SMAQMD BACT CLEARINGHOUSE

ACTIVE

CATEGORY Type: **OVEN/KILN**

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

BACT Determination Number:	376	**BACT Determination Date:**	03/14/2025

Equipment Information

Permit Number: 27818

Equipment Description: Burnout, Delacquering Oven/Kiln/Furnace

Unit Size/Rating/Capacity: All

Equipment Location: EXACT ALLOYS, LLC
1940 RAILROAD DR, SACRAMENTO, CA 95815

BACT Determination Information

District Contact: Vy Doan **Phone No.:** (279) 207-1177 **Email:** Vdoan@airquality.org

ROCs	**Standard:**	Afterburner or Secondary Combustion Chamber with ≥ 0.3 Second Retention Time at ≥ 1,400ºF Achieved within 15 Minutes of Primary Burner Ignition
	Technology Description:	Afterburner or Secondary Combustion Chamber
	Basis:	Achieved in Practice
NOx	**Standard:**	30 ppmvd @ 3% O2
	Technology Description:	Low-NOx Burner
	Basis:	Achieved in Practice
SOx	**Standard:**	Natural gas fueled
	Technology Description:	
	Basis:	Achieved in Practice
PM10	**Standard:**	Natural gas fueled
	Technology Description:	
	Basis:	Achieved in Practice
PM2.5	**Standard:**	No standard
	Technology Description:	
	Basis:	
CO	**Standard:**	Rated ≥ 325,000 Btu/hr and < 5 MMBtu/hr– 1,000 ppmvd @ 3% O2; Rated ≥ 5 MMBtu/hr – 400 ppmvd @ 3% O2

		Technology Description:	
		Basis:	Achieved in Practice
	LEAD	**Standard:**	No standard
		Technology Description:	
		Basis:	
Comments:			

Printed: 03/18/2025

777 12th Street, Ste. 300 Sacramento, CA 95814

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION

DETERMINATION NOS.: 376

DATE: July 10, 2024

ENGINEER: Vy Doan

Category/General Equip Description: Oven

Equipment Specific Description: Delaquering Oven, Delacquering Furnace, Delacquering Kiln, Burnout Oven, Scrap Dryer

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

Previous BACT Det. No.: N/A

This Best Available Control Technology (BACT) determination category was determined under the project for A/Cs 27818 & 27824 (Exact Alloy) for an aluminum scrap pretreatment process, which includes a burnout oven or delacquering oven. Using a pyrometallurgical cleaning technique, aluminum wheels, excluding chromium coated wheels, are placed in the burnout oven, and heated to remove the coating and contaminants without melting the aluminum (1,220°F). Pyrometallurgic cleaning techniques emit particulate matter (PM) and organic vapors (VOC).[1] Other emissions from the treatment process include CO, CO_2, NO_x, sulfur oxide, and hydrogen chloride gas (HCl) if the process burns off chlorinated organics.[2] Once all the contaminants are removed, the aluminum scrap can be considered clean charge material. No melting of aluminum is done at this facility.

Unlike a sweat furnace, a delacquering oven is not intended to melt aluminum off other metal alloys. Burnout/delacquering ovens are also used to clean coatings, insulation, and contaminants off of other materials in addition to aluminum scraps.

This BACT determination will be for Small Emitter source category based on the District's "Otherwise-Exempt Equipment" BACT Determinations policy (dated 5/16/2019). The policy 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 nonmajor 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.

1. https://www3.epa.gov/ttnchie1/ap42/ch12/final/c12s08.pdf
2. https://dep.wv.gov/daq/planning/inventory/Documents/EIIP%20V02%20Ch09%20Secondary%20Metal%20Processing.pdf

BACT/T-BACT ANALYSIS

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

The BACT/T-BACT clearinghouses for the following agencies and air pollution control districts were reviewed for control technologies currently employed for secondary aluminum facility scrap pretreatment processes, which include natural gas-fired burnout ovens:

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

US EPA

BACT
Source: EPA RACT/BACT/LAER Clearinghouse (See Attachment A)

From 1/1/2014 to 6/3/2024 there were 0 determinations entered that contain the search term “aluminum furnace.” There were 2 determinations entered that contain the search term “aluminum,” but none were applicable to aluminum recycling processes.

No determinations were found that contain the following search term: burnout, burnoff, and aluminum furnace. Applicable determinations were found containing the following search terms: delacquer, furnace, and oven.

Pollutant	Standard			
	RBLC ID: AL-0306	RBLC ID: AL-0307	RBLC ID: IN-0339	RBLC ID: IN-0236
VOC	0.06 lb/ton aluminum	0.006 lb/MMBtu	0.4 lbs/ton of scrap	0.4 lbs/ton of scrap
NOx	0.36 lb/ton aluminum	0.06 lb/MMBtu	No standard	No standard
SOx	No standard	No standard	No standard	No standard
PM10	No standard	No standard	No standard	No standard
PM2.5	No standard	No standard	No standard	No standard
CO	0.08 lb/MMBtu	0.03 lb/MMBtu	No standard	No standard

T-BACT
Source: EPA RACT/BACT/LAER Clearinghouse (See Attachment A)

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

RULE REQUIREMENTS:
40 CFR Part 63 Subpart RRR – National Emission Standards for Hazardous Air Pollutants for Secondary Aluminum Production: This regulation applies to owners/operators of each secondary aluminum production facility. Under this regulation, secondary aluminum

production facility is defined as any establishment using clean charge, aluminum scrap, or dross from aluminum production, as the raw material and performing one or more of the following processes: scrap shredding, scrap drying/delacquering/decoating, thermal chip drying, furnace operations (i.e., melting, holding, sweating, refining, fluxing, or alloying), recovery of aluminum from dross, in-line fluxing, or dross cooling. Therefore, this subpart only applies to units processing aluminum scrap.

Scrap dryer/delacquering kiln/decoating kiln at facilities defined as area sources is subject to dioxin and furan (D/F) emission standards and operating, monitoring, reporting, and recordkeeping requirements. [40 CFR §63.1500(a)(c)]

40 CFR §63.1505(d)
Owners and operators of a scrap dryer/delacquering kiln/decoating kiln at facilities defined as area sources must comply with the emission standards in 40 CFR§63.1505(d)(1)(iii) or alternative limits as described in 40 CFR§63.1505(e).

Scrap Dryer/ Delacquering Kiln/ Decoating Kiln Emission Standards		
Pollutant	**Standards**	**Facility Type**
D/F TEQ (Dioxin and Furan Toxic Equivalents)	0.25 µg D/F TEQ per Mg feed/charge (3.5×10^{-6} g D/F TEQ per ton feed/charge)	Major and Area Source
D/F TEQ (Dioxin and Furan Toxic Equivalents)	Alternative limits(A): 5.0 µg D/F TEQ per Mg feed/charge (7.0×10^{-5} g D/F TEQ per ton feed/charge)	Major and Area Source

(A) The limits are an alternative limit to the limits described in 40 CFR§63.1505(d)(1)(iii). Scrap dryer/ delacquering kiln/ decoating kiln using the alternative limit described in 40 CFR§63.1505(e)(1)(iii) must be equipped with an afterburner that is designed to have a residence time of at least 1 second and a constant operating temperature of at least 760°C (1,400°F).

The following sections are applicable to scrap dryer/delacquering kiln/decoating kiln at facilities defined as area sources:

40 CFR 63.1500(a), (c)(2), and (e)
40 CFR 63.1501(e)
40 CFR 63.1503
40 CFR 63.1505(a), (d)(1)(iii), and (e)(1)(iii)
40 CFR 63.1506(a)(1,4, and 5), (b), (c), (d), (g)(1), and (p)
40 CFR 63.1510(a)(1 through 4, and 6), (b)(1 through 8), (c), (d)(1, 2), (e), and (g)
40 CFR 63.1511(a), (b), (c)(1 through 4, and 7), (d), and (g)
40 CFR 63.1512(c), (k), (m), (n), (r), and (s)
40 CFR 63.1513(b), (d) and (f)
40 CFR 63.1515(a)(1, 2, 4, and 6) and (b)
40 CFR 63.1516(b), (d), and (e)
40 CFR 63.1517(a), and (b)(2, 6, 13, 14, 15, 16, 18, and 19)
40 CFR 63.1518
40 CFR 63.1519
Table 1

Table 2
Table 3
Appendix A

California Air Resource Board (CARB)

BACT
Source: CARB BACT Clearinghouse (See Attachment B)

No applicable BACT determinations found under search term delacquer, decoat, oven, furnace, kiln, burnout, burnoff, or scrap dryer.

ARB BACT Clearinghouse	
VOC	Afterburner or Secondary Combustion Chamber with ≥ 0.3 Second Retention Time at ≥ 1,400ºF Achieved within 15 Minutes of Primary Burner Ignition [SCAQMD]
NOx	30 ppmv or 0.036 lb/MMBtu [SCAQMD]
SOx	Natural Gas [SCAQMD]
PM10	Natural Gas [SCAQMD]
PM2.5	N/A – No BACT determinations found
CO	N/A – No BACT determinations found

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

RULE REQUIREMENTS:
CARB Airborne Toxic Control Measures (ATCM):
There are currently no ATCMs that apply to this source category.

Sacramento Metropolitan AQMD

BACT
Source: SMAQMD BACT Clearinghouse
No BACT Determination.

T-BACT
No T-BACT Determination.

RULE REQUIREMENTS:
Rule 419 – NOx From Miscellaneous Combustion Units (Adopted 07/26/2018, amended 10/25/2018)
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.

Table 1: Miscellaneous Combustion Units Emission Limits Expressed as PPMV @ 3% O_2			
Equipment Category	**NOx Limit ppmv @ 3% O_2 (lb/MMBtu)**		**CO Limit ppmv @ 3% O_2 (lb/MMBtu)**
	Effective (see Section 401)		
	Process Temperature		
Gaseous Fuel-Fired Equipment	**< 1,200°F**	**≥ 1,200°F**	
Asphalt Manufacturing Operation	40 (0.049)	40 (0.049)	400 (0.30)
Incinerator or Crematory	60 (0.073)	60 (0.073)	400 (0.30)
Metal Heat Treating or Metal Melting Furnace	60 (0.073)	60 (0.073)	400 (0.30)
Other Furnace	30 (0.036)	60 (0.073)	400 (0.30)
Oven, Dehydrator, Dryer, Heater, or Kiln	30 (0.036)	60 (0.073)	400 (0.30)
Soybean Roaster	45 (0.055)	60 (0.073)	-
Other miscellaneous combustion unit not listed above	30 (0.036)	60 (0.073)	400 (0.30)

Rule 404 – Particulate Matter (11/20/1984)
This rule limits particulate matter emissions to less than 0.23 grams per dry standard cubic meter (0.1 grains per dry standard cubic foot).

Rule 406 – Specific Contaminants (12/06/1978)
This rule limits sulfur emissions to less than 0.2% by volume, except as otherwise provided in Rule 420, calculated as sulfur dioxide (SO_2). This rule also limits combustion contaminants to less than 0.23 grams per dry standard cubic meter (0.1 grains per dry standard cubic foot) of gas calculated to 12% of carbon dioxide (CO_2).

Rule 420 – Sulfur Content of Fuels (8/13/81)
No person shall burn any gaseous fuels containing sulfur compounds in excess of 50 grains per 100 cubic feet, calculated as hydrogen sulfide at standard conditions, or any liquid fuel or solid fuel having a sulfur content in excess of 0.5% by weight.

South Coast AQMD

BACT
Source: SCAQMD BACT Guidelines for Non-Major Polluting Facilities, page 22 (2/1/2019)

Burnoff or Burnout Furnace (Excluding Wax Furnace)	
VOC	Afterburner or Secondary Combustion Chamber with ≥ 0.3 Second Retention Time at ≥ 1,400 ºF Achieved within 15 Minutes of Primary Burner Ignition (07-11-97)
NOx	Compliance with Rule 1147 (5-6-2022)(A)
SOx	Natural Gas (07-11-97)
PM10	Natural Gas (07-11-97)
PM2.5	No standard
CO	No standard

(A) The NOx limit for Burn-off Furnace, Burnout Oven, Incinerator or Crematory with or without Integrated Afterburner is 30 ppmv or 0.036 lb/MMBtu.

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

RULE REQUIREMENTS:
Rule 1147 – NOx Reductions From Miscellaneous Sources (05/06/2022)
The purpose of this rule is to reduce nitrogen oxide (NOx) emissions while limiting carbon monoxide (CO) emissions from gaseous and liquid fuel fired combustion equipment as defined in this rule. New burn-off furnaces or burnout ovens are required to meet the emission limits listed in Rule 1147, Table 2. This rule applies to unit rated at 325,000 Btu/hr or greater.

Equipment Categories	**Process Temperature**	**Emission Limits (ppmv corrected to 3% O_2, dry unless otherwise specified)**	
		NOx Limit	**CO Limit**
Gaseous Fuel -Fired Equipment(A)			
Burn-off Furnace, Burnout Oven, Incinerator or Crematory with or without integrated Afterburner	All	30 ppmv or 0.036 lb/MMBtu	1,000 ppmv

(A) Emission limit applies to burners in Units fueled by 100% natural gas that are used to incinerate air toxics, VOCs, or other vapors; or to heat a Unit. The emission-limit applies solely when burning 100% gaseous fuel and not when the burner is incinerating air toxics, VOCs, or other vapors. The Unit shall be tested or certified to meet the emission limit while fueled with natural gas.

Rule 431.1 – Sulfur Content of Gaseous Fuels (06/12/1998)
The purpose of this rule is to reduce sulfur oxides (SOx) emissions from the combustion of gaseous fuels in stationary equipment permitted by the SCAQMD. Table 1 of this rule shows the sulfur content requirements for Other Gases.

Rule 431.1 Table 1
Concentration Limits as Measured Over the Averaging Periods for Various Gaseous Fuels Containing Sulfur Compounds Calculated as H_2S

Fuel Type	Sulfur Limits (ppmv)	Averaging Period	Compliance Date on or After
Refinery Gas Small Refiners Other Refiners	 40 40	 4 hours 4 hours	 May 4, 1996 May 4, 1994
Landfill Gas	150	Daily	June 12, 1998
Sewage Digester Gas	40 or 40 and 500	Daily or Monthly and 15-minutes	November 17, 1995
Other Gases	40	4 hours	May 4, 1994

Rule 474 – Fuel Burning Equipment - Oxides of Nitrogen (12/04/1981)
The purpose of this rule is to limit emissions of oxides of nitrogen from fuel burning equipment. The rule is applicable to all non-mobile fuel burning equipment with a maximum gross input heat rating of 555 million Btu per hour or greater.

Maximum Gross Heat Input Rate in Millions Per Hour			
Fuel	**British Thermal Units**		
	555 ≤ rating < 1,786	**1,786 ≤ rating < 2,143**	**2,143 ≤ rating**
Gas	300 ppm NOx (A)	225 ppm NOx (A)	125 ppm NOx (A)
Liquid or Solid	400 ppm NOx (A)	325 ppm NOx (A)	225 ppm NOx (A)

(A) Expressed as nitrogen dioxide (NO_2), calculated at 3% oxygen on a dry basis averaged over a minimum of 15 consecutive minutes.

San Joaquin Valley Unified APCD

BACT
Source: SJVUAPCD Best Available Control Technology (BACT) Guideline 1.7.3 (rescinded)

The BACT Guideline appliable to Burnoff or Burnout Furnace was rescinded on May 11, 2022. The table below is only for reference.

Burnoff or Burnout Furnace (Excluding Wax Furnace)	
VOC	99% control (Afterburner with 0.5 sec or greater retention time and operating temperature of 1,400°F.)
NOx	Natural Gas (08-13-1999)
SOx	Natural Gas (08-13-1999)
PM10	Natural Gas (08-13-1999)
PM2.5	Natural Gas (08-13-1999)
CO	Natural Gas (08-13-1999)

T-BACT

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

RULE REQUIREMENTS:

Rule 4309 – Dryers, Dehydrators, and Ovens (12/15/2005)

This rule applies to any dryer, dehydrator, or oven that is fired on gaseous fuel, liquid fuel, or is fired on gaseous and liquid fuel sequentially, and the total rated heat input for the unit is 5.0 million British thermal units per hour (5.0 MMBtu/hr) or greater. Oven is defined as a chamber in which material is dried or cured in direct contact with the products of combustion. A delacquering/burnout oven is used to remove coating from the material and is not used to dry or cure the material. Therefore, Rule 4309 does not apply to delacquering/burnout ovens.

Rule 4201 – Particulate Matter Concentration (12/17/1992)

This rule limits PM emissions from any single source operation, dust, fumes, or total suspended PM to 0.1 grains per dry standard cubic foot of gas.

Rule 4301 – Fuel Burning Equipment (12/17/1992)

This rule limits the emissions of SO_2, NOx, and combustion contaminants from fuel burning equipment. The rule defines fuel burning equipment as any furnace, boiler, apparatus, and stack used in the process of burning fuel for the primary purpose of producing heat or power by indirect heat transfer. Fuel burning equipment serving primarily as air pollution control equipment are exempt.

A person shall not discharge into the atmosphere combustion contaminants exceeding in concentration at the point of discharge 0.1 grain per cubic foot of gas calculated to 12% of carbon dioxide at dry standard conditions.

A person shall not build, erect, install or expand any non-mobile fuel burning equipment unit unless the discharge into the atmosphere of contaminants will not and does not exceed any one (1) or more of the following rates:

200 pounds per hour of sulfur compounds, calculated as sulfur dioxide (SO_2);

140 pounds per hour of nitrogen oxides, calculated as nitrogen dioxide (NO_2);

Ten (10) pounds per hour of combustion contaminants as defined in Rule 1020 (Definitions) and derived from the fuel.

Rule 4801 – Sulfur Compounds (12/17/1992)
This rule limits the emissions of sulfur compounds to two-tenths (0.2) percent by volume calculated as SO_2, on a dry basis averaged over 15 consecutive minutes. EPA Method 8 and CARB Method 1-100 (Continuous Emission Stack Sampling) must be used to determine compliance with the rule limit.

San Diego County APCD

BACT
Source: New Source Review Requirements For Best Available Control Technology (Bact) - Guidance Document (November 2023) and https://www.sdapcd.org/content/sdapcd/permits/BACT.html

Delacquering Oven/Furnace/Kiln, Burnout/Burnoff Oven, Scrap Dryer	
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

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

RULE REQUIREMENTS:
Rule 53 - Specific Air Contaminants (01/22/1997)
This rule limits PM emissions from the burning of carbon-containing material to 0.10 grains per dry standard cubic foot (0.23 grams per dry standard cubic centimeter) at 12% CO_2 by volume.

Rule 62 - Sulfur Content Of Fuels (10/21/1981)
This rule applies to all stationary fuel burning equipment except as provided for by Rule 53, and except for the combustion of sewage treatment plant digestor gases and the incineration of gases emitted from solid waste disposal landfill sites. This rule limits the sulfur content in fuels to 10 grains of sulfur compounds, calculated as H_2S, per 100 cubic feet (0.23 grams sulfur, calculated as H_2S, per cubic meter) of dry gaseous fuel at standard conditions.

Rule 68 - Fuel-Burning Equipment - Oxides Of Nitrogen (09/20/1994)
This rule limits NOx emissions to 125 ppmvd at 3% O_2 and 240 mg/m3 at 20°C for gaseous fuels. This rule applies to any non-vehicular, fuel-burning equipment that has a maximum heat input rating greater than or equal to 50 MMBtu/hr.

Bay Area AQMD

BACT
Source: BAAQMD BACT Guideline 96.3.2 (5/7/03)

Delacquering Oven/Furnace/Kiln, Burnout/Burnoff Oven, Scrap Dryer	
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

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

RULE REQUIREMENTS:
Reg 6 Particulate Matter, Rule 1 – General Requirements 2018 Amendment (08/01/2018)
This rule limits Total Suspended Particulate (TSP) concentration from any source to less than or equal to 343 mg/dscm (0.15 grains/dscf) of exhaust gas volume.

Reg 8 Organic Compound, Rule 2 – Miscellaneous Operations (05/04/2022)
This rule limits precursor organic compounds (POC) emissions from miscellaneous operations to 6.8 kg/day (15 lb/day) and 300 ppm total carbon on a dry basis.

Reg 9 Inorganic Gaseous Pollutants, Rule 1 – Sulfur Dioxide (11/03/2021)
This rule limits sulfur dioxide (SO_2) emissions from any source, other than a ship, to 300 ppm (dry). This rule also limits ground-level concentrations of SO_2 from any emission source, other than ships, to 0.5 ppm continuously for 3 consecutive minutes, or 0.25 ppm averaged over 60 consecutive minutes, or 0.05 ppm averaged over 24 hours.

Reg 9 Inorganic Gaseous Pollutants, Rule 2 – Hydrogen Sulfide (revised 4/24/2018)
This rule limits, during any 24-hour period, ground-level concentrations of hydrogen sulfide (H_2S) from any emission source to 0.06 ppm averaged over three consecutive minutes or 0.03 ppm averaged over any 60 consecutive minutes. The limitations of this Rule shall not apply to concentrations of H_2S occurring on the property where the emissions occur providing that such property, from the emission point to the point of any such concentrations, is controlled by the person responsible for the emission.

Summary of Achieved in Practice Control Technologies

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

Units Used for NOx, VOC & CO

Depending on the agency, VOC, NOx, and CO emission standards were listed in either ppmvd @ 3% O_2 or in weight of pollutant per weight of feed.

VOC

The control method for all delacquering oven/delacquering furnace/delacquering kiln/burnout oven/scrap dryer BACT determinations achieved in practice was through use of afterburners. Afterburners reduce the emissions for VOC. The level of reduction depends on the temperature the exhaust is heated to and the retention time the exhaust is heated in the afterburner.

Toxics

Most HAPs are emitted as VOC and the same control technologies that control VOCs also control the HAPs and, therefore, the achieved in practice standards for V-HAPs are the same as for VOC.

CFR 40 Part 63 Subpart RRR standards only apply to units processing aluminum scrap. This subpart has standards for Dioxin and Furan Toxic Equivalents (D/F TEQ).

Summary Table

SUMMARY OF ACHIEVED IN PRACTICE CONTROL TECHNOLOGIES	
VOC	1. Afterburner or Secondary Combustion Chamber with ≥ 0.3 Second Retention Time at ≥ 1,400ºF Achieved within 15 Minutes of Primary Burner Ignition [SCAQMD]
NOx	1. 30 ppmvd @ 3% O_2. [SMAQMD Rule 419, SCAQMD Rule 1147] 2. 125 ppmvd @ 3% O_2. [SDCAPCD]
SOx	1. Natural Gas [SCAQMD]
PM10	1. Natural Gas [SCAQMD]
PM2.5	N/A – No BACT determinations found
CO	1A. ≥ 325,000 Btu/hr – 1,000 ppmvd @ 3% O_2. [SCAQMD Rule 1174] 1B. ≥ 5 MMBtu/hr – 400 ppmvd @ 3% O_2. [SMAQMD Rule 419]

SUMMARY OF ACHIEVED IN PRACTICE TOXICS CONTROL TECHNOLOGIES	
D/F TEQ(A) (Dioxin and Furan Toxic Equivalents)	1A. 0.25 µg D/F TEQ per Mg feed/charge (3.5×10^{-6} g D/F TEQ per ton feed/charge) [CFR 40 Part 63 Subpart RRR]
	1B. Alternative limits(B): 5.0 µg D/F TEQ per Mg feed/charge (7.0×10^{-5} g D/F TEQ per ton feed/charge) [CFR 40 Part 63 Subpart RRR]
V-HAP	Afterburner or Secondary Combustion Chamber with ≥ 0.3 Second Retention Time at ≥ 1,400ºF Achieved within 15 Minutes of Primary Burner Ignition [SCAQMD, SMAQMD]

(A) Standards only apply to units processing aluminum scrap.
(B) The limits are an alternative limit to the limits described in 40 CFR§63.1505(d)(1)(iii). Scrap dryer/ delacquering kiln/ decoating kiln using the alternative limit described in 40 CFR§63.1505(e)(1)(iii) must be equipped with an afterburner that is designed to have a residence time of at least 1 second and a constant operating temperature of at least 760°C (1,400°F).

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

BEST CONTROL TECHNOLOGIES ACHIEVED		
Pollutant	**Standard**	**Source**
VOC	Afterburner or Secondary Combustion Chamber with ≥ 0.3 Second Retention Time at ≥ 1,400ºF Achieved within 15 Minutes of Primary Burner Ignition	SCAQMD
NOx	30 ppmvd @ 3% O_2	SMAQMD, SCAQMD
SOx	Natural gas fueled	SCAQMD
PM10	Natural gas fueled	SCAQMD
PM2.5	No standard	ARB, SMAQMD, SCAQMD, BAAQMD, SDCAPCD
CO	1A. ≥ 325,000 Btu/hr – 1,000 ppmvd @ 3% O_2. 1B. ≥ 5 MMBtu/hr – 400 ppmvd @ 3% O_2.	SCAQMD SMAQMD

BEST TOXICS CONTROL TECHNOLOGIES ACHIEVED		
Pollutant	**Standard**	**Source**
D/F TEQ(A) (Dioxin and Furan Toxic Equivalents)	1A. 0.25 µg D/F TEQ per Mg feed/charge (3.5 x 10^{-6} g D/F TEQ per ton feed/charge)	CFR 40 Part 63 Subpart RRR
	1B. Alternative limits(B): 5.0 µg D/F TEQ per Mg feed/charge (7.0 x 10^{-5} g D/F TEQ per ton feed/charge)	
V-HAP	Afterburner or Secondary Combustion Chamber with ≥ 0.3 Second Retention Time at ≥ 1,400ºF Achieved within 15 Minutes of Primary Burner Ignition	SCAQMD & SMAQMD

(A) Standards only apply to units processing aluminum scrap.
(B) The limits are an alternative limit to the limits described in 40 CFR§63.1505(d)(1)(iii). Scrap dryer/ delacquering kiln/ decoating kiln using the alternative limit described in 40 CFR§63.1505(e)(1)(iii) must be equipped with an afterburner that is designed to have a residence time of at least 1 second and a constant operating temperature of at least 760°C (1,400°F).

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

Technologically Feasible Alternatives:

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 nonmajor 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.

Cost Effectiveness Determination:

Cost effectiveness determination is not applicable for this BACT determination category (Small Emitter).

C. SELECTION OF BACT:

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

BACT 376 FOR DELACQUERING OVEN/FURNACE/KILN; BURNOUT OVEN; SCRAP DRYER		
Pollutant	**Standard**	**Source**
VOC	Afterburner or Secondary Combustion Chamber with ≥ 0.3 Second Retention Time at ≥ 1,400ºF Achieved within 15 Minutes of Primary Burner Ignition	SCAQMD
NOx	30 ppmvd @ 3% O_2	SMAQMD, SCAQMD
SOx	Natural gas fueled	SCAQMD
PM10	Natural gas fueled	SCAQMD
PM2.5	No standard	
CO	1A. ≥ 325,000 Btu/hr – 1,000 ppmvd @ 3% O_2 1B. ≥ 5 MMBtu/hr – 400 ppmvd @ 3% O_2	SCAQMD SMAQMD

D. SELECTION OF T-BACT:

T-BACT for Scrap Dryer/ Delacquering Kiln/ Decoating Kiln		
Pollutant	**Standards**	**Source**
D/F TEQ(A) (Dioxin and Furan Toxic Equivalents)	A. 0.25 µg D/F TEQ per Mg feed/charge (3.5 x 10^{-6} g D/F TEQ per ton feed/charge) B. Alternative limits(B): 5.0 µg D/F TEQ per Mg feed/charge (7.0 x 10^{-5} g D/F TEQ per ton feed/charge)	CFR 40 Part 63 Subpart RRR
V-HAP	Afterburner or Secondary Combustion Chamber with ≥ 0.3 Second Retention Time at ≥ 1,400ºF Achieved within 15 Minutes of Primary Burner Ignition	SCAQMD & SMAQMD

(A) Standards only apply to units processing aluminum scrap.
(B) The limits are an alternative limit to the limits described in 40 CFR§63.1505(d)(1)(iii). Scrap dryer/ delacquering kiln/ decoating kiln using the alternative limit described in 40 CFR§63.1505(e)(1)(iii) must be equipped with an afterburner that is designed to have a residence time of at least 1 second and a constant operating temperature of at least 760°C (1,400°F).

APPROVED BY: *Brian F Krebs* **DATE:** 03-14-2025

Attachment A

Review of BACT Determinations published by EPA

1. https://www3.epa.gov/ttnchie1/ap42/ch12/final/c12s08.pdf
2. https://dep.wv.gov/daq/planning/inventory/Documents/EIIP%20V02%20Ch09%20Secondary%20Metal%20Processing.pdf

List of BACT determinations published in EPA's RACT/BACT/LAER Clearinghouse (RBLC) for the specified search terms:

RBLC#	Permit Date	Process Code	Rating	Fuel	Pollutant	Standard	Basis
Search: Delacquer							
AL-0306	10/09/2015	82.129	18 MMBtu/hr	Natural gas	CO2e	9229.00 tons/yr	Unknown
AL-0306	10/09/2015	82.129	18 MMBtu/hr	Natural gas	CO	0.08 lb/MMBtu	BACT-PSD
AL-0306	10/09/2015	82.129	18 MMBtu/hr	Natural gas	NOx	0.36 lb/ton aluminum	BACT-PSD
AL-0306	10/09/2015	82.129	18 MMBtu/hr	Natural gas	VOC	0.06 lb/ton	BACT-PSD
Search: Furnace							
KY-0103	12/27/2020	Title V, N/A	Title V, N/A	Title V, N/A	Title V, N/A	Title V, N/A	Title V, N/A
AL-0306	10/9/2015	82.121	18 MMBtu/hr	Natural gas	CO2e	18459.00 tons/yr	Unknown
AL-0306	10/9/2015	82.121	18 MMBtu/hr	Natural gas	CO	0.03 lb/MMBtu	BACT-PSD
AL-0306	10/9/2015	82.121	18 MMBtu/hr	Natural gas	NOx	0.06 lb/ton aluminum	BACT-PSD
AL-0306	10/9/2015	82.121	18 MMBtu/hr	Natural gas	VOC	0.006 lb/ton	BACT-PSD
AL-0307	10/9/2015	82.119	25.45 MMBtu/hr	Natural gas	CO2e	36251.00 tons/yr	Unknown
AL-0307	10/9/2015	82.119	25.45 MMBtu/hr	Natural gas	CO	0.03 lb/MMBtu	BACT-PSD
AL-0307	10/9/2015	82.119	25.45 MMBtu/hr	Natural gas	NOx	0.04 lb/ton aluminum	BACT-PSD
AL-0307	10/9/2015	82.119	25.45 MMBtu/hr	Natural gas	VOC	0.006 lb/ton	BACT-PSD
Search: Oven							
IN-0339	05/06/2021	82.129	2.0 MMBtu/hr	Natural Gas	VOC	0.4 lbs/tons of scrap	case-by-case
IN-0236	01/08/2016	19.200	2.0 MMBtu/hr	Natural Gas	VOC	0.4 lbs/tons of scrap	case-by-case

1. https://www3.epa.gov/ttnchie1/ap42/ch12/final/c12s08.pdf
2. https://dep.wv.gov/daq/planning/inventory/Documents/EIIP%20V02%20Ch09%20Secondary%20Metal%20Processing.pdf