

CATEGORY:

**IC ENGINE COMPRESSION-PRIME**

BACT Size: Minor Source BACT

IC ENGINE PRIME POWER

<b>BACT Determination Number:</b>	166	<b>BACT Determination Date:</b>	9/12/2017
<b>Equipment Information</b>			
<b>Permit Number:</b>	25331		
<b>Equipment Description:</b>	IC ENGINE PRIME POWER		
<b>Unit Size/Rating/Capacity:</b>	Portable Greenwaste Grinder		
<b>Equipment Location:</b>	ZANKER ROAD RESOURCE MGMT, LTD DBA FLORIN PERKINS 4201 FLORIN PERKINS RD SACRAMENTO, CA		
<b>BACT Determination Information</b>			
<b>ROCs</b>	<b>Standard:</b>		
	<b>Technology Description:</b>	The wood waste must not remain at the site for longer than 48 hours after is has been ground	
	<b>Basis:</b>	Achieved in Practice	
<b>NOx</b>	<b>Standard:</b>		
	<b>Technology Description:</b>		
	<b>Basis:</b>		
<b>SOx</b>	<b>Standard:</b>		
	<b>Technology Description:</b>		
	<b>Basis:</b>		
<b>PM10</b>	<b>Standard:</b>	VEE < or equal to 5% Opacity	
	<b>Technology Description:</b>	Water spray or adequate moisture content of process materials	
	<b>Basis:</b>	Achieved in Practice	
<b>PM2.5</b>	<b>Standard:</b>	VEE < or equal to 5% Opacity	
	<b>Technology Description:</b>	Water spray or adequate moisture content of process materials	
	<b>Basis:</b>	Achieved in Practice	
<b>CO</b>	<b>Standard:</b>		
	<b>Technology Description:</b>		
	<b>Basis:</b>		
<b>LEAD</b>	<b>Standard:</b>		
	<b>Technology Description:</b>		
	<b>Basis:</b>		
<b>Comments:</b> Minor Source/Small Emitter BACT (< 10 lb/day)			
<b>District Contact:</b> Felix Trujillo, Jr. Phone No.: (916) 874 - 7357 email: smosunic@airquality.org			



## BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION

**DETERMINATION**

<b>NO.:</b>	166
<b>DATE:</b>	9/12/17
<b>ENGINEER:</b>	Felix Trujillo, Jr.

**Category/General Equip**

**Description:** Grinder

**Equipment Specific Description:** Portable Greenwaste Grinder

**Equipment Size/Rating:** Small Emitter BACT (< 10 lb/day)/Minor Source

**Previous BACT Det. No.:** 96

This BACT was determined under the project for A/C's 25331 and 25332 (Zanker Road Resource Management, Ltd.).

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

The following control technologies are currently employed as BACT for portable woodwaste grinding (i.e. tub grinders, horizontal grinders) operations:

District/Agency	Best Available Control Technology (BACT)/Requirements
US EPA	<b><u>BACT</u></b>
	Source: <a href="#">EPA RACT/BACT/LAER Clearinghouse</a>
	Portable Greenwaste Grinder
	<b>VOC</b> No standard
	<b>NOx</b> No standard
	<b>SOx</b> No standard
	<b>PM10</b> No standard
	<b>PM2.5</b> No standard
	<b>CO</b> No standard
	<b><u>RULE REQUIREMENTS:</u></b>
	None

District/Agency	Best Available Control Technology (BACT)/Requirements														
ARB	<p><b><u>BACT</u></b>  <a href="#">Source: ARB BACT Clearinghouse</a></p> <table border="1" data-bbox="423 432 1430 730"> <tr> <td colspan="2">Portable Greenwaste Grinder</td></tr> <tr> <td><b>VOC</b></td><td>No standard</td></tr> <tr> <td><b>NOx</b></td><td>No standard</td></tr> <tr> <td><b>SOx</b></td><td>No standard</td></tr> <tr> <td><b>PM10</b></td><td>No standard</td></tr> <tr> <td><b>PM2.5</b></td><td>No standard</td></tr> <tr> <td><b>CO</b></td><td>No standard</td></tr> </table> <p><b><u>RULE REQUIREMENTS:</u></b>        Regulation to Establish a Statewide Portable Equipment Registration Program (Title 13, CCR, Article 5 Sections 2450-2465) sets the following requirements for portable grinders registered in the PERP program.</p> <ol style="list-style-type: none"> <li>1. There shall be no visible emissions beyond the property line on which the equipment is being operated;</li> <li>2. No air contaminants shall be discharged into the atmosphere for a period of periods aggregating more than three minutes in any one hour which is as dark or darker than Ringelmann 1 or equivalent 20 percent opacity; and</li> <li>3. Water suppression or chemical palliatives shall be used to control fugitive particulate emissions from the tub grinder whenever the tub grinder is in operation, unless there are no visible emissions.</li> </ol>	Portable Greenwaste Grinder		<b>VOC</b>	No standard	<b>NOx</b>	No standard	<b>SOx</b>	No standard	<b>PM10</b>	No standard	<b>PM2.5</b>	No standard	<b>CO</b>	No standard
Portable Greenwaste Grinder															
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<b>PM10</b>	No standard														
<b>PM2.5</b>	No standard														
<b>CO</b>	No standard														
SMAQMD	<p><b><u>BACT</u></b>        Source: SMAQMD BACT Clearinghouse; BACT #96</p> <table border="1" data-bbox="423 1268 1430 1713"> <tr> <td colspan="2">Portable Greenwaste Grinder</td></tr> <tr> <td><b>VOC</b></td><td>No standard</td></tr> <tr> <td><b>NOx</b></td><td>No standard</td></tr> <tr> <td><b>SOx</b></td><td>No standard</td></tr> <tr> <td><b>PM10</b></td><td>VEE &lt; or equal to 5% Opacity; Water spray or adequate moisture of process materials</td></tr> <tr> <td><b>PM2.5</b></td><td>VEE &lt; or equal to 5% Opacity; Water spray or adequate moisture of process materials</td></tr> <tr> <td><b>CO</b></td><td>No standard</td></tr> </table> <p><b><u>RULE REQUIREMENTS:</u></b>        None</p>	Portable Greenwaste Grinder		<b>VOC</b>	No standard	<b>NOx</b>	No standard	<b>SOx</b>	No standard	<b>PM10</b>	VEE < or equal to 5% Opacity; Water spray or adequate moisture of process materials	<b>PM2.5</b>	VEE < or equal to 5% Opacity; Water spray or adequate moisture of process materials	<b>CO</b>	No standard
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<b>CO</b>	No standard														

District/Agency	Best Available Control Technology (BACT)/Requirements														
South Coast AQMD	<p><b>BACT</b>            Source: <a href="#">SCAQMD BACT Guidelines for Non-Major Polluting Facilities, page 13.</a></p> <table border="1" data-bbox="423 432 1425 743"> <tr> <td colspan="2">Portable Greenwaste Grinder</td></tr> <tr> <td><b>VOC</b></td><td>No standard</td></tr> <tr> <td><b>NOx</b></td><td>No standard</td></tr> <tr> <td><b>SOx</b></td><td>No standard</td></tr> <tr> <td><b>PM10</b></td><td>No standard</td></tr> <tr> <td><b>PM2.5</b></td><td>No standard</td></tr> <tr> <td><b>CO</b></td><td>No standard</td></tr> </table> <p><b>RULE REQUIREMENTS:</b>            SCAQMD Rule 1133.1 Chipping and Grinding Activities (7/8/11)</p> <p>The purpose of this rule is to prevent inadvertent decomposition occurring during chipping and grinding activities, including stockpile operations. Section (d)(2) requires the operator of a chipping and grinding activity to chip and grind and utilize on site or remove curbside, non-curbside or mixed greenwaste from the site within 48 hours of receipt. The purpose of this rule is to reduce VOC emissions. Pursuant to the Proposed Amended Rule 1133.1 – Chipping and Grinding Activities (6/11) Staff Report, page 12, once greenwaste materials are chipped or ground, air emissions begin to occur immediately and spike within 3 to 7 days of being chipped or ground. The facility does not accept food waste or yard trimmings (as listed on their website <a href="http://www.zankerrecycling.com/florin-perkins/recycling-services/materials-not-accepted/">http://www.zankerrecycling.com/florin-perkins/recycling-services/materials-not-accepted/</a>), which decompose at a higher rate than non-curbside greenwaste. The facility does not compost at the site. The facility proposes to store the stockpiles up to 48 hours prior to removal from off-site. Therefore, it is assumed that VOC emissions are negligible and would not trigger BACT requirements.</p>	Portable Greenwaste Grinder		<b>VOC</b>	No standard	<b>NOx</b>	No standard	<b>SOx</b>	No standard	<b>PM10</b>	No standard	<b>PM2.5</b>	No standard	<b>CO</b>	No standard
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San Diego County APCD	<p><b>BACT</b>            Source: <a href="#">NSR Requirements for BACT, page 27.</a></p> <table border="1" data-bbox="423 1451 1425 1732"> <tr> <td colspan="2">Portable Greewaste Grinder</td></tr> <tr> <td><b>VOC</b></td><td>No standard</td></tr> <tr> <td><b>NOx</b></td><td>No standard</td></tr> <tr> <td><b>SOx</b></td><td>No standard</td></tr> <tr> <td><b>PM10</b></td><td>No standard</td></tr> <tr> <td><b>PM2.5</b></td><td>No standard</td></tr> <tr> <td><b>CO</b></td><td>No standard</td></tr> </table> <p>The SDCAPCD has a BACT trigger level of 10 lb/day.</p> <p><b>RULE REQUIREMENTS:</b>            None</p>	Portable Greewaste Grinder		<b>VOC</b>	No standard	<b>NOx</b>	No standard	<b>SOx</b>	No standard	<b>PM10</b>	No standard	<b>PM2.5</b>	No standard	<b>CO</b>	No standard
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District/Agency	Best Available Control Technology (BACT)/Requirements														
Bay Area AQMD	<p><b>BACT</b>            Source: <a href="#">BAAQMD BACT Guideline Document 180.1 (8/5/91)</a></p> <table border="1" data-bbox="418 447 1429 751"> <tr> <td colspan="2">Wood Processing Equipment</td></tr> <tr> <td><b>VOC</b></td><td>No standard</td></tr> <tr> <td><b>NOx</b></td><td>No standard</td></tr> <tr> <td><b>SOx</b></td><td>No standard</td></tr> <tr> <td><b>PM10</b></td><td>Water Spray w/ &gt; 50% control efficiency</td></tr> <tr> <td><b>PM2.5</b></td><td>No standard</td></tr> <tr> <td><b>CO</b></td><td>No standard</td></tr> </table> <p>The BAAQMD has a BACT trigger level of 10 lb/day.</p> <p><b><u>RULE REQUIREMENTS:</u></b>            None.</p>	Wood Processing Equipment		<b>VOC</b>	No standard	<b>NOx</b>	No standard	<b>SOx</b>	No standard	<b>PM10</b>	Water Spray w/ > 50% control efficiency	<b>PM2.5</b>	No standard	<b>CO</b>	No standard
Wood Processing Equipment															
<b>VOC</b>	No standard														
<b>NOx</b>	No standard														
<b>SOx</b>	No standard														
<b>PM10</b>	Water Spray w/ > 50% control efficiency														
<b>PM2.5</b>	No standard														
<b>CO</b>	No standard														
San Joaquin Valley APCD	<p><b>BACT</b>            Source: SJVUAPCD BACT Guideline 6.4.2</p> <table border="1" data-bbox="418 1062 1429 1434"> <tr> <td colspan="2">Tub Grinder – Transportable, Wood Waste Processing</td></tr> <tr> <td><b>VOC</b></td><td>No standard</td></tr> <tr> <td><b>NOx</b></td><td>No standard</td></tr> <tr> <td><b>SOx</b></td><td>No standard</td></tr> <tr> <td><b>PM10</b></td><td>Use of a water sprinkler system or maintaining moisture content of the process materials to prevent visible emissions in excess of 5% opacity.</td></tr> <tr> <td><b>PM2.5</b></td><td>No standard</td></tr> <tr> <td><b>CO</b></td><td>No standard</td></tr> </table> <p>The SJVAPCD BACT trigger level is 2 lb/day.</p> <p><b><u>RULE REQUIREMENTS:</u></b>            None</p>	Tub Grinder – Transportable, Wood Waste Processing		<b>VOC</b>	No standard	<b>NOx</b>	No standard	<b>SOx</b>	No standard	<b>PM10</b>	Use of a water sprinkler system or maintaining moisture content of the process materials to prevent visible emissions in excess of 5% opacity.	<b>PM2.5</b>	No standard	<b>CO</b>	No standard
Tub Grinder – Transportable, Wood Waste Processing															
<b>VOC</b>	No standard														
<b>NOx</b>	No standard														
<b>SOx</b>	No standard														
<b>PM10</b>	Use of a water sprinkler system or maintaining moisture content of the process materials to prevent visible emissions in excess of 5% opacity.														
<b>PM2.5</b>	No standard														
<b>CO</b>	No standard														

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

<b>SUMMARY OF ACHIEVED IN PRACTICE CONTROL TECHNOLOGIES</b>		
<b>Pollutant</b>	<b>Standard</b>	<b>Source</b>
<b>VOC</b>	1. The wood waste must not remain at the site for longer than 48 hours after it has been ground.	SCAQMD
<b>NOx</b>	No Standard	
<b>SOx</b>	No Standard	
<b>PM10</b>	1. VEE < or equal to 5% Opacity; Water spray or adequate moisture of process materials 2. Water Spray w/ > 50% control efficiency	SMAQMD, SJVAPCD  BAAQMD
<b>PM2.5</b>	No Standard	
<b>CO</b>	No Standard	

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

<b>BEST CONTROL TECHNOLOGIES ACHIEVED</b>		
<b>Pollutant</b>	<b>Standard</b>	<b>Source</b>
<b>VOC</b>	The wood waste must not remain at the site for longer than 48 hours after it has been ground.	SCAQMD
<b>NOx</b>	No Standard	
<b>SOx</b>	No Standard	
<b>PM10</b>	VEE < or equal to 5% Opacity; Water spray or adequate moisture of process materials	SMAQMD, SJVAPCD
<b>PM2.5</b>	No standard	
<b>CO</b>	No Standard	

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

**Technologically Feasible Alternatives:**

Any alternative basic equipment, fuel, process, emission control device or technique, singly or in combination, determined to be technologically feasible by the Air Pollution Control Officer. The table below shows the technologically feasible alternatives identified as capable of reducing emissions beyond the levels determined to be "Achieved in Practice" as per Rule 202, §205.1.a.

<b>Pollutant</b>	<b>Technologically Feasible Alternatives</b>
<b>VOC</b>	None identified
<b>NOx</b>	None identified
<b>SOx</b>	None identified
<b>PM10</b>	Baghouse
<b>PM2.5</b>	Baghouse
<b>CO</b>	None identified

This operation is a portable greenwaste grinder that will be moved throughout the processing area. The use of a baghouse requires electrical power. According to the grinder manufacturer (Peterson Corporation), while the equipment is operating at 100% capacity, the engine cannot provide additional power to other pieces of equipment such as a baghouse. This BACT will also apply to facilities that don't own their own equipment. These facilities would be issued flex permits, that will allow them to use equipment from various third party contractors. The requirement of a baghouse would put the burden on the operator or facility to obtain an additional permit for the baghouse. The greenwaste grinder is on tracks and can be easily moved from one location to another. The use of a baghouse would reduce the mobility of the equipment. There would also be a variation in the hp rating of the equipment, which may require a specific baghouse to be used with specific equipment. Therefore, it is not technologically feasible to use a baghouse with this type of portable equipment.

**Using the PM10 BACT standard for PM2.5:**

Since both, PM10 and PM2.5 trigger BACT at >0 lb/day and PM2.5 is a subset of PM10, BACT for PM2.5 will be triggered whenever BACT is triggered for PM10. Therefore, BACT for PM2.5 will be set to be the same as for PM10.

**C. SELECTION OF BACT:**

Small emitter BACT (< 10 lb/day) & Minor Source BACT for a portable greenwaste grinder is the following:

<b>BACT FOR PORTABLE GREENWASTE GRINDER</b>		
<b>Pollutant</b>	<b>Standard</b>	<b>Source</b>
<b>VOC</b>	The wood waste must not remain at the site for longer than 48 hours after it has been ground.	SCAQMD
<b>NOx</b>	No Standard	
<b>SOx</b>	No Standard	
<b>PM10</b>	VEE < or equal to 5% Opacity; Water spray or adequate moisture of process materials	SMAQMD, SJVAPCD
<b>PM2.5</b>	VEE < or equal to 5% Opacity; Water spray or adequate moisture of process materials	SMAQMD, SJVAPCD
<b>CO</b>	No Standard	

REVIEWED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

APPROVED BY: \_\_\_\_\_ DATE: 9/12/17



# **Attachment A**

## **Review of BACT Determinations**

## SMAQMD BACT CLEARINGHOUSE

CATEGORY:

**MISCELLANEOUS**

BACT Size: SMALL EMITTER (&lt;10 LB/DAY) AND MIN

GRINDER

BACT Determination Number:	96	BACT Determination Date:	12/1/2014
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**Equipment Information**

Permit Number: N/A -- Generic BACT Determination  
 Equipment Description: GRINDER  
 Unit Size/Rating/Capacity: Portable Greenwaste Grinder  
 Equipment Location:

**BACT Determination Information**

ROCs	Standard:	
	Technology Description:	
	Basis:	
NOx	Standard:	
	Technology Description:	
	Basis:	
SOx	Standard:	
	Technology Description:	
	Basis:	
PM10	Standard:	VEE < or equal to 5% Opacity
	Technology Description:	Water spray or adequate moisture content of process materials
	Basis:	Achieved in Practice
PM2.5	Standard:	VEE < or equal to 5% Opacity
	Technology Description:	Water spray or adequate moisture content of process materials
	Basis:	Achieved in Practice
CO	Standard:	
	Technology Description:	
	Basis:	
LEAD	Standard:	
	Technology Description:	
	Basis:	

Comments: All PM10 is assumed to be PM2.5.

District Contact: Michelle Joe Phone No.: (916) 874 - 4853 email: mjoe@airquality.org

Printed: 5/30/2017

San Joaquin Valley  
Unified Air Pollution Control District

**Best Available Control Technology (BACT) Guideline 6.4.2\***

Last Update: 04/03/1998

**Tub Grinder - Transportable, Wood Waste Processing**

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
PM10	Use of a water sprinkler system or maintaining adequate moisture content of the process materials to prevent visible emissions in excess of 5% opacity		

BACT is the most stringent control technique for the emissions unit and class of source. Control techniques that are not achieved in practice or contained in a state implementation plan must be cost effective as well as feasible. Economic analysis to demonstrate cost effectiveness is required for all determinations that are not achieved in practice or contained in an EPA approved State Implementation Plan.

**\*This is a Summary Page for this Class of Source**

**BAY AREA AIR QUALITY MANAGEMENT DISTRICT**  
**Best Available Control Technology (BACT) Guideline**

**Source Category**

Source:	Wood Processing Equipment	Revision:	1
Class:	All	Document #:	180.1
		Date:	08/05/91

**Determination**

POLLUTANT	BACT		TYPICAL TECHNOLOGY
	1. Technologically Feasible/ Cost Effective		
	2. Achieved in Practice		
POC	1. n/a	1. n/a	
	2. n/a	2. n/a	
NO <sub>x</sub>	1. n/a	1. n/a	
	2. n/a	2. n/a	
SO <sub>2</sub>	1. n/a	1. n/a	
	2. n/a	2. n/a	
CO	1. n/a	1. n/a	
	2. n/a	2. n/a	
PM <sub>10</sub>	1. Enclosure and vent to a baghouse w/ ≤0.01 gr/dscf <sup>a</sup>	1. BAAQMD Approved Design and Operation <sup>a</sup>	
	2. Water mist spray w/ >50% control efficiency <sup>a</sup>	2. BAAQMD Approved Design and Operation <sup>a</sup>	
NPOC	1. n/a	1. n/a	
	2. n/a	2. n/a	

**References**

<sup>a</sup> BAAQMD
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