



BACT Determinations

The Maricopa County Air Quality Department (MCAQD) BACT (Best Available Control Technology) Clearinghouse specifies the BACT requirements that MCAQD has approved for commonly permitted sources subject to MCAQD Rule 241. The BACT Clearinghouse is for informational purposes only and serves as a guide for permit applicants and others interested in understanding emissions limits, control devices, and techniques needed to meet BACT.

Permit applicants are encouraged to use the BACT Clearinghouse to ensure consistent and expeditious processing of permit applications where BACT is required.

Permit applicants should review the BACT Clearinghouse to determine if BACT is available for their specific equipment or process. If the BACT Clearinghouse does not include or the permit applicant chooses not to propose a listed BACT control/reduction measure or an alternative measure that meets the emission thresholds, then the permit applicant has other options for meeting BACT requirements:

- Agree to enforceable emission limits in their permit to avoid triggering BACT
- Use BACT for the same or similar source category listed by the [South Coast Air Quality Management District \(SCAQMD\)](#), the [San Joaquin Valley Air Pollution Control District \(SJVAPCD\)](#), or the [Bay Area Air Quality Management District \(BAAQMD\)](#)
- Complete a top-down BACT analysis customized for their equipment or facility

For more information on BACT determinations, please consult the MCAQD [Permitting Handbook](#) or [Email Permit Engineering](#).

Acronyms - The following air quality agencies are referred to in the MCAQD BACT Clearinghouse:

BAAQMD	Bay Area Air Quality Management District
CARB	California Air Resources Board
RBLC	EPA RACT/BACT/LAER Clearinghouse
SCAQMD	South Coast Air Quality Management District
SJVUAPCD	San Joaquin Valley Unified Air Pollution Control District

Current MCAQD BACT determinations

A. Particulate Matter (PM₁₀/PM_{2.5}) Emission Sources:

Emission Source:	Dry Powdered Material Handling
Pollutant:	PM ₁₀
BACT:	PM ₁₀ emission rate of no more than 0.01 gr/dscf
Date:	May 23, 2003 (United Dairyemen of Arizona F000128)

Technology:	Baghouse or fabric filter
Discussion:	This determination is consistent with the BAAQMD BACT Workbook determination found here . Other sources subject in later revisions to their permit. United Dairymen took enforceable exhaust limits of 0.002 gr/dscf and 0.006 gr/dscf for baghouses controlling powdered milk processes. These limits were taken to reduce potential to emit (PTE) but may be contenders for future BACT determinations since they have been demonstrated through performance testing to be technically feasible.
Emission Source:	Electric Arc Furnace/Ladle Metallurgy Station
Pollutant:	PM ₁₀ / PM _{2.5}
BACT:	0.0024 gr/dscf
Date:	May 11, 2020 (CMC Steel Fabricators F002411)
Technology:	Baghouse/Fabric Filter
Discussion:	The use of a baghouse/fabric filter is included in the RBLC database as a form of control of PM including PM ₁₀ and PM _{2.5} from Electric Arc Furnaces/Ladle Metallurgy Stations. RBLC indicates that performance testing was used to determine emission rates.
Emission Source:	Electric Arc Furnace/Ladle Metallurgy Station
Pollutant:	Total PM
BACT:	0.0018 gr/dscf
Date:	May 11, 2020 (CMC Steel Fabricators F002411)
Technology:	Baghouse/Fabric Filter
Discussion:	The use of a baghouse/fabric filter is included in the RBLC database as a form of control of PM from Electric Arc Furnaces/Ladle Metallurgy Stations. RBLC indicates that performance testing was used to determine emission rates.
Emission Source:	Hot Mix Asphalt (HMA) Plant Drum Dryer
Pollutant:	PM ₁₀
BACT:	PM ₁₀ emission rate of no more than 0.01 gr/dscf
Technology:	Baghouse or fabric filter
Date:	December 2012 (Vulcan Materials Company F002594)
Discussion:	MCAQD Rule 316 (Nonmetallic Mineral Processing) specifies RACT as stack emissions containing no more than 0.04 gr/dscf (90 mg mg/dscm) of particulate matter. It's been shown that a baghouse can routinely achieve an outlet grain loading emission rate of 0.01 gr/dscf for a drum dryer at a HMA plant. Multiple HMA facilities have met this standard,

thus it has been deemed technically feasible, achieved in practice and cost effective. This determination is consistent with the BAAQMD BACT Workbook determination found [here](#).

Emission Source: Steel Foundry
Pollutant: PM₁₀
BACT: PM₁₀ emission rate of no more than 0.01 gr/dscf
Date: July 10, 2012 (ME Global F000128)
Technology: Baghouse or fabric filter
Discussion: This determination is consistent with the BAAQMD BACT Workbook determination found [here](#).

Emission Source: Wood Furniture Manufacturing
Pollutant: PM₁₀
BACT: Particulate control of 99.5% or greater or a PM₁₀ emission rate of no more than 0.015 gr/dscf
Date: September 15, 2014 (Trendwood, Inc. F000420)
Technology: Baghouse or fabric filter
Discussion: The determination was taken from CARB which identified the use of high efficiency, high flowrate baghouses in conjunction with exhaust systems as BACT for woodworking operations (SIC 2511).

B. Volatile Organic Compound (VOC) Emission Sources:

Emission Source: Digital Printing
Pollutant: VOCs
BACT: Internal VOC recovery system that includes a vapor collection system and condenser that recovers and reuses organic liquids
Date: March 5, 2021 (Shutterfly Inc. F003542)
Technology: Internal VOC recovery system that includes a vapor collection system and condenser that recovers and reuses organic liquids
Discussion: This determination was approved by the BAAQMD on March 2, 2011 and by the Sacramento Metropolitan Air Quality Management District on August 14, 2020. Approval letters are part of the facility's application (A0001586) dated November 17, 2020.

Emission Source: Electric Arc Furnace/Ladle Metallurgy Station
Pollutant: VOCs

BACT:	0.3 lb/ton
Date:	May 11, 2020 (CMC Steel Fabricators F002411)
Technology:	Good Combustion Practices (GCP)
Discussion:	The use of GCP is included in the RBLC database as a form of control of VOC from Electric Arc Furnaces/Ladle Metallurgy Stations.
Emission Source:	Gasoline Loading at a Bulk Terminal
Pollutant:	VOCs
BACT:	VOC emissions of no more than 0.02 pounds/1000 gallons loaded
Date:	January 25, 2019 (Circle K Terminal LLC F002747)
Technology:	Vapor collection system vented to a thermal oxidizer or carbon adsorber
Discussion:	BACT was proposed by Circle K Terminal LLC F002747 and taken from BAAQMD BACT Workbook determination found here .
Emission Source:	Semiconductor Manufacturing Facility
Pollutant:	VOCs
BACT:	The control device shall achieve a VOC destruction efficiency of at least: <ol style="list-style-type: none">1) 98.5% when the inlet VOC concentration is greater than or equal to 2,000 ppmv measured as methane; or2) 97% when the inlet VOC concentration is greater than or equal to 200 but less than 2,000 ppmv measured as methane; or3) 90% when the inlet VOC concentration is less than 200 ppmv measured as methane.4) As an alternative to the destruction efficiency requirements of items 1) – 3) above, the oxidizer shall achieve an outlet concentration of less than or equal to 10 ppmv VOC measured as methane.
Technology:	Thermal Oxidizer, Catalytic Oxidizer, Regenerative Thermal Oxidizers (RTO) or Rotary Concentrator Thermal Oxidizer (RCTO)
Date:	May 2007 (Intel Corporation – Ocotillo Campus F000701)
Discussion:	BACT was originally taken from BAAQMD BACT Workbook determination found here . Since that time the determination has been applied to several semiconductor manufacturing operations including NXP Semiconductors (F003666), Intel Corporation (F000701), and TSMC (F041443) that have successfully met the standard.

Emission Source: Surface Coating
Pollutant: VOCs
BACT: 98% control of VOC emissions or an outlet concentration of less than 15 ppm (as methane) adjusted to standard conditions when the concentration at the inlet of the emission control system (ECS) is less than 100 ppm (as methane)
Date: April 26, 2021 (APEL Extrusions Inc. F040355)
Technology: Thermal Oxidizer, Catalytic Oxidizer, Regenerative Thermal Oxidizers (RTO) or Rotary Concentrator Thermal Oxidizer (RCTO)
Discussion: Proposed by the facility in their application (A0002298) dated March 22, 2021.

Emission Source: Wood Furniture Coating
Pollutant: VOCs
BACT: Use of coatings that comply with the VOC limits found in San Diego APCD [Rule 67.11](#)
Date: September 21, 2006 (AF Lorts Manufacturing Co. F000132)
Technology: Use of low VOC coatings
Discussion: A review of the EPA BACT/LAER Clearinghouse and other agencies at the time (BAAQMD and SCAQMD) indicated that the use of low VOC coatings has been approved as BACT. The facility proposed the VOC limits found in San Diego APCD Rule 67.11 and it was approved by MCAQD given the limits are much lower than those in MCAQD's Rule 342 (Coating Wood Furniture and Fixtures).

C. Nitrogen Oxides (NO_x/NO₂) Emission Sources:

Emission Source: Electric Arc Furnace/Ladle Metallurgy Station
Pollutant: NO_x, NO₂
BACT: 0.3 lb/ton
Date: May 11, 2020 (CMC Steel Fabricators F002411)
Technology: Direct Evacuation Control (DEC) and Oxy-Fired Burners. The DEC includes Oxy-Fired Burners to achieve combustion using oxygen rather than air, which reduces nitrogen levels in the furnace.
Discussion: The use of DEC is included in the RBLC database as a form of control of NO_x from Electric Arc Furnaces/Ladle Metallurgy Stations. RBLC indicates that performance testing was used to determine emission rates.

Emission Source:	Emergency Engines > 1,000 bhp
Pollutant:	NO _x , NO ₂
BACT:	Prior to April 2021: NO _x emissions meeting current model year emission standards under New Source Performance Standards (NSPS) Subpart JJJJ or NSPS Subpart IIII After April 2021: NO _x emissions meeting EPA Tier 4 emissions standards
Date:	April 2021
Technology:	Selective Catalytic Reduction (SCR) or purchase of a Tier 4 certified engine
Discussion:	Bay Area determined that BACT for emergency engines was NO _x emissions meeting EPA Tier 4 emissions standards in January 2021 after multiple facilities in their jurisdiction successfully implemented the technology (demonstrating that it was both achievable in practice and cost effective). The BAAQMD BACT Workbook determination is found here . MCAQD followed suit in April 2021 following implementation of Tier 4 by businesses including Platypus Development LLC (F003392). Since that time multiple facilities have successfully employed SCR to meet Tier 4 including PH Data Center (F040194) and MECP1 Mesa 1, LLC (F004157).
Emission Source:	Emergency Engines < 1,000 bhp
Pollutant:	NO _x , NO ₂
BACT:	Purchase of an engine certified the meet the emission standard found in NSPS Subpart IIII or NSPS Subpart JJJJ for the current model engine
Date:	August 2012 (Intel Corporation – Ocotillo Campus F000701)
Technology:	Selective Catalytic Reduction (SCR)
Discussion:	BACT was originally taken from BAAQMD BACT Workbook determination found here . Other facilities subject to this determination include Ebay Inc. (now LMX Phoenix F003678), First Data Resources Inc. (now Fiserv F002757), and Wells Fargo Tempe Operation Center (F002806).

D. Carbon Monoxide (CO) Emission Sources:

Emission Source:	Electric Arc Furnace/Ladle Metallurgy Station
Pollutant:	CO
BACT:	4.0 lb/ton
Date:	May 11, 2020 (CMC Steel Fabricators F002411)

Technology: Direct Evacuation Control (DEC) and Good Combustion Practices (GCP). The DEC system maximizes thermal oxidation of CO by regulating the amount of air introduced into the ductwork downstream of the furnace.

Discussion: The use of DEC is included in the RBLC database as a form of control of CO from Electric Arc Furnaces/Ladle Metallurgy Stations. RBLC indicates that performance testing was used to determine emission rates.

E. Sulfur Dioxide (SO₂) Emission Sources:

Emission Source: Electric Arc Furnace/Ladle Metallurgy Station

Pollutant: SO₂

BACT: 0.3 lb/ton (30-day average)

Date: May 11, 2020 (CMC Steel Fabricators F002411)

Technology: Good Combustion Practices (GCP)

Discussion: The use of GCP is included in the RBLC database as a form of control of SO₂ from Electric Arc Furnaces/Ladle Metallurgy Stations.

F. Lead (Pb) Emission Sources:

Emission Source: Electric Arc Furnace (EAF)/Ladle Metallurgy Station (LMS)

Pollutant: Lead

BACT: 0.0016 lb/ton

Date: May 11, 2020 (CMC Steel Fabricators F002411)

Technology: Baghouse/Fabric Filter

Discussion: The use of a baghouse/fabric filter was determined to be BACT for lead emissions from EAF/LMS based on its use in practice at CMC Mesa Plant 1.

G. Fluoride Emission Sources:

Emission Source: Electric Arc Furnace/Ladle Metallurgy Station

Pollutant: Fluorides

BACT: 0.01 lb/ton

Date: May 11, 2020 (CMC Steel Fabricators F002411)

Technology: Baghouse/Fabric Filter

Discussion: BACT from Special Condition 10 in Permit 156458 for Steel Dynamics Southwest, Texas Facility. This more stringent than the 0.059 lb/ton limit listed the RBLC for similar facilities

OBSOLETE BACT DETERMINATIONS

Emission Source: Gasoline Storage Tank > 1,000,000 gallons
Pollutant: VOCs
BACT: 95% control of VOC emissions (**Obsolete**)
Date: March 11, 2010 (Quikjet LLC F001331)
Technology: Internal floating roof tank with primary metal shoe seal with secondary wiper seal
Discussion: BACT was taken from the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) dated 10-01-2002

Emission Source: Surface Coating
Pollutant: VOCs
BACT: Limit VOC content of surface coatings to no more than 2.8 lb VOC/gallon as applied (**Obsolete**)
Date: March 25, 2006 (Look Trailers F002865)
Technology: Use of low VOC coatings
Discussion: Taken from SJVUAPCD determination 4.2.4 for trailer coating operations dated December 23, 1996. Determination was rescinded on May 11, 2022.