City of Indianapolis
Bart Peterson, Mayor

Certified Mail #: 7000 0600 0023 5188 2598

October 14, 2005

Mr. Steven Westby
District HR Manager
TIN, Inc./d/b/a Temple-Inland
2135 Stout Field Drive
Indianapolis, IN 46241

Re: Exempt Construction and Operation Status
097-20977-00255
Roosevelt Avenue site

Dear Mr. Westby:

Your application for a Minor Source Operating Permit (MSOP) received on January 31, 2005, for TIN, Inc., d/b/a Temple-Inland, ("source"), formerly Inland Paperboard and Packaging, for the site located at 1255 Roosevelt Avenue, Indianapolis, IN 46256, has been reviewed. Based on the follow-up site visit of May 9, 2005 and subsequent additional information and data submitted on May 11, May 31, June 17, June 21, July 14, July 15, August 9, August 29, and September 21, 2005; and the provisions of 326 IAC 2-1.1-3, it has been determined that the method of further finishing and storing of polystyrene (which include operations such as cutting, molding, storing and shipping), is classified as exempt from air pollution permit requirements. Additional information on the specifics of this determination, is provided in the Technical Support Document (TSD) and Attachment A (calculations).

The source consists of the following air emission units, processes and pollution control equipment:

(a) One (1) Polystyrene Bead process, which can be characterized as polystyrene beads (received from the manufacturer with catalyst included) going through finishing equipment (consisting of Pre-Expander, Dryer, Storage, Pressure Molding), utilizing pressure and steam to make molds. Air emissions in the form of volatile organic compounds (VOC), are released from 1) the raw product (polystyrene) before going through the source's finishing equipment; and 2) Kurtz Pre-Expander, model number KV-600, identified as emission unit #1 (EU-001), with 43.2 pounds per hour (lb/hr) maximum operating capacity; installed in 1988.

(b) One (1) Combustion process, AME natural gas fuel fired Steam Boiler, model number 60632, installed in 1961, with a maximum operating capacity of 4.2 million British Thermal Units per hour (MMBtu/hr), identified as emission unit #2 (EU-002), which provides heat for plant processes; and exhausting to one (1) stack, identified as S-01.

(c) One (1) Trim Waste & Non-Spec Paper Handling process, with includes an Arrestall dust collector (baghouse) as particulate matter control, (a self-contained baghouse with a shaker system and hook-up to a 55-gallon drum), model number AR-35, with a process rate of 0.0182lb/hr, identified as emission unit #3 (EU-003), installed in October, 1995. This process is utilized for further cutting of trim waste for storage and transport of product.

(d) One (1) Polystyrene Billets process, that can be characterized as polystyrene billets received pre-molded and then processed, (maximum operating capacity of 43.2 lb/hr), and wire cut with finishing equipment: a Down cutter TRI Manufacturing BU-810, identified as emission unit #4 (EU-004), installed in 1981; a Slabber, TRI Manufacturing #1122, Serial # 144, identified as emission unit #5 (EU-005), installed in 1981; and a Cuber TRI Manufacturing #1010, Serial number 103, identified as emission unit # 6 (EU-006), construction date unknown, all equipment utilized for storage and transport, and exhausting to general ventilation.

(e) One (1) Corrugated Sheets process, which includes a belt fed Slitter Universal #3BR, model number 103, identified as emission unit #5 (EU-007), installed in 1979, with a maximum process rate of 3.588 lb/hr, performing folding, stitching and gluing in order to add trim material and form corrugated sheets into boxes for storage or transport of product; and exhausting to general ventilation.

Department of Public Works
Office of Environmental Services
2700 South Belmont Avenue (317) 327-2234
Indianapolis, Indiana 46221 (fax) 327-2274
(TDD) 325-5186
www.indygov.org

The following applicable regulatory conditions are as stated below:

(a) Pursuant to 326 IAC 2-1.1-3, this exemption is issued to an existing source. The source may operate according to this regulation.

(b) 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:

(1) Opacity shall not exceed an average of thirty percent (30%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1.2(2).

(2) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of 15 minutes (sixty (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 continuos opacity monitor) in a six (6) hour period.

(c) Pursuant to 326 IAC 6-2-2(a), (Particulate Emission Limitations for Sources of Indirect Heating), since the boiler was constructed prior to September 21, 1983, the particulate matter emissions from the 4.2 million British Thermal Units per hour (mmBtu/hr) boiler (EU-002) shall not exceed 0.6 pounds per mmBtu/hr. This limitation is based on the following equation:

$Pt = 0.87/ Q^{0.16}$

where Pt =Pounds of particulate matter emitted per million Btu (lb/mmBtu) heat input and

Q = Total source maximum operating capacity rating in million Btu per hour (mmBtu/hr) heat input. For Q less than 10 mmBtu/hr, Pt shall not exceed 0.6.

(d) An authorized individual shall provide an application or notification if the source proposes to construct new emission units, modify existing emission units, or otherwise modify the source, pursuant to 326 IAC 2. The application or notification shall be submitted to:

Indiana Department of Environmental Management (IDEM)
Office of Air Quality (OAQ)
Permits Branch
MC 61-53 IGCN 1003
100 North Senate Avenue
Indianapolis, IN 46204-2251

and

City of Indianapolis
Office of Environmental Service (OES)
Air Permits
2700 S. Belmont Avenue
Indianapolis, IN 46221

Sincerely,

Original Signed By:

Felicia A. Robinson
Manager of Environmental Planning

Enclosure: Technical Support Document (TSD) & Appendix A

FAR/cmb

cc: Cathy Deane, TIN, Inc., Roosevelt Avenue site
Nick Walton, TIN, Inc. (corporate)
Mindy Hahn, IDEM, OAQ
Marion County Health Department
Matt Mosier, OES, Air Compliance
Cheryl Carson, OES, Enforcement
OES files (3)

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
and
INDIANAPOLIS OFFICE OF ENVIRONMENTAL SERVICES

Technical Support Document (TSD) for an Exemption

Source Background and Description

Source Name:	**TIN, Inc., d/b/a Temple-Inland**
Source Location:	**1255 Roosevelt Avenue, Indianapolis, IN 46202**
County:	**Marion**
SIC Code:	**3086**
Permit No.:	**097-20977-00255**
Permit Reviewer:	**Carmen Bugay**

The Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ) and Indianapolis Office of Environmental Services (OES), have reviewed an application from TIN Inc., d/b/a Temple-Inland, ("source"), formerly known as Inland Paperboard and Packaging, Inc., relating to the method of further finishing and storing of polystyrene, which includes operations such as cutting, molding, storing and shipping.

Overall Process Description

The source is not a manufacturer of polystyrene but receives the finished product (polystyrene) as a raw product in beads and billets form; and improves or enhances this material by further shaping (molding) of expandable (EPS) polystyrene in the beads process; and cutting (pre-molded) polystyrene in the billets process. These injection molded grades of polystyrene are then placed in new boxes made in the corrugated sheet process, and box corners are filled with additional cut cardboard material during the trim waste & nonspec handling process. These boxes contain the molded shapes for a variety of customers which package their own products such as computer equipment, video cassettes and such, primarily for storage and transport of each customers' respective products.

Existing Emission Units and Processes & Pollution Control Equipment

The source consists of the following existing emission units, processes & pollution control devices:

(a) One (1) Polystyrene Bead process, which can be characterized as polystyrene beads (received from the manufacturer with catalyst included) going through finishing equipment (consisting of Pre-Expander, Dryer, Storage, Pressure Molding), utilizing pressure and steam to make molds. Air emissions in the form of volatile organic compounds (VOC), are released from 1) the raw product (polystyrene) before going through the source's finishing equipment; and 2) Kurtz Pre-Expander, model number KV-600, identified as emission unit #1 (EU-001), with 43.2 pounds per hour (lb/hr) maximum operating capacity; installed in 1988.

(b) One (1) Combustion process, AME natural gas fuel fired Steam Boiler, model number 60632, installed in 1961, with a maximum operating capacity of 4.2 million British Thermal Units per hour (MMBtu/hr), identified as emission unit #2 (EU-002), which provides heat for plant processes; and exhausting to one (1) stack, identified as S-01.

(c) One (1) Trim Waste & Non-Spec Paper Handling process, with includes an Arrestall dust collector (baghouse) as particulate matter control, (a self-contained baghouse with a shaker system and hook-up to a 55-gallon drum), model number AR-35, with a process rate of 0.0182 lb/hr, identified as emission unit #3 (EU-003), installed in October, 1995. This process is utilized for further cutting of trim waste for storage and transport of product.

(d) One (1) Polystyrene Billets process, that can be characterized as polystyrene billets received pre-molded and then processed, (maximum operating capacity of 43.2 lb/hr), and wire cut with finishing equipment: a Down cutter TRI Manufacturing BU-810, identified as emission unit #4 (EU-004), installed in 1981; a Slabber, TRI Manufacturing #1122, Serial # 144, identified as emission unit #5 (EU-005), installed in 1981; and a Cuber TRI Manufacturing #1010, Serial number 103, identified as emission unit # 6 (EU-006), construction date unknown, all equipment utilized for storage and transport, and exhausting to general ventilation.

(e) One (1) Corrugated Sheets process, which includes a belt fed Slitter Universal #3BR, model number 103, identified as emission unit #5 (EU-007), installed in 1979, with a maximum process rate of 3.588 lb/hr, performing folding, stitching and gluing in order to add trim material and form corrugated sheets into boxes for storage or transport of product; and exhausting to general ventilation.

Existing Approvals

The source has been operating under previous approvals including, but not limited to, the following:

(a) Certificate of Operation numbered 5298-01, issued November 5, 1990, which expired on October 31, 1992.

Enforcement Issue

The source has no enforcement action pending.

Stack Summary

Stack ID	Operation	Height (ft)	Diameter (ft)	Flow Rate (acfm)	Temperature (^{o}F)
S-01	Boiler	23	1	Unknown	360

Recommendation

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

An application for the purposes of this review was received on January 13, 2005, with additional information received on May 9, 2005 (site visit), May 11, May 31, June 17, June 21, July 14, July 15, August 9, August 29, 2005, and September 21, 2005.

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

Emission Calculations

See Appendix A, pages 1-5 of this document for detailed emission calculations.

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, includling 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	0.0821
PM-10	0.1869
SO_2	0.0110
VOC	8.3598
CO	1.5453
NO_x	1.8396

HAP	Potential to Emit (tons/yr)
Hexane	0.0331
Styrene	0.1199
Total	**0.1530**

(a) The potential to emit (as defined in 326 IAC 2-7-1(29)) of regulated criteria air 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. An exemption will be issued.

(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/or the potential to emit (as defined in 326 IAC 2-7-1(29)) 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. An exemption will be issued.

(c) Fugitive Emissions
Since this type of operation is not one of the twenty-eight (28) listed source categories under 326 IAC 2-2 and 2-3, 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.

County Attainment Status

The source is located in Marion County.

Pollutant	Status
PM-2.5	Non-attainment
PM-10	Attainment
SO_2	Maintenance attainment
NO_2	Attainment
8-hour Ozone	Basic non-attainment
1-hour Ozone	Maintenance attainment
CO	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 standards. Marion County has been designated as non-attainment for the 8-hour ozone standard. Therefore, VOC and NOx emissions were reviewed pursuant to the requirements for Emission Offset, 326 IAC 2-3.

(b) Marion County has been classified as non-attainment for PM-2.5 in 70 FR 943 dated January 5, 2005. Until U.S. EPA adopts specific New Source Review rules for PM-2.5 emissions, it has directed states to regulate PM-10 emissions as surrogate for PM-2.5 emissions, pursuant to the Non-attainment New Source Review requirements. See the State Rule Applicability – Entire Source, section of this TSD.

(c) Marion County has been classified as attainment for all 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 – Entire Source, section of this TSD.

Source Status

Existing Source PSD, Emission Offset, Part 70, or FESOP 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	Less than 100
PM-10	Less than 100
SO_2	Less than 100
VOC	Less than 100
CO	Less than 100
NO_x	Less than 100
Single HAP	Less than 10
Combination HAP	Less than 25

(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) This existing source is not a major stationary source because no non-attainment regulated pollutant is emitted at a rate of 100 tons per year or greater and it is not in one of the 28 listed source categories.

Part 70 Permit Determination

326 IAC 2-7 (Part 70 Permit Program)
This existing source, including the emissions from this exemption numbered 097-20977-00255, 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 HAP is less than 25 tons per year.

This status is based on all the air approvals issued to the source, including this permit application and review.

Federal Rule Applicability

(a) Boiler EU-002 is not subject to the New Source Performance Standards (NSPS) (326 IAC 12 and 40 CFR Part 60.40c, Subpart Dc, Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units), due to the combustion unit's capacity of less than 10 million British thermal units per hour (mmBtu/hr).

(b) Since the source does not manufacture polystyrene and only does additional product finishing and storage, it is not subject to NSPS (326 IAC 12 and 40 CFR Part 60.560(a)) Subpart DDD, Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry.

(c) The source does not meet applicability criteria under 40 CFR 63 (National Emission Standards for Hazardous Air Pollutants – NESHAP), Subpart JJJ (63.1310), Standards for Hazardous Air Pollutant Emissions: Group IV Polymers and Resins, since the source is not manufacturing the same primary product (thermoplastic), is not located at a major source of Hazardous Air Pollutants (HAP), and its processes (finishing processes including equipment) are classified as exempted.

(d) The source does not meet applicability criteria under 40 CFR 63 (National Emission Standards for Hazardous Air Pollutants – NESHAP), Subpart U (63.480), Standards for Hazardous Air Pollutant Emissions: Group I Polymers and Resins, since the source is not manufacturing the same primary product (elastomer), is not located at a major source of Hazardous Air Pollutants (HAP).

(e) Since the source is not a major Hazardous Air Pollutants (HAP) source, does not utilize resins/gel coats in its operation that contain styrene (Subpart KK), and does not manufacture reinforced plastics that contain styrene (Subpart WWWW), under 40 CFR 63, these subparts are not included in this exemption.
In addition, no other NESHAP (326 IAC 14, 20 and 40 CFR Part 61, 63) are included in this exemption.

State Rule Applicability – Entire Source

326 IAC 2-1.1-3 (Exemptions)

The source did not add any individual emission units (EU-003, EU-004-006, EU-007) that trigger the minimum construction permitting threshold requirements for Hazardous Air Pollutants (HAP), Volatile Organic Compounds (VOC), and particulate matter. Therefore these units are exempt from construction requirements under 326 IAC 2-1.1-3(e)(1).

Potential To Emit (PTE) of all emitting activities at the source are lower than 10 tons per year for all regulated pollutants, including HAP, VOC (pollutant of concern) and particulate matter. Therefore, pursuant to 326 IAC 2-1.1-3, the source is exempt from air pollution permit requirements.

326 IAC 2-1.1-5 (Non-attainment New Source Review)

This source is not major under non-attainment NSR because it has the potential to emit less than 100 tons of PM-10 (as surrogate for PM-2.5). Therefore, the non-attainment New Source Review requirements are not applicable.

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

This source is not one (1) of the twenty-eight (28) listed source categories and has potential emissions less than 250 tons per year of PSD regulated pollutants. Therefore, this source is not major for PSD.

326 IAC 2-3 (Emission Offset)

The source is not subject to the requirements of 326 IAC 2-3 (Emission Offset), since the source does not have the potential to emit (PTE) of 100 tons or more per year of Volatile Organic Compounds (VOC) or Nitrogen Oxides (NOx) for ozone non-attainment areas (Marion County). PTE for NOx is at 1.8396 ton/yr, and 8.3598 tons/yr for VOC.

326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants)

The source's polystyrene finishing and storing operations will emit less than 10 tons per year of a single HAP and 25 tons per year of a combination of HAP and the source did not construct or reconstruct a major HAP source after July 27, 1997. Therefore 326 IAC 2-4.1 does not apply.

326 IAC 2-6 (Emission Reporting)

This source is not subject to 326 IAC 2-6 (Emission Reporting), because it does not meet the applicability requirements of section 1 under this rule, does not emit 5 or more tons per year (tpy) of lead, is not located in Lake or Porter counties, and does not have a Part 70 Permit under 326 IAC 2-7.

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 thirty percent (30%) any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-2(2).

(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 6-5.1-1 (Non-attainment Area Limitations)

Although the source is located in Marion County, the source does not have the potential to emit 100 tons per year or greater; and/or actual emissions of 10 tons or more per year of particulate matter. Therefore, this requirement does not apply.

State Rule Applicability – Individual Facilities

324 IAC 6-2-2 (Particulate Emission Limitations for Sources of Indirect Heating)

Since the boiler was constructed prior to September 21, 1983, pursuant to 326 IAC 6-2-2(a), the particulate matter emissions from the 4.2 million British Thermal Units per hour (mmBtu/hr) boiler (EU-002), shall not exceed 0.6 pounds per mmBtu/hr. This limitation is based on the following equation:

$Pt = 0.87/ Q^{0.16}$

where Pt =Pounds of particulate matter emitted per million Btu (lb/mmBtu) heat input and

Q = Total source maximum operating capacity rating in million Btu per hour (mmBtu/hr) heat input. For Q less than 10 mmBtu/hr, Pt shall not exceed 0.6.

Since the boiler's potential particulate matter emissions are 0.0019 mmBtu/hr, the source is in compliance with this rule. (See Appendix A page 3, for more detailed calculations.)

326 IAC 6-3-1 (Particulate Emission Limitations for Manufacturing Processes)

The Potential to Emit (PTE) from EU-003 and EU-007 is less than 0.551 pound per hour. Therefore, pursuant to 326 IAC 6-3-1(b)(14), the requirements of 326 IAC 6-3 do not apply to these units. (See Appendix A, page 1, for more detailed calculations.)

326 IAC 8-1-6 (New facilities; general reduction requirements)

Since each individual emission unit's potential emissions is less than 25 tons/yr of Volatile Organic Compounds (VOC), then this regulation does not apply.

326 IAC 8-6-1 (Organic Solvent Emission Limitations)

The source does not have the Potential to Emit (PTE) of 100 tons per year or greater of VOC (PTE for the source is at 8.3598 tons/yr), therefore, this regulation does not apply.

326 IAC 11-1-1 (Emission Limitations for Specific Types of Operations)

This rule is not applicable, since the source is not specifically listed in the various types of operations mentioned.

326 IAC 20-25 (Emissions from Reinforced Plastics Composites Fabricating Emission Units)

The source does not manufacture reinforced plastic composite parts, and does not have the PTE ten (10) tons per year of any HAP or twenty-five (25) tons per year of any combination of HAP. This source does not have actual styrene emissions greater than 3 tons per year nor does it have any emission units were the resins/gel coats that contain styrene are applied and cured using the open molding process. Therefore, this regulation does not apply.

Conclusion

The operation of this source shall be subject to the conditions of this exemption numbered E 097-20977-00255.

Appendix A: Uncontrolled (PTE) Emissions Calculations
Particulate Emissions
Company Name: TIN Inc., d/b/a Temple Inland
Address City IN Zip: 1255 Roosevelt Avenue
Permit Number: 097-20977-00255
Reviewer: Carmen Bugay, 7/2005

Unit	Process	Units processed		Maximum Throughput		PM Emission Factor (lb/ton)	Uncontrolled PM Emissions (ton/yr)
				lb/hr	ton/yr		
EU-003	Trim Waste & NonSpec Paper Handling	918.43	10^3 sq.ft/hr	0.0182	0.0799	1.8	0.00007
EU-007	Corrugated Sheets	20621	sq.ft/hr	3.588	15.716	1.8	0.01414
EU-004/005/006	Polystyrene Billets	-	-	42.9	187.902	0.35	0.03288
EU-001	Polystyrene Beads	-	-	43.2	189.216	0	0.0
	TOTAL						**0.047**

Note: PM=PM-10

METHODOLOGY

1) Throughput:

a) Maximum Throughput (EU-003 & EU-007) in ton/yr = pieces cut (sq.ft per hour) x 8760 hr/yr x 174 lb/1,000,000 sq.ft x 1ton/2000 lb

2) Uncontrolled Particulate Matter (PM) Emissions:

a) Uncontrolled PM Emissions (ton/yr) = Maximum Throughput (ton/yr) * PM Emission Factor (lb/ton) / 2000 (lb/ton)

3) Emission Factors:

a) PM Emission Factors are from similar plastic and wood cutting operation from FIRE Version 6.22 for log sawing (SCC#3-07-008-02), industry specific, and as submitted by the source.

Appendix A: Uncontrolled (PTE) Emissions Calculations
VOC and HAP Emissions
Company Name: TIN Inc., d/b/a Temple Inland
Address City IN Zip: 1255 Roosevelt Avenue
Permit Number: 097-20977-00255
Reviewer: Carmen Bugay, 7/2005

Unit	Process	Maximum Throughput		Uncontrolled VOC Content of EPS (lb/ton)	Flashoff (%)	Uncontrolled Total VOC Content of EPS (lb/ton)	Uncontrolled Total VOC Content of EPS(tons/year)
		(lb/hr)	(ton/yr)				
EU-003	Trim Waste & NonSpec Paper Handling			0	0	0	0
EU-007	Corrugated Sheets					0	0
EU-004/005/006	Polystyrene Billets	42.9	187.902	28.6	60	17.160	1.6122
EU-001	Polystyrene Beads	43.2	189.216	116.2	60	69.720	6.596
	TOTAL						**8.208**

Unit	Process	Maximum Throughput		Weight % of Styrene	Flashoff (%)	Uncontrolled Styrene Content (lb/ton)	Uncontrolled Total Styrene Emissions (ton/yr)	Total HAPs (ton/yr)
		(lb/hr)	(ton/yr)					
EU-003	Trim Waste & NonSpec Paper Handling			0			0	0
EU-007	Corrugated Sheets			0			0	0
EU-004/005/006	Polystyrene Billets	42.9	187.902	0	100	0	0	0.00000
EU-001	Polystyrene Beads	43.2	189.216	0.1	100	2	0.1892	0.18922
	TOTAL						**0.1892**	**0.1892**

1) Emission Factors:

a) VOC & HAP emission factors are industry specific and as provided by the source and manufacturer.

1) **Beads Process** - The total VOC content of Expandable Polystyrene (EPS), is as supplied by the manufacturer and as substantiated by material balance sheets provided. 60% is emitted and 40 % of HAP is retained in the beads when processed by TIN, Inc. Therefore, 116.2 lb/ton VOC content of EPS was multiplied by 60% (0.6).

2) **Billets Process** - The total VOC of EPS polystyrene (product) supplied by manufacturer and as substantiated by material balance sheets provided. 60% is emitted and 40% of HAP is retained in the billets when TIN, Inc.processes it. Therefore, 28.6 lb/ton HAP content of EPS was multiplied by 60 % (0.6).

2) Uncontrolled VOC Emissions

a) Total VOC Emissions (ton/yr) = Maximum Throughput (ton/yr) x Total VOC content of EPS (lb/ton) / (1ton / 2,000 lbs)

3) Uncontrolled HAP Emissions

a) Total Styrene Emissions (tons/yr) = Maximum Throughput (ton/yr) x Flashoff (%) / 2000 lb/ton x Styrene content of EPS (lb/ton)

Appendix A: Emissions Calculations
Natural Gas Combustion - EU-002
Company Name: TIN Inc., d/b/a Temple Inland
Address City IN Zip: 1255 Roosevelt Avenue
Permit Number: 097-20977-00255
Reviewer: Carmen Bugay, 5/2/2005

Heat Input Capacity MMBtu/hr	Potential Throughput MMCF/yr
4.20	36.8

	Pollutant					
	PM	PM10	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	1.9	7.6	0.6	100.0 **see below	5.5	84.0
Potential Emission in tons/yr	0.03	0.14	0.0110	1.84	0.10	1.55

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

METHODOLOGY

326 IAC 6-2-2

0.03 ton/yr x 2,000 lb/ton / (8,760 hr/yr x 4.20 MMBtu/hr) = **0.0019** lb/MMBtu

Emission Factors:

1) All emission factors are based on normal firing.
   a) MMBtu = 1,000,000 Btu
   b) MMCF = 1,000,000 Cubic Feet of Gas

2) 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)

Potential Throughput:

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

Emissions:

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

Appendix A: Emissions Calculations
Natural Gas Combustion - EU-002
Company Name: TIN Inc., d/b/a Temple Inland
Address City IN Zip: 1255 Roosevelt Avenue
Permit Number: 097-20977-00255
Reviewer: Carmen Bugay, 5/2/2005

HAPs - Organics

	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene
Emission Factor in lb/MMcf	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03
Potential Emission in tons/yr	3.863E-05	2.208E-05	1.380E-03	**3.311E-02**	6.255E-05

HAPs - Metals

	Lead	Cadmium	Chromium	Manganese	Nickel
Emission Factor in lb/MMcf	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03
Potential Emission in tons/yr	9.198E-06	2.024E-05	2.575E-05	6.990E-06	3.863E-05

Methodology is the same as page 3.

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

Appendix A: Emissions Calculations Summary

Company Name: TIN Inc., d/b/a Temple Inland

Address City IN Zip: 1255 Roosevelt Avenue

Permit Number: 097-20977-00255

Originator/Date: Carmen Bugay, 8/9/2005

Emission Units/ Processes	Stack ID	Unrestricted PTE in tons/yr								
		PM	PM10	SO2	VOC	CO	NOx	Hexane	Styrene	Comb HAP
EU-007 (Corrugated Sheets)	GV	0.01414	0.01414	0	0	0	0	0	0	0
(Corrugated sheets - gluing)*	GV	0	0	0	0.0503	0	0	0	0	0
EU-004, EU-005, EU-006 (Polystyrene Billets)	GV	0.03288	0.03288		1.6122	0	0	0	0	0.0000
EU-001 (Polystyrene Beads) - incl. Foam PreExpander	GV	0	0	0	6.596	0	0	0	0.1892	0.1892
EU-003 (Trim Waste & Non-Spec Paper Handling)	GV	0.00007	0.00007	0	0	0	0	0	0	0
(Baghouse/dust collector)	SC									0
EU-002 (Boiler)	SV-01	0.03495	0.13981	0.011038	0.10118	1.5453	1.84	0.033113	0	0.0331
TOTAL		**0.0821**	**0.1869**	**0.0110**	**8.3598**	**1.5453**	**1.8396**	**0.0331**	**0.1892**	**0.2223**

Notes:

GV = General Ventilation; SV = Stack/Vent; SC = Self Contained

PM = PM-10

METHODOLOGY

1) Corrugated Sheets - gluing:

a) ***VOC unrestricted PTE (tons/year) = 1 gal / 9.6 lbs (density) x (7 totes x 2,300 lbs/tote) / year x 0.06 lbs/gal (VOC content)