San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 8.3.22*

Emissions Unit: Scrap Metal Shredding **Industry Type:** Metal Shredding

Equipment Rating: ≤ 100,000 tons/year **Last Update:** TBD

Pollutant	Achieved in Practice or contained in SIP	Technologically Feasible	Alternate Basic Equipment
PM10	1. Use of wet suppression technology as necessary to limit visible emissions to no greater than 5% opacity as measured using EPA Method 9 (Visible Opacity)	1. Enclosed emissions points vented to a control device with 99% control efficiency (baghouse or equivalent) 2. Enclosed emissions points vented to a control device with 95% control efficiency (cyclone or equivalent)	
VOC		1. Regenerative Thermal Oxidizer (RTO) with at least 95% control; or 2. Wet scrubber with at least 95% control efficiency; or 3. Activated carbon system with at least 95% control efficiency	

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 - Permit Specific BACT**

Proactive Best Available Control Technology Analysis

Scrap Metal Shredding
(≤ 100,000 tons/year)

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I. Introduction

The objective of this project is to proactively create Best Available Control Technology (BACT) guideline 8.3.22, which covers metal shredding operations that process ≤ 100,000 tons/year.

This proactive BACT is necessary to evaluate the source class applicability of this BACT and to evaluate the most stringent emission control standards that have been achieved in practice as well as determine whether any new emission control technologies are feasible. The discussion in this document will be limited to the following items:

The discussion in this document will be limited to the following items:

- Source of emissions
- Top-Down BACT Analysis for each pollutant
- Recommendation

II. Source of emissions

Scrap metal shredding and separation operation processes scrap metal from various sources, machinery, and scrap metal materials from automobiles, appliances, and agricultural equipment (such as tractors). Particulate matter is generated when the scrap metal is shredded, separated, and transferred/conveyed. VOC emissions may be emitted when shredding scrap metal containing liquids or non-metallic materials.

III. Top-Down BACT Analysis

A. BACT Analysis for PM_{10} Emissions

PM_{10} emissions are generated from the scrap metal being shredded, processed, and transferred/conveyed.

Step 1 - Identify All Possible Control Technologies

Survey of BACT Guidelines

Since there is no BACT Guideline in the most recent District BACT Clearinghouse which governs this class and category of emissions unit, a new BACT Analysis shall be performed.

The U.S. Environmental Protection Agency (USEPA) RACT/BACT/LAER Clearinghouse, the California Air Pollution Control Officers Association (CAPCOA) BACT Clearinghouse, the Bay Area Air Quality Management District (BAAQMD) BACT Guidelines, the Sacramento Metropolitan AQMD (SMAQMD) BACT Guidelines, and the South Coast AQMD (SCAQMD) BACT Guidelines were reviewed to determine potential control technologies for this class and category of operation but no applicable guidelines were found.

In addition, Federal, State, and Air Pollution Control/Air Quality Management District Rules and Regulations were reviewed to determine applicable emission limits currently imposed on scrap metal shredding operations, but no applicable rules or regulations were found.

Survey of Sources

For emission control technology transfer purposes, the following permits were found. These permits include all types of metal shredding operations, including automobile shredding.

Facility Name Permit Number	Type and Processing Limits	PM10 Control Technology
AMG Resources Pacific Corp. (SJVAPCD Permit N-654-1-0)	Sheet Metal Shredder Operation 18,000 tons/year per 2015 Emission Inventory statement	1. Water sprays equipped within the conveyor line into the shredder 2. A minimum of 30 gallons of water per ton of raw material shall be sprayed on the feed material prior to shredding
SA Recycling LLC dba SA Recycling (SJVAPCD Permit S-1256-7-3)	Scrap Metal and Automobile Shredding and Separation Operation 2,300 tons/day and 839,500 tons/year	1. In-feed conveyor: Visible emissions shall not exceed 20% opacity 2. After in-feed conveyor: Water sprays/wet suppression control to prevent visible emissions to 5% opacity or less 3. A minimum of 30 gallons of water injected into the shredder during operation 4. TAME dust collector with a minimum of 99% control efficiency for PM10 emissions
SA Terminal Island (South Coast AQMD Permit #R-G27565)	Scrap Metal, Automobile, Appliance, Demolition, and Misc Shredding Operation 108,333 tons/month and 1,299,996 tons/year	1. Wet suppression inside the shredder chamber to reduce dust 2. Overhead dust hood to collect particulate matter 3. Dust collector to collect particulate matter from shredder exhaust
Schnitzer Steel Products (Bay Area AQMD Permit #208)	Scrap Metal, Automobile, Appliance, Demolition, and Misc Shredding Operation 720,000 tons/year	1. Wet suppression inside the shredder chamber to reduce dust 2. Cyclone to collect particulate matter
SA Anaheim (SCAQMD Permit #G16984)	Scrap Metal, Automobile, Appliance, Demolition, and Misc Shredding Operation 56,160 tons/month and 673,920 tons/year	1. Wet suppression inside the shredder chamber to reduce dust 2. Overhead dust hood to collect particulate matter 3. Dust collector to collect particulate matter from shredder exhaust
Sims Metal Management (BAAQMD Permit #5152)	Scrap Metal Shredding Operation 200 tons/hr, 4,800 tons/day, and 1,752,000 tons/year	1. Wet suppression inside the shredder chamber to reduce dust 2. Cyclone to collect particulate matter 3. Dust collector to collect particulate matter from shredder exhaust

Ecology Auto Parts (SCAQMD Permit #G32848)	Scrap Metal, Automobile, Appliance, and Misc Shredding Operation 40,000 tons/month and 480,000 tons/year	1. Wet suppression inside the shredder chamber to reduce dust 2. Overhead dust hood to collect particulate matter 3. Dust collector to collect particulate matter
Universal Service Recycling, Inc. (SJVAPCD ATC N-10016-1-0)	Scrap Metal, de-polluted (all non-metallic materials and fluids have been removed) automobiles, agricultural equipment, and appliances 65,000 tons/year	1. Wet suppression to reduce visible emissions to no more than 5% opacity
Kramar's Iron & Metal, Inc. (SCAQMD Permit G54220)	Ferrous and Non-Ferrous Metal Shredding 8,580 tons/month and 102,960 tons/year	1. Baghouse dust collector

The control technology options include:

Option 1. Enclosed emissions points vented to a control device with 99% control efficiency (baghouse or equivalent)

Option 2. Enclosed emissions points vented to a cyclone with 95% control efficiency, or equivalent

Option 3. Use of wet suppression technology as necessary to limit visible emission to no greater than 5% opacity as measured using EPA Method 9 (Visible Opacity)

Option 4. Use of wet suppression technology as necessary to limit visible emission to no greater than 20% opacity as measured using EPA Method 9 (Visible Opacity)

Alternate Basic Equipment: None

Step 2 - Eliminate Technologically Infeasible Options

The remaining options are technologically feasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

Rank by Control Effectiveness		
Rank	Option	Control
I	Enclosed emissions points vented to a baghouse or equivalent	99%
II	Enclosed emissions points vented to a cyclone or equivalent	95%
III	Wet suppression technology to limit visible opacity ≤ 5%	N/A
IV	Wet suppression technology to limit visible opacity ≤ 20%	N/A

As shown above, facilities SA Recycling, SA Terminal Island, Schnitzer Steel Products, SA Anaheim, Sims Metal Management, Ecology Auto Parts, and Kramar's Iron & Metal, Inc. utilize a dust collector, baghouse, or cyclone to control emissions from their shredding operation. However, all of the facilities listed above, except for Universal Service Recycling and AMG Resources Pacific Corp, have permitted throughput limits greater than 100,000 tons/year. Based on this information, the District cannot conclude that the PM10 control equipment utilized by these larger facilities are also in use at a smaller facilities that process ≤ 100,000 tons/year. Therefore, a baghouse, cyclone, or equivalent will not be considered as Achieved in Practice for scrap metal shredding operations that process 100,000 tons/year or less. Instead, wet suppression technology to limit visible opacity to ≤ 5% will be considered Achieved in Practice for facilities processing ≤ 100,000 tons/year, and a baghouse, cyclone, or equivalent will be considered a Technologically Feasible option for PM10 emissions control.

Step 4 - Cost Effectiveness Analysis

This is a proactive determination that is not part of a permitting action. Therefore, a cost effective analysis is not necessary.

Step 5 - Select BACT

This is a proactive determination that is not part of a specific permitting action. The achieved in practice control option is established in the guideline presented in Appendix A.

B. BACT Analysis for VOC Emissions

VOC emissions are generated from shredding scrap metal that contains liquids or non-metallic materials.

Step 1 - Identify All Possible Control Technologies

Survey of BACT Guidelines

Since there is no BACT Guideline in the most recent District BACT Clearinghouse which governs this class and category of emissions unit, a new BACT Analysis shall be performed.

The U.S. Environmental Protection Agency (USEPA) RACT/BACT/LAER Clearinghouse, the California Air Pollution Control Officers Association (CAPCOA) BACT Clearinghouse, the Bay Area Air Quality Management District (BAAQMD) BACT Guidelines, the Sacramento Metropolitan AQMD (SMAQMD) BACT Guidelines, and the South Coast AQMD (SCAQMD) BACT Guidelines were reviewed to determine potential control technologies for this class and category of operation but no applicable guidelines were found.

In addition, Federal, State, and Air Pollution Control/Air Quality Management District Rules and Regulations were reviewed to determine applicable emission limits

currently imposed on scrap metal shredding operations, but no applicable rules or regulations were found.

Survey of Sources

For emission control technology transfer purposes, the following permits were found. These permits include all types of metal shredding operations, including automobile shredding.

Facility Name Permit Number	Type and Processing Limits	VOC Control Technology
AMG Resources Pacific Corp. (SJVAPCD Permit N-654-1-0)	Sheet Metal Shredder Operation 18,000 tons/year per 2015 Emission Inventory statement	N/A
SA Recycling LLC dba SA Recycling (SJVAPCD Permit S-1256-7-3)	Scrap Metal and Automobile Shredding and Separation Operation 2,300 tons/day and 839,500 tons/year	N/A
SA Terminal Island (South Coast AQMD Permit #R-G27565)	Scrap Metal, Automobile, Appliance, Demolition, and Misc Shredding Operation 108,333 tons/month and 1,299,996 tons/year	1. Regenerative Thermal Oxidizer (RTO) 2. Wet Scrubber
Schnitzer Steel Products (Bay Area AQMD Permit #208)	Scrap Metal, Automobile, Appliance, Demolition, and Misc Shredding Operation 720,000 tons/year	1. Wet Scrubber
SA Anaheim (SCAQMD Permit #G16984)	Scrap Metal, Automobile, Appliance, Demolition, and Misc Shredding Operation 56,160 tons/month and 673,920 tons/year	1. Regenerative Thermal Oxidizer (RTO) 2. Wet Scrubber
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Ecology Auto Parts (SCAQMD Permit #G32848)	Scrap Metal, Automobile, Appliance, and Misc Shredding Operation 40,000 tons/month and 480,000 tons/year	1. RTO
Universal Service Recycling, Inc. (SJVAPCD ATC N-10016-1-0)	Scrap Metal, de-polluted (all non-metallic materials and fluids have been removed) automobiles, agricultural equipment, and appliances 65,000 tons/year	N/A
Kramar's Iron & Metal, Inc. (SCAQMD Permit G54220)	Ferrous and Non-Ferrous Metal Shredding 8,580 tons/month and 102,960 tons/year	1. Activated Carbon System

The control technology options include:

Option 1. Regenerative Thermal Oxidizer (RTO) with at least 95% control efficiency; or
Option 2. Wet scrubber with at least 95% control efficiency; or
Option 3. Activated carbon system with at least 95% control efficiency

Alternate Basic Equipment: None

Step 2 - Eliminate Technologically Infeasible Options

The remaining options are technologically feasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

Rank by Control Effectiveness		
Rank	Option	Control
I	Regenerative Thermal Oxidizer (RTO) with at least 95% control efficiency	95%
II	Wet scrubber with at least 95% control efficiency	95%
III	Activated carbon system with at least 95% control efficiency	95%

As shown above, facilities SA Terminal Island, SA Anaheim, and Ecology Auto Parts utilize a RTO to control VOC emissions from their shredding operation. Additionally, SA Terminal Island, Schnitzer Steel Products, SA Anaheim, and Sims Metal Management utilize a wet scrubber to control VOC emissions from their shredding operation. Finally, Kramar's Iron & Metal, Inc. utilizes an activated carbon system to control VOC emissions from their shredding operation. However, all of the facilities listed above, except for Universal Service Recycling and AMG Resources Pacific Corp, have permitted throughput limits greater than 100,000 tons/year. Based on this information, the District cannot conclude that the VOC control equipment utilized by these larger facilities is also in use at a smaller facilities that process ≤ 100,000 tons/year. Therefore, a RTO, wet scrubber, or Activated Carbon system will not be considered as Achieved in Practice VOC emissions control for scrap metal shredding operations that process 100,000 tons/year or less. Instead, a RTO, wet scrubber, or Activated Carbon system will be considered a Technologically Feasible option for VOC emissions control.

Step 4 - Cost Effectiveness Analysis

This is a proactive determination that is not part of a permitting action. Therefore, a cost effective analysis is not necessary.

Step 5 - Select BACT

This is a proactive determination that is not part of a specific permitting action. The achieved in practice control option is established in the guideline presented in Appendix A.

Appendix A: Draft BACT Guideline 8.3.22 – Scrap Metal Shredding (≤ 100,000 tons/year)

Appendix A
Draft BACT Guideline for 8.3.22 – Scrap Metal Shredding (≤ 100,000 tons/year)

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VOC		1. Regenerative Thermal Oxidizer (RTO) with at least 95% control; or 2. Wet scrubber with at least 95% control efficiency; or 3. Activated carbon system with at least 95% control efficiency	

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