ENGINEERING ANALYSIS

PROJECT DESCRIPTION

On May 22, 2025, the Department received an air permit application from Premium Plate Supply, Inc. ("Premium Plate") to construct a new steel plate processing site located on a greenfield property at 217 Salco Rd., Axis, Mobile County, Alabama. This proposed facility is nearly identical to and intended to replace Premium Plate's operations in Chickasaw, permitted under Synthetic Minor Operating Permit (SMOP) No. 503-0160-X001. The Chickasaw operations were located in a leased industrial building at the Port of Chickasaw and were always known to be temporary, but the transition timeline was extensive enough that the Department issued SMOP No. 503-0160-X001 on August 27, 2025. The Department requested additional information on June 29, 2026, and received updated information on July 15, 2026.

PROCESS DESCRIPTION

Purchased steel plates (including carbon, stainless, and alloy steels) will be cut to customer specification on the plasma cutting table; the downdraft cutting table will function as a capture point for emissions generated from the plasma cutting, routing captured emissions to a dust collector for control. Plates can be further processed in the plate rolling machine and/or the press brake to add curvature to the plates through hydraulic pressure, such as when manufacturing segments of large tanks; emissions from the plate forming processes are negligible.

Following plate cutting and forming, plates would be surface conditioned by abrasive blasting and then coated. Blasting operations at the Chickasaw facility used copper slag as abrasive; copper slag abrasive as well as steel shot is expected to be used at the Salco Road facility. Abrasive blasting would be conducted in a booth located within the building and vented to a 30,000 CFM baghouse/dust collector. Coating operations would be conducted via use of Graco XTR7+ airless spray guns. Coating operations would also be located in a booth within the building and ventilated to filter units to control emissions from paint solids (expressed as particulate matter). VOC and volatile HAP emissions from the paint and solvents would be uncontrolled. Per the safety data sheets (SDS) provided with the application, paint solids do not contain any metallic HAP species such as lead, chromium, etc. and are instead zinc and titanium oxide based.

EMISSIONS

According to Premium Plate, blasting and plating operations have a theoretical design capacity of 35,040 plates per year but are bottlenecked by plasma cutting operations which have a design capacity of 15,000 plates per year. That said, throughput in plates per year is only used as a basis of calculations for the plasma cutting operations' potential to emit (PTE). For blasting operations, PTE is based on control device outlet grain loading; Premium Plate also provided uncontrolled emissions for reference, which appear to be based on maximum throughput without consideration of the bottleneck.

For coating operations, PTE is based on HAP and VOC SMOP limits which Premium Plate will meet via monthly calculations and restricting usage or coating choices as needed. Uncontrolled emissions are also discussed for reference, with VOC and HAP values for coating and solvents derived from the worst-case (highest toluene) choices among the SDS forms included in the application. Note that Premium Plate expects a lower actual hourly production rate and a one shift per day, five days per week operating schedule.

Cutting

To estimate the mass of metal removed by the torch or "kerf", the application estimated a plate thickness of 1.5″, a cut width of 0.34″, a maximum cut length of 122″/plate, and a throughput of 15,000 plates per year. The application assumed steel density of 490 lb/ft^3 or 0.284 lb/in^3. Plasma table dust collector control efficiency was not considered in the application and the Department's concurrent calculations, and the table below shows uncontrolled potential emissions. Using a factor derived from the plasma torching of 6.35 mm thick mild steel plate in Florida International University's "Size Distribution and Rate of Production of Airborne Particulate Matter Generated During Metal Cutting" (2001, *Ebadan et al*), the application estimated that 1.53% of the kerf would become respirable PM_{10} (Table 6, *Ebadan et al*). Using the particulate matter size distributions of Table 4, *Ebadan et al*, respirable PM_{10} is estimated to be 76.37% of airborne total PM and $PM_{2.5}$ is estimated to be 42.4% of the PM (conservatively assuming all particles <3.1 µm to be ≤2.5 µm). The Department concurs with the proposed method of calculation. Premium Plate's updated calculations submitted on July 15, 2026 estimate metallic HAP (MHAP) emissions on a mass balance basis under worst-case conditions for cutting alloy steel at 0.166 MHAP : 1.0 PM (from Nucor SDS for alloy steel with up to 5.5% Cr, 3.65% Ni, 2.0% Mn, 0.01% Pb). To be conservative and because the application states the possibility of processing stainless steel (though Premium Plate at this time only processes carbon and alloy steel), this analysis estimated MHAP emissions on a mass balance basis under worst-case conditions at 0.31 MHAP : 1.0 PM (assuming all slabs are 316 Stainless Steel with ~17% Cr, ~12% Ni, ~2% Mn).

The application did not estimate NO_X emissions from the plasma cutting. The Department used a NO_X emission factor of 8 L/min, conservatively scaled up from the study's range of 4.4 - 5.5 L/min for dry cutting of 8 mm mild steel from Table "Emission of nitrogen oxides" of the Swedish Institute of Production Engineering Research's (Emissions of Fume, Nitrogen Oxides, and Noise in Plasma Cutting of Stainless and Mild Steel" (1994, *Bromsen et al*). This method of calculation requires a cutting speed (typically in inches per minute or IPM) for the torch given material (mostly mild steel) and thickness (maximum 1.5 inches or 38 mm). Cutting speed is not necessary to estimate particulate matter emissions and thus was not provided in the application, so the Department conservatively assumes a slow cutting speed of 20 IPM, although a robotic plasma cutting arm would be expected to exceed 100 IPM for thinner plates.

Blasting

Emissions from the blasting operations were estimated based on a 0.005 gr/dscf outlet grain-loading from the 30,000 ACFM baghouse used to control this source. This 0.005 gr/dscf outlet grain-loading is achievable for a well-maintained baghouse or dust collector controlling a grit-blasting process, but this application will assume 0.010 gr/dscf to be conservative. Premium Plate does not address capture efficiency, which is an implicit assumption of 100% capture; for a grit blasting operation which does not generate much fine particulate and which is located in a booth inside a building, this is a fair assumption. To estimate uncontrolled emissions, Premium Plate used a 240,000 lb/hr abrasive usage basis and used E-rated factors and comments from AP-42 Ch. 13.2.6. E-rated factors are poor, but the gap between these uncontrolled emissions and the controlled emissions estimated via outlet grain-loading represents ~99.9% control efficiency for the baghouse by Premium Plate's calculations and ~99.8% by the Department's, both of which are also reasonable for a well-maintained baghouse or dust collector controlling a grit-blasting process. At ambient conditions for a non-combustion source, actual and dry standard cubic feet are essentially the same. The SDS for the copper slag abrasive provided in the application did not cite any HAP content; however, the SDS for the steel shot abrasive noted low potential HAP levels (>1.0% Mn, >0.1 Ni). Because shot blast media emits inherently less PM than grit blast media like copper slag, this analysis shows blasting emissions based on the use of the slag. This analysis conservatively assumes the copper slag abrasive contains half of the minimum reportable level of lead and arsenic (0.05% by weight).

Coating

The coating line's PTE for VOC and HAP is simply based on the proposed SMOP limits: 95 TPY VOC, 24.5 TPY total HAPs, and 9.5 TPY any individual HAP (the highest of which is toluene). Controlled PM emissions from the coating line (as paint solids in the overspray) are based on assuming "99.99%" or "essentially 100%" capture efficiency of the booth located within the building and 99.98% control efficiency from the filter units installed on the paint boot vents. This capture efficiency is reasonable for paint solids as particulate matter, but the Department typically assumes a more conservative 90% control efficiency for simple filters unless a limit with proposed monitoring or testing is requested. Uncontrolled emissions were calculated on a 37,343 gal/yr basis of the coating with the highest-HAP content included in the revised application. Among the options, the Carboline Carbozinc 859 coating was determined to have the highest HAP content (primarily toluene) based on the safety data sheets (SDS) for its components A, B, & F. Premium Plate estimated solvent usage to be 5.5% of paint usage based on their historical usage, using the solvent with the highest HAP content (Carboline Thinner 2). VOC and HAP emissions are assumed to equal VOC and HAP usage. PM emissions are estimated based on the solids content of the coating in question and assuming 70% spray transfer efficiency or equivalent 30% overspray, controlled by 90% via conventional filtration on the exhaust of the paint booth. Larger, simpler items such as plates present less opportunity for overspray than other objects, so Premium Plate's assumptions differ from what AP-42 Ch. 4.2.2.11 assumes as transfer efficiency for surface coating of large metal appliances via airless spray (45%). Premium Plate derives this 70% transfer efficiency based on a statement in Graco's "Airless Spray Techniques" user guide suggesting that their spray guns have a transfer efficiency between 60 – 90%.

Pollutant (TPY)	Plasma Cutting	Blasting	Coating Line	Total Emissions	PTE with Limit
PM_{total}	1.53	11.26	12.41	25.20	25.20
PM_{10}	1.17	5.42	12.41	19.00	19.00
$PM_{2.5}$	0.65	0.54	12.41	13.60	13.60
SO_2	-	-	-	0.00	0.00
NO_X	1.63	-	-	1.63	1.63
CO	-	-	-	0.00	0.00
VOC	-	-	99.25	99.25	***95***
HAP: Toluene	-	-	42.21	42.21	***9.5***
Total HAPs	0.47	0.01	44.82	45.31	***24.5***
CO_{2e}	-	-	-	0.00	0.00

Table 1 – Facility PTE

LIMITS

Per Premium Plate's application, at maximum usage of the most emissive proposed coating, the facility would exceed the major source single-species HAP threshold of 10 TPY Toluene as well as the overall HAP threshold of 25 TPY while approaching the major source VOC threshold of 100 TPY. Because of this, Premium Plate has proposed a <10 TPY SMOP limit on any single HAP species, a <25 TPY SMOP limit on all HAP species, and a <100 TPY SMOP limit on VOC, which the Department will enforce as 9.5 TPY single-species HAP, 24.5 TPY total HAP, and 95 TPY VOC limits. Compliance will shown by quarterly coating/solvent usage reports, similar to what has been implemented at Premium Plate's Chickasaw site in SMOP No. 503-0160-X001. Additionally, these limits will serve as anti-MACT limits to keep the facility an area source with respect to any applicable Part 63 rules.

These facility-wide limits, shown by monthly calculations (as-used/as-purchased basis) submitted semiannually to the Department, would allow for operational flexibility should product formulations or usage levels vary in the future. Reports at the Chickasaw facility thus far indicate the facility is well under

its limits due to actual usage being lower than and coating/solvent choice being less volatile than worst-case assumptions represented in the emissions estimate.

REGULATIONS

STATE REGULATIONS

ADEM Admin. Code r. 335-3-4-.01, "Control of Particulate Emissions – Visible Emissions"

Rule 335-3-4-.01(1)(a) states that no person shall emit to the atmosphere from any source of emissions, particulate matter of an opacity greater than twenty percent (20%), as determined by a six (6) minute average. **Rule 335-3-4-.01(1)(b)** states that during one six-minute period in any sixty minute period a person may discharge into the atmosphere from any source of emissions, particulate of an opacity not greater than forty percent (40%) opacity. All sources at the facility will be subject to this regulation; compliance shall be determined in accordance with Method 9 of 40 CFR Part 60, Appendix A-4. Compliance would be shown by conducting weekly VE checks of the coating operations vent and the blasting operations baghouse stack.

ADEM Admin. Code r. 335-3-4-.04, "Control of Particulate Emissions – Process Industries – General"

Rule 335-3-4-.04 states that no source in a Class I county, and no new source in a Class II county, shall emit particulate matter in any one hour exceeding the rates derived from the following equations: $E = 3.59P^{0.62}$ for process weights less than 30 TPH and $E = 17.31P^{0.16}$ for process weights greater than or equal to 30 TPH, where E is the emissions limit in pounds per hour and P is the process weight in tons per hour. Additionally, r. 335-3-1-.02(1)(hhh) states that "Process Weight shall mean the total weight in pounds of all materials introduced into any specific process which may cause any discharge into the atmosphere." This rule would apply to the coating and blasting operations. Compliance would be met by operating within their respective booths with controls (conventional filters and baghouse respectively) engaged.

ADEM Admin. Code r. 335-3-6-.11 "Surface Coating" and 335-3-6-.01 "Applicability"

Rule 335-3-6-.11(11) applies to the coating of miscellaneous metal parts. However, because the paint line has potential to emit less than 100 TPY VOC in addition to taking a 95 TPY VOC SMOP limit, the exception in **Rule 335-3-6-.01(1)(b)** applies. Therefore, the proposed coating operations at Premium Plate would not be subject to this rule.

ADEM Admin. Code r. 335-3-14-.01, *"Air Permits – General Provisions"*

ADEM Admin. Code r. 335-3-14-.01(1)(a) stipulates that "Any person building, erecting, altering, or replacing any article, machine, equipment, or other contrivance, the use of which may cause the issuance of or an increase in the issuance of air contaminants or the use of which may eliminate or reduce or control the issuance of air contaminants, shall submit an application for an Air Permit at least 10 days prior to construction." Satellite imagery reviewed during the drafting of this analysis indicates that while the property has been cleared and graded, no construction has begun. Additionally, r. 335-3-14-.01(7)(f) states that "Construction of any article, machine, equipment, or other contrivance as described in subparagraph (1)(a) of this Rule shall not commence until after an Air Permit is issued if a public notice is required under this Rule", and per r. 335-3-14-.01(7)(a) & (d), a 15-day notice is required at greenfield sites. The proposed location at 217 Salco Road is a greenfield site that has not previously been the site

of industrial or commercial operations; therefore, Premium Plate may not construct at all until a public comment period is posted and the permit is issued.

ADEM Admin. Code r. 335-3-14-.04*, *"Prevention of Significant Deterioration (PSD) Permitting"

The proposed facility will not have the potential to emit 250 tons per year or more of a regulated NSR pollutant, so it will not be considered a new major stationary source per ADEM Admin. Code r. 335-3-14-.04(2).

ADEM Admin. Code r. 335-3-15, "Synthetic Minor Operating Permits" and
ADEM Admin. Code r. 335-3-16, "Major Source Operating Permits"

Emissions from the facility, while operating at maximum expected throughput for coating and solvent usage, could exceed the major source threshold of 10 TPY single HAP and 25 TPY total HAP unless restricted. To avoid applicability to the Title V Major Source Operating Permit program under Chapter 16, Premium Plate has requested <100 TPY VOC, <10 TPY HAP, and <25 TPY Total HAPs limits as shown by semiannual VOC/HAP usage/purchase reporting and monthly calculations and associated recordkeeping. The Department will impose 95 TPY VOC, 9.5 TPY single HAP, and 24.5 TPY Total HAPs limits, in the form of rolling twelve-month totals, to facilitate practical enforcement with protective buffer from the regulatory thresholds.

The required monthly calculations of VOC/HAP emissions via monthly paint/solvent usage will allow for operational flexibility to vary different coatings at different rates while being frequent enough to give the facility sufficient time to react and change coatings before exceeding any rolling-twelve-month limit. The facility will be required to maintain records of these calculations as well as coating and solvent safety data sheets and usage/purchase records.

Per ADEM Admin. Code r. 335-3-15-.05(c), a 15-day public comment period must be provided prior to issuance of a SMOP, which will coincide with the public comment period required for the Salco Facility as a greenfield site per r. 335-3-14-.01(7)(a) & (d). This Chapter 15 public notice requirement does not impose the same restriction on construction prior to permit issuance as the Chapter 14 greenfield public notice requirement, but it does stipulate that EPA be notified.

Class I Area

The nearest Class I Area to the plant, the Breton Wildlife Refuge, is more than 100 kilometers away from this facility. Emissions from the project are not expected to have an impact on the Class I Area.

FEDERAL REGULATIONS

40 CFR 60 Subpart A, "New Source Performance Standards"

This subpart is applicable provided that the facility is subject to one of the applicable subparts found under 40 CFR Part 60, "New Source Performance Standards". The proposed operations are not subject to any NSPS.

40 CFR 63 Subpart A, "General Provisions"

This subpart is applicable provided that the facility is subject to one of the applicable subparts found under 40 CFR Part 63, "National Emission Standards for Hazardous Air Pollutants" as discussed below.

40 CFR 63 Subpart MMMM, "National Emission Standards for Hazardous Air Pollutant for Surface Coating of Miscellaneous Metal Parts and Products"

This regulation is applicable to any new, reconstructed, or existing source that uses 250 gallons per year, or more, of coatings that contain hazardous air pollutants (HAP) in the surface coating of miscellaneous metal parts or products and that is located at a major source of HAP emissions. Since this facility is taking limits to avoid being a major source of HAP emissions, this subpart would not apply.

40 CFR 63 Subpart HHHHHH, "National Emission Standards for Hazardous Air Pollutants: Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources"

This subpart is applicable to certain paint-stripping and coating facilities at area sources of HAPs. Though Premium Plate is an area source, because the paint line would not include stripping paint with methyl chloride [§63.11170(a)(1)], would not apply any coatings to motor vehicles or other mobile equipment [§63.11170(a)(2)], and would not apply coatings containing this subpart's target HAPs (Cr, Pb, Mn, Ni, & Cd) above the defined threshold to any other equipment [§63.11170(a)(3)], this subpart is not applicable.

40 CFR 63 Subpart XXXXXX, "National Emission Standards for Hazardous Air Pollutants Area Source Standards for Nine Metal Fabrication and Finishing Source Categories"

This subpart is applicable to area sources of HAP emissions that are primarily engaged in operations in one of the nine source categories listed in §63.11514(a), including "Fabricated Plate Work (Boiler Shops)". Table 1 to Subpart XXXXXX includes broad descriptions of the nine source categories, and EPA maintains a "Questions & Answers" document on their website, excerpted below, linking these nine source categories listed in the rule to industrial SIC codes and NAICS codes.

Table 1. Nine Metal Fabrication and Finishing NESHAP Area Source Categories: Potential SIC/NAICS Codes

	EPA Source Category	SIC Description	SIC Code	NAICS Code	NAICS Description
1	Electrical & Electronic Equipment Finishing Ops	Motors and Generators Manufacturing	3621	335312	Motor and Generator Manufacturing
		Electrical Machinery, Equipment, & Supplies, NEC	3699	335999	All Other Misc. Electrical Equipment & Component Mfg.
2	Fabricated Metal Products, NEC	Fabricated Metal Products, NEC	3499	332117	Powder Metallurgy Part Manufacturing
		Fabricated Metal Products, NEC	3499	332999	All Other Miscellaneous Fabricated Metal Product Mfg.
3	Fabricated Plate Work(Boiler Shops)	Fabricated Plate Work and Boiler Shops	3443	332313	Plate Work Manufacturing
				332410	Power Boiler and Heat Exchanger Manufacturing
				332420	Metal Tank (Heavy Gauge) Manufacturing
4	Fabricated Structural Metal Manufacturing	Fabricated Structural Metal Fabrication	3441	332312	Fabricated Structural Metal Manufacturing
5	Heating Equipment, except Electric	Heating Equipment, except electric	3433	333414	Heating Equipment (except Warm Air Furnaces) Mfg.
6	Industrial Machinery &Equipment: Finishing Ops	Construction Machinery Manufacturing	3531	333120	Construction Machinery Manufacturing
		Oil and Gas Field Machinery Equipment Mfg.	3533	333132	Oil and Gas Field Machinery and Equipment Mfg.
		Pumps and Pumping Equipment Mfg.	3561	333911	Pump and Pumping Equipment Manufacturing
7	Iron and Steel Forging	Iron and Steel Forging	3462	332111	Iron and Steel Forging
8	Primary Metals Products Manufacturing	Primary Metals Products Manufacturing	3399	332618	Other Fabricated Wire Product Manufacturing
9	Valves and Pipe Fittings, NEC	Valves and Pipe Fittings, NEC	3494	332919	Other Metal Valve and Pipe Fitting Manufacturing

The facility will primarily cut and bend purchased steel plate into shapes for the customer, largely but not exclusively for the construction of large storage vessels. The proposed operations would not include the fabrication of finished storage vessels. This falls under NAICS Code 332313 "Plate Work Manufacturing". The 2007 definition of this industrial group is "establishments primarily engaged in manufacturing fabricated metal plate work by cutting, punching, bending, shaping, and welding purchased metal plate."

According to EPA's supplemental table included above, this is one of the NAICS codes that EPA guidance includes in the "Fabricated Plate Work (Boiler Shops)" category of §63.11514(a)(3).

For facilities falling under one of the nine source categories subject to Subpart XXXXXX, such as Premium Plate, there are five categories of operations that could potentially be considered *affected sources* under this rule per §63.11514(b)—dry abrasive blasting, machining, dry grinding/polishing, spray painting, and welding operations—if they "use materials that contain MFHAP or that have the potential to emit MFHAP." In §63.11522, *metal fabrication HAP (MFHAP)* are defined as cadmium, chromium, lead, manganese, and nickel. The phrase *material containing MFHAP* is defined as "Any material that contains cadmium, chromium, lead, or nickel in amounts greater than or equal to 0.1 percent by weight (as the metal), and contains manganese in amounts greater than or equal to 1.0 percent by weight (as the metal), as shown in formulation data provided by the manufacturer or supplier, such as the Material Safety Data Sheet for the material."

Premium Plate's application does not indicate that any machining, dry grinding/polishing, or welding operations will be in use at the source. The definition of *machining* in §63.11522 includes "dry metal turning, milling, drilling, boring, tapping, planing, broaching, sawing, cutting, shaving, shearing, threading, reaming, shaping, slotting, hobbing, and chamfering with machines." The existing plate bending operations are not *shaping* in the machining sense, as *shaping* refers to cutting linear grooves or slots into metal. *Dry metal cutting* as a subcategory of *machining* is not defined in the rule; however, *machining* is broadly understood to mean metal-on-metal processing that is not inclusive of thermal processes such as plasma cutting.

Premium Plate has proposed to conduct spray painting, but not using paints that contain MFHAP, per the §63.11522 definition above. The SDS for the zinc powder component of the PPG Dimetcote 9 paint states that it has less than 0.10% lead, and the mixed paint would necessarily have even less. Therefore, the proposed coating operations do not qualify as a "spray painting affected source" under §63.11514(b)(4). Premium Plate will be restricted, as an anti-MACT limitation, from using any coatings that do contain enough MFHAP to qualify under the §63.11522 definition. The requirement to maintain an SDS of each coating as a record will serve as recordkeeping for this anti-MACT limitation as well.

Premium Plate has proposed to conduct dry abrasive blasting operations in a booth vented to a dust collector for particulate matter control. Of the two SDS provided for possible abrasives to be used at the site, one lists nickel and manganese compositions as potentially being above the §63.11522 thresholds of >0.1% and >1.0% weight percent respectively. Therefore, the blasting operations are an affective source under Subpart XXXXXX. Premium Plate will be subject to the standards of §63.11515(a)(2) for abrasive blasting in vented enclosures. Emissions must be captured and vented to a control device which is operated according to the manufacturer's instructions [§63.11516(a)(2)(i)]. Premium Plate must implement management practices to minimize HAP emissions by minimizing excess dust in the surrounding area, keeping stored abrasive material within enclosed holding bins (e.g. a blast pot) and sealed conveyances, and operating all associated equipment according to manufacturer's instructions [§63.11516(a)(2)(ii)(A)-(C)]. Premium Plate indicated that they would comply with Subpart XXXXXX this way rather than meeting the standards of §63.11515(a)(3) for blasting objects greater than 8 feet in any one dimension (all pieces would be larger than this). Per the recordkeeping requirements of §63.11519(c)(4), Premium Plate must maintain a record of the manufacturer's specifications for the control devices used to comply with the aforementioned blasting standards. The Department will require that Premium Plate keep records of any preventative maintenance or filter replacements conducted on the dust collector as well. They will also be required to maintain an up-to-date SDS of any abrasive used on site as a record for this limitation.

Without any affected sources under this rule, there are no requirements in Subpart XXXXXX that apply to Premium Plate's operations as applied for, including the notification requirements of §63.11519(a).

RECOMMENDATIONS

This analysis indicates that the proposed emission sources would meet the requirements of all federal and state rules and regulations with adherence to the proposed limits. I conducted a greenfield site inspection and found no construction prior to receipt of the permit. Given that, I recommend public notice be issued for Synthetic Minor Operating Permit No. 503-0163-X001 for the Premium Plate Supply, Inc. Salco Road facility.

July 30, 2026

Jackson Rogers
Industrial Minerals Section
Energy Branch
Air Division
ADEM

Date

APPENDIX A: CALCULATIONS & REFERENCES

Coating/Solvent/Other Material Properties

Material Description	Density (lb/gal)	Solids Content (%)	VOC Content (%)	HAP Content (%)	Xylenes Content (%)	Ethylbenzene Content (%)	Tolune Content (%)	Notes
Solvent	8.77	0.00%	90.31%	80.96%			80.96%	
Coating	27.03	81.9%	18.05%	7.44%	0.00%	0.00%	6.92%	

Process Parameters

Process	Material	Application Rate (gal/hr)	Operation (hr/yr)	Operation (gal/yr)	Spray Transfer Efficiency (%)	PM Control	PM Efficiency (%)	VOC/HAP Volatilization	VOC/HAP Control	VOC/HAP Efficiency (%)
Solvent Use	Solvent	0.234	8760	2054				100%		
Coating (worst case product)	Coating	4.263	8760	37343	70%	Filter	90%	100%		

Emissions

Process	PM lb/hr	PM TPY	VOC lb/hr	VOC TPY	HAP lb/hr	HAP TPY	Xylenes lb/hr	Xylenes Tpy	Ethylbenzene lb/hr	Ethylbenzene TPY	Toluene lb/hr	Toluene TPY
Solvent Use	0.00	0.00	1.86	8.13	1.66	7.29					1.66	7.29
Coating (worst case product)	2.83	12.41	20.80	91.12	8.57	37.53					7.97	34.92
Total	2.83	12.41	22.66	99.25	10.23	44.82	0.00	0.00	0.00	0.00	9.64	42.21

Abrasive Blasting Emissions					
240000	lb/hr abrasive usage			8760	hr/yr
Uncontrolled emissions					
6.48	lb PM per 1000 lb abrasive[1]	1555.20	lb/hr PM_{filt}	6811.78	TPY PM_{filt}
3.12	lb PM10 per 1000 lb abrasive[1]	748.80	lb/hr $PM_{10,filt}$	3279.74	TPY $PM_{10,filt}$
0.3	lb PM2.5 per 1000 lb abrasive[1]	74.88	lb/hr $PM_{2.5,filt}$	327.97	TPY $PM_{2.5,filt}$
0.1	MHAP wt% of abrasive[3]	1.56	lb/hr HAP	6.81	TPY HAP
PTE with Baghouse and Grain Loading (Premium Plate assumptions)					
30000	ACFM	1.29	lb/hr PM_{filt}	5.63	TPY PM_{filt}
0.005	gr/scf (Premium Plate)[2]	0.62	lb/hr $PM_{10,filt}$	2.71	TPY $PM_{10,filt}$
99.9%	effective control efficiency	0.06	lb/hr $PM_{2.5,filt}$	0.27	TPY $PM_{2.5,filt}$
PTE with Baghouse and Grain Loading (Department assumptions)					
30000	ACFM	2.57	lb/hr PM_{filt}	11.26	TPY PM_{filt}
0.010	gr/scf (Department)[2]	1.24	lb/hr $PM_{10,filt}$	5.42	TPY $PM_{10,filt}$
99.8%	effective control efficiency	0.12	lb/hr $PM_{2.5,filt}$	0.54	TPY $PM_{2.5,filt}$
		0.00	lb/hr HAP	0.01	TPY HAP

[1] *AP-42 Chapter 13.2.6 for Sand-blasting under 5 MPH wind speed conditions* , with 24% grit modifier

[2] *EPA Fact Sheet EPA-452/F-03-026. 0.005 gr/dscf and 0.010 gr/dscf are high and mid end of the expected efficiency range respectively*

[3] *Minimum reportable levels of carcinogenic MHAP in SDS are 0.1 wt% per species. Assume half (0.05 wt%) of As and Pb in copper slag as impurities below reportable range.*

Plasma Cutting Emissions					
Plates/yr	Avg Plate Thickness (inches)	Kerf Width (inches	Max cut length per plate (inches)	typical steel density (lb/cu_in)	Mass of kerf (lb/yr)
15,000	1.5	0.2	120	0.284	153,125
% kerf as airborne PM	Annual PM (tons)	% kerf as respirable PM10	Annual PM10 (tons)	% PM as PM2.5	Annual PM2.5 (tons
2%	1.53	1.53%	1.17	42.4%	0.65
IPM	L/min NOX from dry cutting	molar vol. (L/gmol) @STP	lbmol/gmol	NO2 lb/lbmol	NOX TPY
20	8	22.4	0.002205	46.0055	1.63