

SMAQMD BACT CLEARINGHOUSE

CATEGORY:

MATERIAL HANDLING

BACT Size: SMALL EMITTER (<10 LB/DAY) AND MIN

TOPSOIL BLEND PROCESS

BACT Determination Number: 98	BACT Determination Date: 12/1/2014
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Equipment Information

Permit Number: N/A -- Generic BACT Determination
Equipment Description: TOPSOIL BLEND PROCESS
Unit Size/Rating/Capacity: Soil Blending Process (topsoil, amendment, mulch)
Equipment Location:

BACT Determination Information

ROCs	Standard:	
	Technology Description:	
	Basis:	
NOx	Standard:	
	Technology Description:	
	Basis:	
SOx	Standard:	
	Technology Description:	
	Basis:	
PM10	Standard:	VEE <5% Opacity
	Technology Description:	Water sprinkler system to maintain moisture content to: 5% for raw material stockpiles and 20% during mixing; limit VEE to <5% opacity during transfer and bagging.
	Basis:	Achieved in Practice
PM2.5	Standard:	VEE <5% Opacity
	Technology Description:	Water sprinkler system to maintain moisture content to: 5% for raw material stockpiles and 20% during mixing; limit VEE to <5% opacity during transfer and bagging.
	Basis:	Achieved in Practice
CO	Standard:	
	Technology Description:	
	Basis:	
LEAD	Standard:	
	Technology Description:	
	Basis:	

Comments: PM10 & PM2.5: Water sprinkler system to maintain moisture content to: 5% for raw material stockpiles and 20% during mixing; limit VEE to <5% opacity during transfer and bagging.

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BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION

DETERMINATION NO.: 98
DATE: December 1, 2014
ENGINEER: Michelle Joe

Category/General Equip Description: Dry Material Handling
Equipment Specific Description: Soil Blending Process
Equipment Size/Rating: Small Emitter (< 10 lb/day) and Minor Source BACT
Previous BACT Det. No.: None

This BACT determination will create a new BACT determination for Dry Material Handling – Soil Blending Process. (Note: this BACT determination is not a replacement for the current BACT determination no. 84, which is limited only to soil screening operations). This category of dry material handling operations involves the screening, blending, conveying, stockpiling, and bagging of topsoil and mulch. This category will also include soil amendment and soil blending operations.

BACT ANALYSIS

Step 1: Identify All Control Technologies

The following control technologies are currently employed as BACT for Dry Material Handling – Soil Blending Process by the following BACT Clearinghouses:

BACT Clearinghouse	(A)	Best Available Control Technology (BACT)
SMAQMD	---	<u>For PM10 & PM2.5:</u> A BACT standard has not been established.
EPA RBLC	AP	<u>For PM10 from Solids Handling and Loading from Nitrogen Plant:</u> Enclosure of handling operations, telescoping chutes on loading, conditioning agent to reduce brittleness, and 90% control efficiency.
CARB	---	<u>For PM10:</u> A BACT standard has not been established.

BACT Clearinghouse	(A)	Best Available Control Technology (BACT)
South Coast AQMD	AP	<u>For PM10 Bulk Solid Material Handling of Dry Materials:</u> Enclosed conveyors and baghouse.
	AP	<u>For PM10 Bulk Solid Material Storage of Other Open Storage:</u> Water with chemical additives.
Bay Area AQMD	AP	<u>For PM10 from Solid Material Handling – Dry:</u> Enclosure of size reduction and classification equipment; conveyors and associated material transfer points vented to baghouse(s) with 0.01 gr/dscf emission limit; typical technology is BAAQMD approved design and operation.
	TF	<u>For PM10 from Solid Material Storage – Open:</u> 1. Enclosed storage; typical technology is BAAQMD approved design and operation.
	AP	2. Water spray with chemical suppressants; typical technology is BAAQMD approved design and operation.
San Joaquin Valley APCD	AP	<u>For PM10 from Potting Soil Mixing and Bagging Operation:</u> 1. Use of a water sprinkler system to maintain the raw materials stockpiles at a minimum moisture content of 5% and to maintain the potting soil at a minimum moisture content of 20% during mixing; transfer and bagging to prevent visible emissions in excess of 5% opacity.
	ABE	2. Use of an enclosed electric-powered batch mixer and enclosed conveyors.

(A) AP = Achieved in Practice, TF = Technologically Feasible, ABE = Alternate Basic Equipment

(B) Emissions limit was not specified because a limit that applies to all equipment within the category is not possible. Refer to discussion (below).

The following control technologies have been identified:

Note: for the purposes of this BACT determination, the control technologies for PM10 and PM2.5 are considered similar and will be evaluated together.

For PM10 & PM2.5 from Soil Handling:

1. Enclosure of handling operations, telescoping chutes on loading, conditioning agent to reduce brittleness, and 90% control efficiency.
2. Enclosed conveyors and baghouse.
3. Enclosure of size reduction and classification equipment; conveyors and associated material transfer points vented to baghouse(s) with 0.01 gr/dscf emission limit; typical technology is BAAQMD approved design and operation.
4. Water sprinkler system to maintain the raw materials stockpiles at a minimum moisture content of 5% and to maintain the potting soil at a minimum moisture content of 20% during mixing; transfer and bagging to prevent visible emissions in excess of 5% opacity.
5. Enclosed electric-powered batch mixer and enclosed conveyors.

For PM10 & PM2.5 from Soil Storage:

1. Water with chemical additives.
2. Enclosed storage.
3. Water spray with chemical suppressants.
4. Water sprinkler system to maintain the raw materials stockpiles at a minimum moisture content of 5% and to maintain the potting soil at a minimum moisture content of 20% during mixing; transfer and bagging to prevent visible emissions in excess of 5% opacity.
5. Enclosed electric-powered batch mixer and enclosed conveyors.

Step 2: Eliminate Technologically Infeasible Options

All identified technologies are feasible.

Step 3: Rank Remaining Control Technologies by Control Effectiveness

For PM10 & PM2.5 from Soil Handling:

1. Enclosure of handling operations, telescoping chutes on loading, conditioning agent to reduce brittleness, and 90% control efficiency.
2. Enclosure of size reduction and classification equipment; conveyors and associated material transfer points vented to baghouse(s) with 0.01 gr/dscf emission limit; typical technology is BAAQMD approved design and operation.
3. Water sprinkler system to maintain the raw materials stockpiles at a minimum moisture content of 5% and to maintain the potting soil at a minimum moisture content of 20% during mixing; transfer and bagging to prevent visible emissions in excess of 5% opacity.
4. Enclosed electric-powered batch mixer and enclosed conveyors.
5. Enclosed conveyors and baghouse.

For PM10 & PM2.5 from Soil Storage:

1. Enclosed storage.
2. Enclosed electric-powered batch mixer and enclosed conveyors.
3. Water sprinkler system to maintain the raw materials stockpiles at a minimum moisture content of 5% and to maintain the potting soil at a minimum moisture content of 20% during mixing; transfer and bagging to prevent visible emissions in excess of 5% opacity.
4. Water with chemical additives.
5. Water spray with chemical suppressants.

For PM10 & PM2.5 from Soil Handling:

With the exception of the fourth control technology listed, all of the control technologies listed above have been achieved in practice and will be considered in this BACT determination. However, the top two control technologies are generally applicable to dry solid material handling and not specific to soil, which may have a higher moisture content than the dry material considered in these BACT determinations. Therefore, the next most effective control technology that has been achieved in practice and is specifically for soil is: water sprinkler system to maintain the raw materials stockpiles at a minimum moisture content of 5% and to maintain the potting soil at a minimum moisture content of 20% during mixing; transfer and bagging to prevent visible emissions in excess of 5% opacity.

For PM10 & PM2.5 from Soil Storage:

The top two control technologies listed have only been determined to be technologically feasible or alternate basic equipment, but have not been achieved in practice. Therefore, the next most effective control technology that has been achieved in practice is: water sprinkler system to maintain the raw materials stockpiles at a minimum moisture content of 5% and to maintain the potting soil at a minimum moisture content of 20% during mixing; transfer and bagging to prevent visible emissions in excess of 5% opacity.

Step 4: Select BACT

BACT for the control of PM10 & PM2.5 for Dry Material Handling – Soil Blending Process (including soil handling and soil storage) is a water sprinkler system to maintain the raw materials stockpiles at a minimum moisture content of 5% and to maintain the potting soil at a minimum moisture content of 20% during mixing; transfer and bagging to prevent visible emissions in excess of 5% opacity.

REVIEWED BY: *Ben F. Kell* DATE: 12-1-14

APPROVED BY: *Joseph Robinson* DATE: 12-15-14