinations found
SOx	N/A – No BACT determinations found
PM10	N/A – No BACT determinations found
PM2.5	N/A – No BACT determinations found
CO	N/A – No BACT determinations found

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
Source: ARB BACT Clearinghouse

ARB BACT Clearinghouse	
VOC	N/A – No BACT determinations found
NOx	N/A – No BACT determinations found
SOx	N/A – No BACT determinations found
PM10	N/A – No BACT determinations found
PM2.5	N/A – No BACT determinations found
CO	N/A – No BACT determinations found

Note: All BACT determinations published in the ARB BACT Clearinghouse are at least 10 years old.

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

SMAQMD BACT Clearinghouse	
VOC	N/A – No BACT determinations found
NOx	N/A – No BACT determinations found
SOx	N/A – No BACT determinations found
PM10	N/A – No BACT determinations found
PM2.5	N/A – No BACT determinations found
CO	N/A – No BACT determinations found

RULE REQUIREMENTS:
There are currently no rules that apply to this source category.

South Coast AQMD

BACT
Source: SCAQMD BACT Guidelines for Non-Major Polluting Facilities, page 126.

Thermal Oxidizer (Afterburner), Catalytic Oxidizer – Natural Gas Fired (A)	
VOC	No standard
NOx	30 ppmvd corrected to 3% O_2 (Burner emissions only)
SOx	No standard
PM10	No standard
PM2.5	No standard
CO	No standard

(A) Does not include tank degassing, soil vapor extraction, and vapor incinerators where vapors are directed into the burner or into a combustion chamber.

RULE REQUIREMENTS:

Regulation XI, Rule 1147 NOx REDCUTIONS FROM MISCELLANEOUS SOURCES (7/7/2017)

Requirements Table 1 Rule 1147

Table 1 – NOx Emission Limit Equipment Category(ies)	NOx Emission Limit PPM @ 3% O2, dry or Pound/mmBtu heat input		
	Process Temperature		
Gaseous Fuel-Fired Equipment	≤ 800° F	> 800 ° F and < 1200° F	≥ 1200 ° F
Afterburner, Degassing Unit, Remediation Unit, Thermal Oxidizer, Catalytic Oxidizer or Vapor Incinerator (A)	60 ppm or 0.073 lb/mmBtu	60 ppm or 0.073 lb/mmBtu	60 ppm or 0.073 lb/mmBtu

(A) Emission limit applies to burners in units fueled by 100% natural gas and clean air that are used to incinerate air toxics, VOCs, or other vapors; or to heat a unit. The unit shall be tested or certified to meet the emission limit while fueled with natural gas.

San Diego County APCD

BACT
Source: NSR Requirements for BACT

NSR Requirements for BACT	
VOC	N/A – No BACT determinations found
NOx	N/A – No BACT determinations found
SOx	N/A – No BACT determinations found
PM10	N/A – No BACT determinations found
PM2.5	N/A – No BACT determinations found
CO	N/A – No BACT determinations found

RULE REQUIREMENTS:

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

Bay Area AQMD

BACT
Source: BAAQMD BACT Guideline

BAAQMD BACT Guideline	
VOC	N/A – No BACT determinations found
NOx	N/A – No BACT determinations found
SOx	N/A – No BACT determinations found
PM10	N/A – No BACT determinations found
PM2.5	N/A – No BACT determinations found
CO	N/A – No BACT determinations found

RULE REQUIREMENTS:

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

San Joaquin Valley Unified APCD

BACT
Source: SJVUAPCD BACT Clearinghouse

SJVUAPCD BACT Clearinghouse	
VOC	N/A – No BACT determinations found
NOx	N/A – No BACT determinations found
SOx	N/A – No BACT determinations found
PM10	N/A – No BACT determinations found
PM2.5	N/A – No BACT determinations found
CO	N/A – No BACT determinations found

RULE REQUIREMENTS:

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

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

SUMMARY OF ACHIEVED IN PRACTICE CONTROL TECHNOLOGIES	
VOC	1. No standard – [SMAQMD, SCAQMD, BAAQMD, SJVAPCD, SDCAPCD]
NOx	1. 30 ppmvd corrected to 3% O_2 (A) – [SCAQMD] 2. 60 ppmvd corrected to 3% O_2 (B) – [SCAQMD]
SOx	1. No standard – [SMAQMD, SCAQMD, BAAQMD, SJVAPCD, SDCAPCD]
PM10	1. No standard – [SMAQMD, SCAQMD, BAAQMD, SJVAPCD, SDCAPCD]
PM2.5	1. No standard – [SMAQMD, SCAQMD, BAAQMD, SJVAPCD, SDCAPCD]
CO	1. No standard – [SMAQMD, SCAQMD, BAAQMD, SJVAPCD, SDCAPCD]

(A) Does not include tank degassing, soil vapor extraction, and vapor incinerators where vapors are directed into the burner or into a combustion chamber.

(B) Emission limit applies to burners in units fueled by 100% natural gas and clean air that are used to incinerate air toxics, VOCs, or other vapors; or to heat a unit. The unit shall be tested or certified to meet the emission limit while fueled with natural gas.

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	
NOx	30 ppm at 3% O_2 (A)	SCAQMD
SOx	No standard	
PM10	No standard	
PM2.5	No standard	
CO	No standard	

(A) Does not include tank degassing, soil vapor extraction, and vapor incinerators where vapors are directed into the burner or into a combustion chamber.

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, NOx, SOx, PM10, or PM2.5 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

Based on the above analysis, BACT for VOC, NOx, SOx, PM10, PM2.5 and CO will be the most stringent standards of what is currently achieved in practice.

BACT #298 FOR DIRECT FIRED THERMAL OXIDIZER		
Pollutant	**Standard**	**Source**
VOC	No standard	
NOx	30 ppm at 3% O_2 (A)	SCAQMD
SOx	No standard	
PM10	No standard	
PM2.5	No standard	
CO	No standard	

(A) Does not include tank degassing, soil vapor extraction, and vapor incinerators where vapors are directed into the burner or into a combustion chamber.

APPROVED BY: *Brian F Krebs* **DATE:** 12-02-2021