SMAQMD BACT CLEARINGHOUSE

ACTIVE

CATEGORY Type: **CHEMICAL PROCESS**

BACT Category: Small Emitter (< 10 lbs/day)

BACT Determination Number: 364	**BACT Determination Date:** 6/24/2024

Equipment Information

Permit Number: N/A -- Generic BACT Determination
Equipment Description: CAPILLARY PRODUCTION
Unit Size/Rating/Capacity: < 10 lbs/day of VOC
Equipment Location:

BACT Determination Information

District Contact: Venk Reddy Phone No.: 279-207-1146 email: vreddy@airquality.org

ROCs	**Standard:**	300 PPM measured as carbon
	Technology Description:	
	Basis:	Achieved in Practice
NOx	**Standard:**	Not Addressed
	Technology Description:	
	Basis:	
SOx	**Standard:**	Not Addressed
	Technology Description:	
	Basis:	
PM10	**Standard:**	Not Addressed
	Technology Description:	
	Basis:	
PM2.5	**Standard:**	Not Addressed
	Technology Description:	
	Basis:	
CO	**Standard:**	Not Addressed
	Technology Description:	
	Basis:	
LEAD	**Standard:**	Not Addressed
	Technology Description:	
	Basis:	

Comments: This is a generic BACT determination based on BACT determinations made, and published, by other air agencies in California and/or other States.

Printed: 6/26/2024

BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION

DETERMINATION NOS.: 364

DATE: 05/01/2024

ENGINEER: Venk Reddy

Category/General Equip Description: Chemical Manufacturing Process

Equipment Specific Description: VOC Emissions from Capillary Production

Equipment Size/Rating: < 10 lbs/day of VOC

Previous BACT Det. No.: None

This Best Available Control Technology (BACT) determination will address VOC emissions emitted from a capillary production process. The capillaries are used in various scientific instrumentation such as HPLC and Gas Chromatographs. The manufacturing process involves the treatment of a substrate with various chemicals. Some of the chemicals involved are organic VOCs and are released during the treatment process. Production occurs under laboratory hoods. The exhaust fumes from the hoods are sent to a series of condensers that remove most of the VOCs from the process exhaust stream. After going through the condenser, the exhaust is vented into the atmosphere. The condensed waste VOCs are properly stored and disposed of as organic waste. Emissions from the process are those that are vented to the atmosphere after the condensers. There are no PM, PM2.5, NOx, SOx or CO emissions liberated during this process. This BACT will only address VOCs.

Per Sac Metro Air District policy titled “Small Emitter and “Otherwise-Exempt Equipment” BACT Determinations” (5/16/19) technologically feasible analysis will not be conducted since the total process does not exceed 10 lbs/day. This limit is achieved by limiting the quantity of production of the finished product, the prepared substrate.

BACT/T-BACT ANALYSIS

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

The following control technologies are currently employed as BACT for capillary production by the following agencies and 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
Source: EPA RACT/BACT/LAER Clearinghouse

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

RULE REQUIREMENTS:
There are no rules governing this source category.

California Air Resource Board (CARB)

BACT
Source: CARB BACT Clearinghouse
CARB BACT Guidelines Search

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

There is a BACT from BAAQMD for VOC emissions of <36 lb/day (document # 84.1.1, 8/30/91). The source of VOCs is flow coater, dip tank and roller coater. The achieved in practice controls is none. Since it is a different source it is not considered, but even if it is considered there is no standard to apply to this BACT.

RULE REQUIREMENTS:
None

Sacramento Metropolitan AQMD

BACT
BACT for capillary production using silica bonding reviewed as part of the evaluation of application 24218. The conclusion of which was to limit the VOC emissions from the process to less than 4,700 lbs/year. This process is being evaluated under the small emitter BACT policy and is limited to less than 4,700 lbs/year. However, since the 4,700 lbs/year limit was the cuttoff for add on controls and derived from Cost Effectiveness threshold, it should not apply.

RULE REQUIREMENTS:
Rule 441 Organic Solvents (12-6-78)
This rule limits the amount of organic solvents emitted into the atmosphere. The process involves a mixture of organic materials, photochemically reactive solvents and non-photochemically reactive solvents. The most stringent rule limitations will be discussed and will be considered achieved in practice for a mixture of the three types of solvents.

Section 301 for organic material states that the total emission cannot exceed 15 lbs/day or 3.1 lbs/hour for when the solvent comes in contact with a flame, baked, or heat-cured or polymerized. Section 302 limits photochemically reactive solvents to 39.7 lbs/day or 7.9 lbs/hr Since this BACT only covers emission of less than 10 lbs/day only the hourly emission rate will be considered as a standard.

South Coast AQMD

BACT
Source: SCAQMD BACT Guidelines (Part D) for Non-Major Polluting Facilities, (9/2/2022)

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 422 Usage of Solvents (12-15-2000)
Section (d)(2) limits the VOC emissions to less than 833 lbs/month. Since the BACT is limited to 10 lb/day or 310 lbs/month, this rule is not being considered for this BACT determination.

San Joaquin Valley APCD

BACT
Source: SJVAPCD BACT Guideline

SJVAPCD does not have an active BACT guideline for this source category.

RULE REQUIREMENTS:
Rule 4661 Organic Solvents (9-20-07)

The worst-case emission limit is found in section 5.2. The VOC emissions are limited to 15 lbs/day for a heated source. Since this BACT only covers emission of less than 10 lbs/day, this rule is not being considered for this BACT determination..

San Diego County APCD

BACT
Source: NSR Requirements for BACT (Revised Nov. 2023)
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:
San Diego APCD Rules

There are no rules governing this operation.

Bay Area AQMD

BACT
Source: BAAQMD BACT Guideline

There are no applicable BACTs in this clearinghouse.

RULE REQUIREMENTS:
BAAQMD Regulation 8, Rule 2 – Miscellaneous Operations (5/4/2022)

Section 116.9 states that laboratory equipment used exclusively for chemical or physical analyses and bench scale laboratory equipment is exempt. The production of such equipment may be exempt from this rule.

Section 8-2-301 limits VOC emission to less than 15 lbs/day and containing a concentration of less than 300 ppm of carbon on a dry basis. Since this BACT only covers emission of less than 10 lbs/day, the mass emission limit of this rule is not being considered for this BACT determination. The volumetric emission will be considered achieved in practice.

Summary of Achieved in Practice Control Technologies

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

SUMMARY OF ACHIEVED IN PRACTICE CONTROL TECHNOLOGIES	
VOC	1. 300 ppm measured as total carbon on a dry basis [BAAQMD] 2. 3.1 lbs/hr when in contact with a flame, baking, heat-cured or heat polymerized or 7.9 lbs/hr for all other mixtures of solvents. [SMAQMD] 3. No Standard [EPA, SDCAPCD, SJVAPCD, ARB, SCAQMD,]
NOx	Not addressed
Sox	Not addressed
PM10	Not addressed
PM2.5	Not addressed
CO	Not addressed
VOC T-BACT	No standard

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

BEST CONTROL TECHNOLOGIES ACHIEVED		
Pollutant	**Standard**	**Source**
VOC	Volumetric emission limit of 300 ppm measured as total carbon on a dry basis.	BAAQMD

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 AND T-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 #364 – Capillary Production		
Pollutant	**Standard**	**Source**
VOC	Volumetric emission limit of 300 ppm measured as total carbon on a dry basis.	BAAQMD
NOx	No standard	
SOx	No standard	
PM10	No standard	
PM2.5	No standard	
CO	No standard	

T-BACT #364 – Capillary Production		
Pollutant	**Standard**	**Source**
VOC T-BACT	No standard	All

APPROVED BY: *Brian F Krebs* **DATE:** 06-26-2024