



Joseph E. Kernan  
Governor

Lori F. Kaplan  
Commissioner

October 13, 2004

100 North Senate Avenue  
P.O. Box 6015  
Indianapolis, Indiana 46206-6015  
(317) 232-8603  
(800) 451-6027  
www.in.gov/idem

TO: Interested Parties / Applicant  
RE: Tri Star Engineering, Inc. / 093-19481-00031  
FROM: Paul Dubenetzky  
Chief, Permits Branch  
Office of Air Quality

### Notice of Decision – Approval

Please be advised that on behalf of the Commissioner of the Department of Environmental Management, I have issued a decision regarding the enclosed matter. Pursuant to 326 IAC 2, this approval was effective immediately upon submittal of the application.

If you wish to challenge this decision, IC 4-21.5-3-7 requires that you file a petition for administrative review. This petition may include a request for stay of effectiveness and must be submitted to the Office of Environmental Adjudication, 100 North Senate Avenue, Government Center North, Room 1049, Indianapolis, IN 46204, **within eighteen (18) calendar days from the mailing of this notice**. The filing of a petition for administrative review is complete on the earliest of the following dates that apply to the filing:

- (1) the date the document is delivered to the Office of Environmental Adjudication (OEA);
- (2) the date of the postmark on the envelope containing the document, if the document is mailed to OEA by U.S. mail; or
- (3) The date on which the document is deposited with a private carrier, as shown by receipt issued by the carrier, if the document is sent to the OEA by private carrier.

The petition must include facts demonstrating that you are either the applicant, a person aggrieved or adversely affected by the decision or otherwise entitled to review by law. Please identify the permit, decision, or other order for which you seek review by permit number, name of the applicant, location, date of this notice and all of the following:

- (1) the name and address of the person making the request;
- (2) the interest of the person making the request;
- (3) identification of any persons represented by the person making the request;
- (4) the reasons, with particularity, for the request;
- (5) the issues, with particularity, proposed for considerations at any hearing; and
- (6) identification of the terms and conditions which, in the judgment of the person making the request, would be appropriate in the case in question to satisfy the requirements of the law governing documents of the type issued by the Commissioner.

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178. Callers from within Indiana may call toll-free at 1-800-451-6027, ext. 3-0178.

Enclosures  
FNPER-AM.dot 9/16/03



# INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

*We make Indiana a cleaner, healthier place to live.*

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October 13, 2004

Priya Wharton  
Tri Star Engineering, Inc.  
1414 H Street  
Bedford, IN 47421

Re: Exempt Construction and Operation Status,  
093-19481-00031

Dear Priya Wharton:

The application from Tri Star Engineering, Inc., received on August 10, 2004, has been reviewed. Based on the data submitted and the provisions in 326 IAC 2-1.1-3, it has been determined that the following navy ship metal radar frame refurbishing and surface coating source, to be located at 2237 Industrial 37, Bedford, Indiana 47421, is classified as exempt from air pollution permit requirements:

- (1) Welding operations (gas metal arc welding) utilizing an aluminum-based wire (containing 0.2% chromium and 0.2% manganese compounds by weight) at a maximum wire usage rate of two (2) pounds of wire per hour.
- (2) One (1) paint booth (application of epoxy primer and epoxy top coat), capable of painting one (1) navy ship radar frame approximately every week and a half to two weeks, with a maximum paint usage rate of one (1) gallon per day.
- (3) One (1) abrasive mechanical blaster using steel grit for blasting, equipped with particulate controls, with a design grain loading of less than or equal to three-hundredths (0.03) grain per actual cubic foot, and a maximum gas flow rate of one thousand (1,000) actual cubic feet per minute (acfm).

The following conditions shall be applicable:

- (1) Pursuant to 326 IAC 5-1-2 (Opacity Limitations) except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following:
  - (a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
  - (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of 15 minutes (60 readings) in a 6-hour period as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor in a six (6) hour period.
- (2) Pursuant to 326 IAC 6-4 (Fugitive Dust Emissions Limitations), the source shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4.

- (3) Pursuant to 40 CFR 52, Subpart P (Particulate Matter), particulate matter emissions from the paint booth shall not exceed the pound per hour emission rate established as E in the following formula:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67} \quad \text{where } E = \text{rate of emission in pounds per hour, and} \\ P = \text{process weight rate in tons per hour}$$

- (4) Pursuant to 326 IAC 6-3-2(e)(2), any manufacturing process not exempt under 326 IAC 6-3-1(b) or (c) and to which the control methods in 326 IAC 6-3-2 (b) through (d) do not apply shall calculate allowable particulate emissions as follows:
- (a) No person shall operate any manufacturing process so as to produce, cause, suffer, or allow particulate to be emitted in excess of the amount shown in the table in 326 IAC 6-3-2(e)(2). The allowable rate of emission shall be based on the process weight rate for a manufacturing process.
  - (b) When the process weight rate is less than one hundred (100) pounds per hour, the allowable rate of emission is five hundred fifty-one thousandths (0.551) pound per hour.
  - (c) When the process weight exceeds two hundred (200) tons per hour, the allowable emission may exceed that shown in the table in 326 IAC 6-3-2(e)(2), provided the concentration of particulate in the discharge gases to the atmosphere is less than one-tenth (0.10) pound per one thousand (1,000) pounds of gases:

In order to comply with the allowable rate of emission, the particulate controls of the abrasive mechanical blaster shall be in operation at all times when the blaster is in operation. The allowable rate of emission can be calculated as follows:

Interpolation of the data in the table in 326 IAC 6-3-2(e)(2) for the process weight rates up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67} \quad \text{where } E = \text{rate of emission in pounds per hour, and} \\ P = \text{process weight rate in tons per hour}$$

and interpolation and extrapolation of the data in the table in 326 IAC 6-3-2(e)(2) for the process weight rates in excess of sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 55.0 P^{0.11} - 40 \quad \text{where } E = \text{rate of emission in pounds per hour, and} \\ P = \text{process weight rate in tons per hour}$$

This exemption is the first air approval issued to this source.

An application or notification shall be submitted in accordance with 326 IAC 2 to the Office of Air Quality (OAQ) if the source proposes to construct new emission units, modify existing emission units, or otherwise modify the source.

Sincerely,

Original signed by

Paul Dubenetzky, Chief  
Permits Branch  
Office of Air Quality

NCB

cc: File - Lawrence County  
Lawrence County Health Department  
Air Compliance - Jim Thorpe  
Permit Tracking  
Compliance Data Section

# Indiana Department of Environmental Management Office of Air Quality

## Technical Support Document (TSD) for an Exemption

### Source Background and Description

**Source Name:** Tri Star Engineering, Inc.  
**Source Location:** 2237 Industrial 37, Bedford, Indiana, 47421  
**County:** Lawrence  
**SIC Code:** 8711  
**Operation Permit No.:** 093-19481-00031  
**Permit Reviewer:** Nathan C. Bell

The Office of Air Quality (OAQ) has reviewed an application from Tri Star Engineering, Inc. relating to the operation of a navy ship metal radar frame refurbishing and surface coating source.

### Emission Units and Pollution Control Equipment

This source will include the following emission units:

- (1) Welding operations (gas metal arc welding) utilizing an aluminum-based wire (containing 0.2% chromium and 0.2% manganese compounds by weight) at a maximum wire usage rate of two (2) pounds of wire per hour.
- (2) One (1) paint booth (application of epoxy primer and epoxy top coat), capable of painting one (1) navy ship radar frame approximately every week and a half to two weeks, with a maximum paint usage rate of one (1) gallon per day.
- (3) One (1) abrasive mechanical blaster using steel grit for blasting, equipped with particulate controls, with a design grain loading of less than or equal to three-hundredths (0.03) grain per actual cubic foot, and a maximum gas flow rate of one thousand (1,000) actual cubic feet per minute (acfm).

### Enforcement Issue

There are no enforcement actions pending.

### Recommendation

The staff recommends to the Commissioner that the construction and operation be approved. This recommendation is based on the following facts and conditions:

A complete application for the purposes of this review was received on August 10, 2004.

Unless otherwise stated, information used in this review was derived from the application and additional information provided by the applicant.

### Emission Calculations

See Pages 1 and 4 of TSD Appendix A for detailed emission calculations.

**Potential to Emit Before Controls**

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as “the maximum capacity of a stationary source or emissions unit to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U.S. EPA, the department, or the appropriate local air pollution control agency.”

Pollutant*	Potential to Emit (tons/yr)
PM	2.94
PM-10	2.94
SO <sub>2</sub>	-
VOC	0.45
CO	-
NO <sub>x</sub>	-

\*The potential emission of PM/PM10 from the abrasive mechanical blaster (without controls) was conservatively estimated assuming that 100% of the amount of paint used for each radar frame in the painting operation is available to become particulate matter during blasting. The maximum amount of solids used in the painting operations was determined to be 2.19 tons per year, assuming one (1) gallon of paint used per day, a maximum paint density of 14.44 pounds per gallon, and a maximum solids content of 83% by weight.

Hazardous Air Pollutant (HAP)	Potential to Emit (tons/yr)
Chromium	negligible
Manganese	negligible
Ethyl Benzene	0.03
Methyl Ethyl Ketone	0.13
Methyl Isobutyl Ketone	0.04
Toluene	0.01
Xylenes	0.16
Worst Single HAP	0.16
Combined HAPs	0.38

- (a) The potential to emit (as defined in 326 IAC 2-7-1(29)) of regulated criteria pollutants are less than the levels listed in 326 IAC 2-1.1-3(d)(1). Therefore, the source is subject to the provisions of 326 IAC 2-1.1-3.
- (b) The potential to emit (as defined in 326 IAC 2-7-1(29)) of any single HAP is less than ten (10) tons per year and the potential to emit of a combination of HAPs is less than twenty-five (25) tons per year. Therefore, the source is subject to the provisions of 326 IAC 2-1.1-3.

**County Attainment Status**

The source is located in Lawrence County.

Pollutant	Status
PM-10	unclassifiable/attainment
SO <sub>2</sub>	unclassifiable/attainment
NO <sub>2</sub>	unclassifiable/attainment
1-hour Ozone	unclassifiable/attainment
8-hour Ozone	unclassifiable/attainment
CO	unclassifiable/attainment
Lead	attainment

- (a) Volatile organic compounds (VOC) and Nitrogen Oxides (NOx) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone. Therefore, VOC and NOx emissions are considered when evaluating the rule applicability relating to the ozone standard. Lawrence County has been designated as attainment or unclassifiable for ozone. Therefore, VOC emissions and NOx were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2. See the State Rule Applicability for the source section.
- (b) Lawrence County has been classified as attainment or unclassifiable for all the other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2. See the State Rule Applicability for the source section.

### Source Status

New Source PSD Definition (emissions after controls, based on 8760 hours of operation per year at rated capacity and/or as otherwise limited):

Pollutant*	Emissions (tons/yr)
PM	1.88
PM-10	1.88
SO <sub>2</sub>	-
VOC	0.45
CO	-
NO <sub>x</sub>	-
Worst Single HAP	0.16
Combined HAPs	0.38

\*The potential emission of PM/PM10 from the abrasive mechanical blaster (with controls) was conservatively estimated assuming that the blaster is operated continuously (24 hours per day, 365 days per year) at the maximum air flow rate of 1000 actual cubic feet per minute, with an effluent particulate concentration of 0.03 grains per cubic foot. For welding and painting operations, no controls were assumed to be used.

- (a) This new source is not a major stationary source because no attainment pollutant is emitted at a rate of 250 tons per year or greater and it is not in one of the 28 listed source categories. Therefore, pursuant to 326 IAC 2-2, the PSD requirements do not apply.

### Part 70 Permit Determination

326 IAC 2-7 (Part 70 Permit Program)

This new source is not subject to the Part 70 Permit requirements because the potential to emit (PTE) of:

- (a) each criteria pollutant is less than 100 tons per year,
- (b) a single hazardous air pollutant (HAP) is less than 10 tons per year, and
- (c) any combination of HAPs is less than 25 tons/year.

This is the first air approval issued to this source.

### Federal Rule Applicability

- (a) There are no New Source Performance Standards (NSPS) (326 IAC 12 and 40 CFR Part 60) included in the permit for this source.
- (b) This source is not subject to the requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAP), 40 CFR 63, Subpart M, Miscellaneous Metal Parts and Products Surface Coating, because this source is not a major source of HAPs as defined in 40 CFR 63.2.
- (b) There are no National Emission Standards for Hazardous Air Pollutants (NESHAP)(326 IAC 14, 20 and 40 CFR Part 61, 63) included in the permit for this source.

### **State Rule Applicability - Entire Source**

#### 326 IAC 2-2 (Prevention of Significant Deterioration (PSD))

This source was constructed in 1997, after the applicability date of August 7, 1977, however, it is not one of the 28 listed source categories defined in 326 IAC 2-2-1(y)(1), no major modifications were done to this source, and the uncontrolled potential to emit of all attainment regulated pollutants is less than 250 tons per year. Therefore, the requirements of 326 IAC 2-2 (PSD) are not applicable.

#### 326 IAC 2-4.1 and 326 IAC 2-7 (Major Sources of Hazardous Air Pollutants (HAP))

The requirements of 326 IAC 2-4.1 are not applicable to this source, since the potential to emit of any single HAP is less than ten (10) tons per year and the potential to emit of a combination of HAPs is less than twenty-five (25) tons per year.

#### 326 IAC 2-6 (Emission Reporting)

The requirements of 326 IAC 2-6 are not applicable, since this source is located in Lawrence County and does not have a permit under 326 IAC 2-7, Part 70 Permit Program.

#### 326 IAC 5-1 (Opacity Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:

- (a) Opacity shall not exceed an average of forty percent (40%) any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor in a six (6) hour period.

#### 326 IAC 6-4 (Fugitive Dust Emissions Limitations)

Pursuant to 326 IAC 6-4 (Fugitive Dust Emissions Limitations), the source shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4.

### **State Rule Applicability - Individual Facilities**

#### 326 IAC 8-1-6 (VOC rules: General Reduction Requirements for New Facilities)

The requirements of 326 IAC 8-1-6 are not applicable, since each of the emission units at this source does not have the potential to emit greater than twenty-five (25) tons of VOCs per year.

#### 326 IAC 8-2 (Surface Coating Emission Limitations)

This navy ship radar frame refurbishing and surface coating source is not one of the facility types listed in 326 IAC 8-2, therefore 326 IAC 8-2 does not apply. The requirements of 326 IAC 8-2-9 are not applicable to this source, since this operation can be considered as surface coating of metal parts associated with the "exterior of marine vessels."

### **State Rule Applicability - Welding Emission Units**

#### 326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes)

The welding operations of this source are exempt from 326 IAC 6-3, since the potential to consume welding wire is less than six hundred twenty-five (625) pounds per day.

### State Rule Applicability - Paint Booth Emission Unit

#### 326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes)

The surface coating operations of this source are exempt from 326 IAC 6-3, since the potential to use surface coatings is less than five (5) gallons per day.

#### 40 CFR 52, Subpart P (Particulate Matter (PM))

Pursuant to 40 CFR 52, Subpart P, the PM from the paint booth shall not exceed the pound per hour emission rate established as E in the following formula:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67} \quad \text{where } E = \text{rate of emission in pounds per hour, and} \\ P = \text{process weight rate in tons per hour}$$

### State Rule Applicability - Abrasive Mechanical Blaster Emission Unit

#### 326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes)

The requirements of 326 IAC 6-3 are applicable to the abrasive mechanical blaster. Pursuant to 326 IAC 6-3-2(e)(2), any manufacturing process not exempt under 326 IAC 6-3-1(b) or (c) and to which the control methods in 326 IAC 6-3-2 (b) through (d) do not apply shall calculate allowable particulate emissions as follows:

- (1) No person shall operate any manufacturing process so as to produce, cause, suffer, or allow particulate to be emitted in excess of the amount shown in the table in 326 IAC 6-3-2(e)(2). The allowable rate of emission shall be based on the process weight rate for a manufacturing process.
- (2) When the process weight rate is less than one hundred (100) pounds per hour, the allowable rate of emission is five hundred fifty-one thousandths (0.551) pound per hour.
- (3) When the process weight exceeds two hundred (200) tons per hour, the allowable emission may exceed that shown in the table in 326 IAC 6-3-2(e)(2), provided the concentration of particulate in the discharge gases to the atmosphere is less than one-tenth (0.10) pound per one thousand (1,000) pounds of gases:

In order to comply with the allowable rate of emission, the particulate controls of the abrasive mechanical blaster shall be in operation at all times when the blaster is in operation. The allowable rate of emission can be calculated as follows:

Interpolation of the data in the table in 326 IAC 6-3-2(e)(2) for the process weight rates up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67} \quad \text{where } E = \text{rate of emission in pounds per hour, and} \\ P = \text{process weight rate in tons per hour}$$

and interpolation and extrapolation of the data in the table in 326 IAC 6-3-2(e)(2) for the process weight rates in excess of sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 55.0 P^{0.11} - 40 \quad \text{where } E = \text{rate of emission in pounds per hour, and} \\ P = \text{process weight rate in tons per hour}$$

### Conclusion

The operation of this navy ship radar frame refurbishing and surface coating source shall be subject to the conditions of the attached proposed Exemption No. 093-19481-00031.

**Appendix A: Emissions Calculations  
Welding Operations**

**Company Name: Tri Star Engineering, Inc.  
Address City IN Zip: 1414 H Street, Bedford, Indiana, 47421  
Permit Number: 093-19481  
Plt ID: 093-00031  
Reviewer: Nathan C. Bell  
Date: September 24, 2004**

PROCESS	Max. electrode consumption (lbs/hr)	EMISSION FACTORS* (lb pollutant/lb electrode)						EMISSIONS (lbs/hr)						HAPS (lbs/hr)
		PM = PM10	Cr	Co	Ni	Mn	Pb	PM = PM10	Cr	Co	Ni	Mn	Pb	
WELDING														
Gas Metal Arc Welding	2	0.0241	1.0E-05			3.4E-05		0.048	2.0E-05			6.8E-05		8.8E-05

<b>Total Potential Emissions lbs/day</b>	1.16	4.8E-04			1.6E-03		2.1E-03
<b>Total Potential Emissions tons/year</b>	0.21	8.8E-05			3.0E-04		3.9E-04

**METHODOLOGY**

Welding operations (gas metal arc welding) utilizing an aluminum-based wire (containing 0.2% Cr, 0.2% Mn compounds by wt.) at a maximum usage rate of 2 pounds per hour. For this calculation, it was assumed that the aluminum-based wire had properties and associated emission factors similar to the Electrode Type ER5154, an aluminum-based wire

\*Emission Factors are default values for Gas Metal Arc Welding (GMAW) (SCC 3-09-052) Electrode Type ER5154, AP-42

Welding emissions, lb/hr: (max. lbs of electrode used/hr) \* (emission factor, lb. pollutant/lb. of electrode used)

Emissions, lbs/day = emissions, lbs/hr x 24 hrs/day

Emissions, tons/yr = emissions, lb/hr x 8,760 hrs/year x 1 ton/2,000 lbs.

**Abbreviations**

Cr = Chromium            Mn = Manganese  
Co = Cobalt              Pb = Lead  
Ni = Nickel



**Appendix A: Emissions Calculations**

**VOC and Particulate**

**Painting Operations**

**Company Name:** Tri Star Engineering, Inc.  
**Address City IN Zip:** 1414 H Street, Bedford, Indiana, 47421  
**Permit Number:** 093-19481  
**Plt ID:** 093-00031  
**Reviewer:** Nathan C. Bell  
**Date:** September 24, 2004

Material	Density (Lb/Gal)	Weight % Volatile (H2O & Organics)	Weight % Water	Weight % Organics	Volume % Water	Volume % Non-Volatiles (solids)	Gal of Mat. (gal/unit)	Maximum (unit/day)	Pounds VOC per gallon of coating less water	Pounds VOC per gallon of coating	Potential VOC pounds per day	Particulate Potential (lb/day)	lb VOC/gal solids	Transfer Efficiency
<b>Paint Booth</b>														
PSX 700 (resin + cure)	11.35	8.0%	0.0%	8.0%	0.0%	90.00%	1.0	1.0	0.91	0.91	0.91	2.61	-	75%
Amercoat 370 (resin + cure)	14.44	17.0%	0.0%	17.0%	0.0%	66.00%	1.0	1.0	2.45	2.45	2.45	3.00	-	75%
Amerlock 400 (resin + cure)	12.03	11.6%	0.0%	11.6%	0.0%	90.00%	1.0	1.0	1.40	1.40	1.40	2.66	-	75%

Note: Solvent - Gal of Mat. is in gal/day

The unit/day maximum production accounted for both primer, basecoat, and topcoat being applied in a day.

The Particulate Matter potential emissions from the paint booth was calculated before and after dry filter controls

<b>Maximum Worse Case Paint (lb/day)</b>	<b>2.45</b>	<b>3.00</b>
<b>Maximum Worse Case Paint (ton/yr)</b>	<b>0.45</b>	<b>0.55</b>

**METHODOLOGY**

Pounds of VOC per Gallon Coating less Water = (Density (lb/gal) \* Weight % Organics) / (1-Volume % water)

Pounds of VOC per Gallon Coating = (Density (lb/gal) \* Weight % Organics)

Potential VOC Pounds per Hour = Pounds of VOC per Gallon coating (lb/gal) \* Gal of Material (gal/unit) \* Maximum (units/hr)

Potential VOC Pounds per Day = Pounds of VOC per Gallon coating (lb/gal) \* Gal of Material (gal/unit) \* Maximum (units/day)

Potential VOC Tons per Year = Pounds of VOC per Gallon coating (lb/gal) \* Gal of Material (gal/unit) \* Maximum (units/day) \* (365 days/yr) \* (1 ton/2000 lbs)

Particulate Potential Tons per Year = (ga/day \* (lbs/gal) \* (1- Weight % Volatiles) \* (1-Transfer efficiency) \* (365 days/yr) \* (1 ton/2000 lbs)

Pounds VOC per Gallon of Solids = (Density (lbs/gal) \* Weight % organics) / (Volume % solids)

**Appendix A: Emission Calculations**

**HAP Emission Calculations**

**Painting Operations**

**Company Name: Tri Star Engineering, Inc.**

**Address City IN Zip: 1414 H Street, Bedford, Indiana, 47421**

**Permit Number: 093-19481**

**Plt ID: 093-00031**

**Reviewer: Nathan C. Bell**

**Date: September 24, 2004**

Material	Density (Lb/Gal)	Gallons of Material (gal/unit)	Maximum (unit/day)	Weight % EB	Weight % MEK	Weight % MIK	Weight % Toluene	Weight % Xylene	EB Emissions (ton/yr)	MEK Emissions (ton/yr)
<b>Paint Booth</b>										
Amercoat 370 (resin + cure)	14.44	0.5	1.0	0.00%	10.10%	3.30%	1.00%	2.90%	0.00	0.13
Amerlock 400 (resin + cure)	12.03	0.5	1.0	2.70%	0.00%	0.00%	0.00%	11.50%	0.03	0.00

<b>Total Single HAP (ton/yr)</b>	<b>0.03</b>	<b>0.13</b>
----------------------------------	-------------	-------------

Note: Solvent - Gal of Mat. is in gal/day

The unit/day maximum production accounted for both primer and topcoat being applied in a day.

Note: PSX 700 (resin + cure) not included in table, since PSX 700 has insignificant amounts of HAPs

**TC**

**METHODOLOGY**

HAPS emission rate (tons/yr) = Density (lb/gal) \* Gal of Material (gal/unit) \* Maximum (unit/day) \* Weight % HAP \* 365 days/yr \* 1 ton/2000 lbs

**Appendix A: Emissions Calculations  
Total VOC, Particulate, and HAPs  
Welding, Painting, and Blasting Operations**

**Company Name: Tri Star Engineering, Inc.  
Address City IN Zip: 1414 H Street, Bedford, Indiana, 47421  
Permit Number: 093-19481  
Plt ID: 093-00031  
Reviewer: Nathan C. Bell  
Date: September 24, 2004**

**VOCs and Particulate Matter**

<b>Operation</b>	Potential VOC (lb/day)	Potential VOC (ton/yr)	Particulate Potential without controls (lb/day)	Particulate Potential without controls (ton/yr)	Particulate Potential with controls (lb/day)	Particulate Potential with controls (ton/yr)
Welding	-	-	1.16	0.21	1.16	0.21
Painting (without controls)	2.45	0.45	3.00	0.55	3.00	0.55
Blasting (with controls)	-	-	11.98	2.19	6.17	1.13
<b>Totals</b>	<b>2.5</b>	<b>0.45</b>	<b>16.13</b>	<b>2.94</b>	<b>10.32</b>	<b>1.88</b>

For welding and painting operations, no controls were assumed to be used