



Joseph E. Kernan  
Governor

Lori F. Kaplan  
Commissioner

July 14, 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: Bloomfield Manufacturing Co., Inc. / 055-16056-00025

FROM: Paul Dubenetzky  
Chief, Permits Branch  
Office of Air Quality

### Notice of Decision: Approval - Registration

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 IC 4-21.5-3-4(d) this order is effective when it is served. When served by U.S. mail, the order is effective three (3) calendar days from the mailing of this notice pursuant to IC 4-21.5-3-2(e).

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 of 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  
FN-REGIS.dot 9/16/03



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

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

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Governor

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July 14, 2004

**Mr. Patrick F. Simpson**  
**Bloomfield Manufacturing Co., Inc.**  
**P.O. Box 228, Bloomfield, Indiana 47424**

Re: Registered Construction and Operation Status,  
055-16056-00025

Dear Mr. Simpson:

The application from Bloomfield Manufacturing Co., Inc., received on September 5, 2002, has been reviewed. Based on the data submitted and the provisions in 326 IAC 2-5.5, it has been determined that the following metal jack and clamp manufacturing source, to be located at 46 West Spring Street, Bloomfield, Indiana, is classified as registered:

- (a) One (1) bar conveyor paint dip line, identified as WBL, capacity: 500 metal jack and/or clamp parts per hour.
- (b) One (1) powder coating spray booth, identified as PCL, constructed in 2001, equipped with a spray gun and one (1) powder coating overspray filter module for each powder coating color, exhausting to the powder coating stack, capacity: 1,176 large metal jack and/or clamp parts per hour or 5,850 small metal jack and/or clamp parts per hour.
- (c) One (1) natural gas-fired burn-off oven, identified as Burn-Off Oven, constructed in 2001, exhausting to the burn-off oven stack, rated at 0.5 million British thermal units per hour, with a maximum capacity of ten (10) pounds of burn-off waste per hour.
- (d) One (1) natural gas-fired cure oven, identified as Cure Oven, constructed in 2001, exhausting to the cure oven stack, rated at 2.0 million British thermal units per hour.
- (e) One (1) welding facility using carbon steel electrodes, identified as S-2 Station North, equipped with an electrostatic precipitator (ESP) for particulate control, exhausting to S-2 North Vent, capacity: 92 metal jack and/or clamp parts per hour.
- (f) One (1) welding facility using carbon steel electrodes, identified as S-6 Station South, equipped with an electrostatic precipitator (ESP) for particulate control, exhausting to S-6 South Vent, capacity: 94 metal jack and/or clamp parts per hour.
- (g) One (1) welding facility using carbon steel electrodes, identified as Hand Operated Station West, equipped with an electrostatic precipitator (ESP) for particulate control, exhausting to West Vent, capacity: 10.5 metal jack and/or clamp parts per hour.

- (h) One (1) abrasive mechanical blaster using steel shot for blasting, identified as Wheelabrator, equipped with a fabric filter system for particulate control, capacity: 15,865 pounds per hour of iron castings and 38 pounds per hour of steel stampings.

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, unless otherwise stated in the permit:
  - (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 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.
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. Any change or modification which may increase the potential to emit a combination of HAPs, VOC, PM or PM<sub>10</sub> to twenty five (25) tons per year or a single HAP to ten (10) tons per year from this source shall require approval from IDEM, OAQ prior to making the change.
4. Pursuant to 326 IAC 4-2-2, the one (1) natural gas-fired burn-off oven, which serves as an incinerator, shall:
  - (a) Consist of primary and secondary chambers or the equivalent;
  - (b) Be equipped with a primary burner;
  - (c) Comply with 326 IAC 5-1 (Opacity Limitations) and 326 IAC 2 (Permit Review Rules);
  - (d) Be maintained properly as specified by the manufacturer and approved by IDEM;
  - (e) Be operated according to the manufacturer's recommendation and only burn waste approved by IDEM;
  - (f) Comply with other state and/or local rules or ordinances regarding installation and operation of incinerators;
  - (g) Be operated so that emissions of hazardous materials including, but not limited to, viable pathogenic bacteria, dangerous chemical or gases, or noxious odors are prevented;
  - (h) Not create a nuisance or a fire hazard; and
  - (i) Not emit particulate matter (PM) in excess of 0.5 pounds per 1,000 pounds of dry exhaust gas corrected to fifty percent (50%) excess air.

The operation of the incinerator shall be terminated immediately upon noncompliance with any of the above mentioned requirements.

5. Pursuant to 326 IAC 6-3-2 (Particulate Emissions Limitations for Manufacturing Processes), particulate from the one (1) powder coating spray booth shall be controlled by a dry particulate filter, waterwash, or an equivalent control device, and the Permittee shall operate the control device in accordance with manufacturer's specifications.

If overspray is visibly detected at the exhaust or accumulates on the ground, the Permittee shall inspect the control device and do either of the following no later than four (4) hours after such observation:

- (a) Repair control device so that no overspray is visibly detectable at the exhaust or accumulates on the ground.
- (b) Operate equipment so that no overspray is visibly detectable at the exhaust or accumulates on the ground.

If overspray is visibly detected, the Permittee shall maintain a record of the action taken as a result of the inspection, any repairs of the control device, or change in operations, so that overspray is not visibly detected at the exhaust or accumulates on the ground. These records must be maintained for five (5) years.

6. Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), the allowable particulate emission rate from one (1) abrasive mechanical blaster shall not exceed 16.4 pounds per hour when operating at a process weight rate of 15,900 pounds of iron castings and steel stampings per hour.

The pounds per hour limitation was calculated with the following equation:

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

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

7. Pursuant to 326 IAC 8-2-9, the owner or operator shall not allow the discharge into the atmosphere VOC in excess of three and five-tenths (3.5) pounds of VOC per gallon of coating, excluding water, as delivered to the applicators of the one (1) bar conveyor paint dip line.

Pursuant to 326 IAC 8-2-9(f), all solvents sprayed from the application equipment of one (1) bar conveyor paint dip line during cleanup or color changes shall be directed into containers. Said containers shall be closed as soon as the solvent spraying is complete. In addition, all waste solvent shall be disposed of in such a manner that minimizes evaporation.

8. Daily visible emission notations of the one (1) abrasive mechanical blaster stack exhaust shall be performed during normal daylight operations when exhausting to the atmosphere. A trained employee shall record whether emissions are normal or abnormal.

For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.

In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.

A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.

The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when an abnormal emission is observed. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation and Implementation shall be considered a deviation from this permit.

9. The Permittee shall record the total static pressure drop across the baghouse used in conjunction with the abrasive mechanical blaster, at least once per shift when the process is in operation when venting to the atmosphere. When for any one reading, the pressure drop across the baghouse is outside the normal range of 3.0 and 6.0 inches of water or a range established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C- Compliance Response Plan - Preparation, Implementation, Records, and Reports. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation and Implementation shall be considered a deviation from this permit.

The instrument used for determining the pressure shall comply with Section C - Pressure Gauge and Other Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated at least once every six (6) months.

10. An inspection shall be performed each calendar quarter of all bags controlling the one (1) abrasive mechanical blaster when venting to the atmosphere. A baghouse inspection shall be performed within three months of redirecting vents to the atmosphere and every three months thereafter. Inspections are optional when venting to the indoors. Inspections required by this condition shall not be performed in consecutive months. All defective bags shall be replaced.

11. In the event that bag failure has been observed:

- (a) For multi-compartment units, the affected compartments will be shut down immediately until the failed units have been repaired or replaced. Within eight (8) business hours of the determination of failure, response steps according to the timetable described in the Compliance Response Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Compliance Response Plan, response steps shall be devised within eight (8) business hours of discovery of the failure and shall include a timetable for completion. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation and Implementation shall be considered a deviation from this permit. If operations continue after bag failure is observed and it will be 10 days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

- (b) For single compartment baghouses, if failure is indicated by a significant drop in the baghouse's pressure readings with abnormal visible emissions or the failure

is indicated by an opacity violation, or if bag failure is determined by other means, such as gas temperatures, flow rates, air infiltration, leaks, dust traces or triboflows, then failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced.

This registration is a revised registration issued to this source. The source may operate according to 326 IAC 2-5.5.

An authorized individual shall provide an annual notice to the Office of Air Quality that the source is in operation and in compliance with this registration pursuant to 326 IAC 2-5.5-4(a)(3)). The annual notice shall be submitted to:

**Compliance Data Section  
Office of Air Quality  
100 North Senate Avenue  
P.O. Box 6015  
Indianapolis, IN 46206-6015**

no later than March 1 of each year, with the annual notice being submitted in the format attached.

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

SAR/MES

cc: File - Greene County  
Greene County Health Department  
Air Compliance - Jim L. Thorpe  
Permit Tracking  
Compliance Data Section  
Office of Enforcement

<b>Registration Annual Notification</b>
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This form should be used to comply with the notification requirements under 326 IAC 2-5.5-4(a)(3)

<b>Company Name:</b>	<b>Bloomfield Manufacturing Co., Inc.</b>
<b>Address:</b>	<b>45 West Spring Street</b>
<b>City:</b>	<b>Bloomfield, Indiana</b>
<b>Authorized individual:</b>	<b>Eric A. Harrah</b>
<b>Phone #:</b>	<b>(812) 384-4441</b>
<b>Registration #:</b>	<b>055-16056-00025</b>

I hereby certify that Bloomfield Manufacturing Co., Inc. is still in operation and is in compliance with the requirements of Registration 055-16056-00025.

<b>Name (typed):</b>
<b>Title:</b>
<b>Signature:</b>
<b>Date:</b>

## Indiana Department of Environmental Management Office of Air Quality

### Addendum to the Technical Support Document for New Construction and a Minor Source Operating Permit

**Source Name:** Bloomfield Manufacturing Co., Inc.  
**Source Location:** 46 West Spring Street, Bloomfield, Indiana 47424  
**County:** Greene  
**Construction Permit No.:** 055-16056-00025  
**SIC Code:** 3499  
**Permit Reviewer:** Stephanie A. Roy

On May 14, 2004, the Office of Air Quality (OAQ) had a notice published in the Linton Daily Citizen, Linton, Indiana, stating that Bloomfield Manufacturing Co., Inc. had applied for a construction operating permit to construct and operate a metal jack and clamp manufacturing source. The notice also stated that OAQ proposed to issue a permit for this installation and provided information on how the public could review the proposed permit and other documentation. Finally, the notice informed interested parties that there was a period of thirty (30) days to provide comments on whether or not this permit should be issued as proposed.

On June 15, 2004, Charles Staehler of August Mack Environmental Inc. on behalf of Bloomfield Manufacturing Co., Inc. submitted a comment on the proposed operating permit. The summary of the comments and corresponding responses are as follows:

#### **Comment:**

The filter module used to control emissions from the powder coating spray booth is integral. The filter module is integral since it meets at least one of the following three criteria:

- (a) The process cannot operate without the control equipment, or
- (b) The control equipment serves a primary purpose other than pollution control, or
- (c) The control equipment has an overwhelming positive net economic effect.

The powder coating filter module consists of cartridge filters that collect the particulate (i.e., paint powder). The cartridges are able to recover the paint powder collected by utilizing a blowback system (air reversal) that removes the paint powder from the cartridges and drops it into a collection bin for reuse. The paint powder is recovered and reused within the powder coating process. Bloomfield estimates that 100% of the recovered powder is reused. This recovery and reclaim process serves as an additional primary purpose other than pollution control. The filter module has an overwhelming positive net economic effect by reducing the amount of powder coating materials that are used and purchased. The cost of the powder coating is approximately \$4.42 per pound. At a potential particulate emission level of 74 tons per year the cost savings realized by utilizing the filter module is approximately \$650,000 per year. Therefore, the use of the control equipment has an overwhelming positive net economic effect.

Based upon the information provided above Bloomfield requests that the potential emissions for the powder coating line be recalculated utilizing the filter module as integral. The potential emissions from this unit should decrease significantly.

#### **Response:**

The IDEM, OAQ, agrees that the overspray filter module for the one (1) powder coating spray booth, identified as PCL, should be considered integral.

Although there is a section in the Technical Support Document to incorporate Air Pollution Control Justification as an Integral Part of the Process, IDEM, OAQ prefers that the Technical Support Document reflect the permit

that was on public notice. Changes to the permit or technical support material that occur after the public notice are documented in this Addendum to the Technical Support Document. This accomplishes the desired result of ensuring that these types of concerns are documented and part of the record regarding this permit decision.

IDEM, OAQ has evaluated the justifications and agreed that the filter module will be considered as an integral part of the one (1) powder coating spray booth. This control device clearly has an overwhelming net positive economic effect. Therefore, the permitting level will be determined using the potential to emit after the filter module. Operating conditions in the proposed Registration will specify that this filter module shall operate at all times when the one (1) powder coating spray booth is in operation.

The spreadsheets have been revised and are attached to this addendum to reflect the change in the potential to emit from the one (1) powder coating spray booth and the entire source.

The revised potential to emit of the source before controls are as follows:

#### **Potential to Emit of the Source 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	11.5
PM <sub>10</sub>	11.6
SO <sub>2</sub>	0.060
VOC	9.47
CO	0.955
NO <sub>x</sub>	0.942

HAPs	Potential to Emit (tons/yr)
Benzene	0.00002
Dichlorobenzene	0.00001
Formaldehyde	0.001
Hexane	0.016
Toluene	0.00003
Lead Compounds	0.000004
Cadmium Compounds	0.00001
Chromium Compounds	0.00004
Manganese Compounds	0.008
Nickel Compounds	0.00005
Triethylamine	0.906
Glycol Ethers	2.17
Total	3.10

- (a) The potential to emit (as defined in 326 IAC 2-7-1(29)) of PM and PM<sub>10</sub> is greater than 5 tons per year and less than 25 tons per year. Therefore, the source is subject to the provisions of 326 IAC 2-5.5. A registration will be issued.
- (b) Fugitive Emissions

Since this type of operation is not one of the twenty-eight (28) listed source categories under 326 IAC 2-2 and since there are no applicable New Source Performance Standards that were in effect on August 7, 1980, the fugitive particulate matter (PM) and volatile organic compound (VOC) emissions are not counted toward determination of PSD and Emission Offset applicability.

The revised source status is as follows:

**Source Status**

Existing Source PSD, Part 70, or FESOP Definition (emissions after controls, based on 8760 hours of operation per year at rated capacity and/or as otherwise limited):

<b>Pollutant</b>	<b>Emissions (tons/yr)</b>
PM	11.5
PM <sub>10</sub>	11.5
SO <sub>2</sub>	0.060
VOC	9.47
CO	0.955
NO <sub>x</sub>	0.942
Single HAP	2.17
Combination HAPs	3.10

- (a) This existing source is not a major stationary source because no attainment regulated 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.
- (b) The emissions were based on the permit application submitted by the source.

Based on these potential emissions, the Minor Source Operating Permit has been withdrawn and Registration 055-16056-00025 shall be issued.



**Appendix A: Emission Calculations  
HAP Emission Calculations**

**Company Name:** Bloomfield Manufacturing Co., Inc.  
**Address City IN Zip:** 46 West Spring Street, Bloomfield, Indiana 47424  
**Permit Number:** R 055-16056  
**Pit ID:** 055-00025  
**Permit Reviewer:** Stephanie A. Roy  
**Date:** September 18, 2002

Material	Density (Lb/Gal)	Gallons of Material (gal/unit)	Maximum (unit/hour)	Weight % Triethylamine	Weight % Glycol Ethers	Triethylamine Emissions (ton/yr)	Glycol Ethers Emissions (ton/yr)
<b>Bar Conveyer Line</b>							
Black Acrylic Dipping Enamel	8.888	0.0033	500	1.41%	3.38%	0.906	2.17
<b>Total</b>						0.906	2.17

**METHODOLOGY**

HAPS emission rate (tons/yr) = Density (lb/gal) \* Gal of Material (gal/unit) \* Maximum (unit/hr) \* Weight % HAP \* 8760 hrs/yr \* 1 ton/2000 lbs

**Appendix A: Emissions Calculations**

**Welding**

**Company Name:** Bloomfield Manufacturing Co., Inc.  
**Address City IN Zip:** 46 West Spring Street, Bloomfield, Indiana 47412  
**Permit Number:** R 055-16056  
**Pit ID:** 055-00025  
**Reviewer:** Stephanie A. Roy  
**Date:** September 5, 2002

PROCESS	Number of Stations	Max. electrode consumption per station (lbs/hr)	EMISSION FACTORS* (lb pollutant/lb electrode)				EMISSIONS (lbs/hr)				HAPS (lbs/hr)
			PM = PM10	Mn	Ni	Cr	PM = PM10	Mn	Ni	Cr	
WELDING											
Metal Inert Gas (MIG)(ER70S-3)	1.00	1.05	0.024	0.0003	0.000001	0.000001	0.025	0.0003	0.000001	0.000001	0.0003
Metal Inert Gas (MIG)(ER70S-3)	1.00	1.20	0.024	0.0003	0.000001	0.000001	0.029	0.0004	0.000001	0.000001	0.0004
Metal Inert Gas (MIG)(ER70S-3)	1.00	3.46	0.024	0.0003	0.000001	0.000001	0.083	0.001	0.000003	0.000003	0.001
<b>EMISSION TOTALS</b>											
Potential Emissions lbs/hr							0.137	0.002	0.00001	0.00001	0.002
Potential Emissions lbs/day							3.29	0.041	0.0001	0.0001	0.041
Potential Emissions tons/year							0.600	0.008	0.00003	0.00003	0.008

**METHODOLOGY**

\*Emission Factors are default values for carbon steel unless a specific electrode type is noted in the Process column.

Using AWS average values: (0.25 g/min)/(3.6 m/min) x (0.0022 lb/g)/(39.37 in./m) x (1,000 in.) = 0.0039 lb/1,000 in. cut, 8 mm thick

Welding emissions, lb/hr: (# of stations)(max. lbs of electrode used/hr/station)(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 lb

**Appendix A: Emission Calculations  
Abrasive Blasting - Confined**

**Company Name: Bloomfield Manufacturing Co., Inc.**  
**Address City IN Zip: 46 West Spring Street, Bloomfield, Indiana 47424**  
**Permit Number: R 055-16056**  
**Plt ID: 055-00025**  
**Reviewer: Stephanie A. Roy**  
**Date: September 5, 2002**

**Table 1 - Emission Factors for Abrasives**

Abrasive	Emission Factor	
	lb PM / lb abrasive	lb PM10 / lb PM
Sand	0.041	0.70
Grit	0.010	0.70
Steel Shot	0.004	0.86
Other	0.010	

**Table 2 - Density of Abrasives (lb/ft3)**

Abrasive	Density (lb/ft3)
Al oxides	160
Sand	99
Steel	487

**Table 3 - Sand Flow Rate (FR1) Through Nozzle (lb/hr)**

Flow rate of Sand Through a Blasting Nozzle as a Function of Nozzle pressure and Internal Diameter

Internal diameter, in	Nozzle Pressure (psig)							
	30	40	50	60	70	80	90	100
1/8	28	35	42	49	55	63	70	77
3/16	65	80	94	107	122	135	149	165
1/4	109	138	168	195	221	255	280	309
5/16	205	247	292	354	377	420	462	507
3/8	285	355	417	477	540	600	657	720
7/16	385	472	560	645	755	820	905	940
1/2	503	615	725	835	945	1050	1160	1265
5/8	820	990	1170	1336	1510	1680	1850	2030
3/4	1140	1420	1670	1915	2160	2400	2630	2880
1	2030	2460	2900	3340	3780	4200	4640	5060

**Calculations**

**Flow Rate (FR) (lb/hr) = 57000 per nozzle**

**Uncontrolled Emissions (E, lb/hr)**

EF = emission factor (lb PM / lb abrasive) From Table 1 =

0.004

FR = Flow Rate (lb/hr) =

57000

w = fraction of time of wet blasting =

0.00%

N = number of nozzles =

1.00

**Control Efficiency**

99%

<b>Controlled Emissions =</b>	<b>2.28 lb/hr</b>
	<b>9.99 ton/yr</b>

**METHODOLOGY**

Emission Factors from STAPPA/ALAPCO "Air Quality Permits", Vol. I, Section 3 "Abrasive Blasting" (1991 edition)

Ton/yr = lb/hr X 8760 hr/yr X ton/2000 lbs

Flow Rate (FR) (lb/hr) = FR1 x (ID/ID1)2 x (D/D1)

E = EF x FR x (1-w/200) x N

w should be entered in as a whole number (if w is 50%, enter 50)

The fabric filter system is integral to the operation of the abrasive mechanical blasting. Therefore, the potential to emit is equal to the controlled emissions.

**Appendix A: Emissions Calculations  
Natural Gas Combustion Only  
MM BTU/HR <100  
Cure Oven**

**Company Name:** Bloomfield Manufacturing Co., Inc.  
**Address City IN Zip:** 46 West Spring Street, Bloomfield, Indiana 47424  
**Permit Number:** R 055-16056  
**Pit ID:** 055-00025  
**Reviewer:** Stephanie A. Roy  
**Date:** September 5, 2002

Heat Input Capacity  
MMBtu/hr

Potential Throughput  
MMCF/yr

2.00

17.5

One (1) cure oven rated at 2.00 MMBtu/hr.

Emission Factor in lb/MMCF	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
	1.90	7.60	0.600	100	5.50	84.0
				**see below		
Potential Emission in tons/yr	0.017	0.067	0.005	0.876	0.048	0.736

\*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.

\*\*Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

**Methodology**

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

See page 6 for HAPs emissions calculations.

**Appendix A: Emissions Calculations  
 Natural Gas Combustion Only  
 MM BTU/HR <100  
 Cure Oven  
 HAPs Emissions**

**Company Name: Bloomfield Manufacturing Co., Inc.**  
**Address City IN Zip: 46 West Spring Street, Bloomfield, Indiana 47424**  
**Permit Number: R 055-16056**  
**Pit ID: 055-00025**  
**Reviewer: Stephanie A. Roy**  
**Date: September 5, 2002**

HAPs - Organics					
Emission Factor in lb/MMcf	Benzene 0.002	Dichlorobenzene 0.001	Formaldehyde 0.075	Hexane 1.80	Toluene 0.003
Potential Emission in tons/yr	0.00002	0.00001	0.001	0.016	0.00003

HAPs - Metals						
Emission Factor in lb/MMcf	Lead 0.001	Cadmium 0.001	Chromium 0.001	Manganese 0.0004	Nickel 0.002	<b>Total</b>
Potential Emission in tons/yr	0.000004	0.00001	0.00001	0.000003	0.00002	<b>0.017</b>

Methodology is the same as page 5.

The ten highest organic and metal HAPs emission factors are provided above.  
 Additional HAPs emission factors are available in AP-42, Chapter 1.4.

**Appendix A: Emission Calculations  
Incinerator (Burn-off Oven)**

**Company Name:** Bloomfield Manufacturing Co., Inc.  
**Address City IN Zip:** 46 West Spring Street, Bloomfield, Indiana 47424  
**Permit Number:** R 055-16056  
**Plt ID:** 055-00025  
**Reviewer:** Stephanie A. Roy  
**Application Date:** September 5, 2002

THROUGHPUT

lbs/hr

10.0

THROUGHPUT

ton/yr

43.8

	POLLUTANT				
	PM	SO2	CO	VOC	NOX
Emission Factor in lb/ton	7.00	2.50	10.0	3.00	3.00
Potential Emissions in ton/yr	0.153	0.055	0.219	0.066	0.066

**Methodology**

PM = PM<sub>10</sub>

Emission factors are from AP 42 (5th Edition 1/95) Table 2.1-12, Uncontrolled emission factors for industrial/commercial refuse combustors, multiple chambers

Throughput (lb/hr) \* 8760 hr/yr \* ton/2000 lb = throughput (ton/yr)

**Appendix A: Emissions Calculations  
Summary from Entire Source**

**Company Name: Bloomfield Manufacturing Co., Inc.**  
**Address City IN Zip: 45 West Spring Street, Bloomfield, Indiana 47424**  
**Permit Number: R 055-16056**  
**Plt ID: 055-00025**  
**Reviewer: Stephanie A. Roy**  
**Date: September 5, 2002**

**Uncontrolled Emissions (tons per year)**

Facility	PM	PM10	SO2	NOx	VOC	CO
Surface Coating / Assembly	0.741	0.741	0.00	0.00	9.36	0.00
Welding	0.600	0.600	0.00	0.00	0.00	0.00
Abrasive Blasting	9.99	9.99	0.00	0.00	0.00	0.00
Cure Oven	0.017	0.067	0.005	0.876	0.048	0.736
Burn-off Oven	0.153	0.153	0.055	0.066	0.066	0.219
<b>Total</b>	<b>11.5</b>	<b>11.6</b>	<b>0.060</b>	<b>0.942</b>	<b>9.47</b>	<b>0.955</b>

**Controlled Emissions (tons per year)**

Facility	PM	PM10	SO2	NOx	VOC	CO
Surface Coating / Assembly	0.741	0.741	0.00	0.00	9.36	0.00
Welding	0.600	0.600	0.00	0.00	0.00	0.00
Abrasive Blasting	9.99	9.99	0.00	0.00	0.00	0.00
Cure Oven	0.017	0.067	0.005	0.876	0.048	0.736
Burn-off Oven	0.153	0.153	0.055	0.066	0.066	0.219
<b>Total</b>	<b>11.5</b>	<b>11.6</b>	<b>0.060</b>	<b>0.942</b>	<b>9.47</b>	<b>0.955</b>

**HAPs Emissions (tons per year)**

Facility	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene	Lead
Surface Coating / Assembly	0.00	0.00	0.00	0.00	0.00	0.00
Welding	0.00	0.00	0.00	0.00	0.00	0.00
Cure Oven	0.00002	0.00001	0.001	0.016	0.00003	0.000004
<b>Total</b>	<b>0.00002</b>	<b>0.00001</b>	<b>0.001</b>	<b>0.016</b>	<b>0.00003</b>	<b>0.000004</b>

Facility	Cadmium	Chromium	Manganese	Nickel
Surface Coating / Assembly	0.00	0.00	0.00	0.00
Welding	0.00	0.00003	0.01	0.00003
Cure Oven	0.00001	0.00001	0.000003	0.00002
<b>Total</b>	<b>0.00001</b>	<b>0.00004</b>	<b>0.008</b>	<b>0.00005</b>

Facility	Triethylamine	Glycol Ethers	Total
Surface Coating / Assembly	0.906	2.17	3.08
Welding	0.00	0.00	0.01
Cure Oven	0.00	0.00	0.017
<b>Total</b>	<b>0.906</b>	<b>2.17</b>	<b>3.10</b>