



Mitchell E. Daniels, Jr.
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
(800) 451-6027
www.IN.gov/idem

TO: Interested Parties / Applicant
DATE: October 17, 2006
RE: Cardinal IG / 151-23469-00056
FROM: Nisha Sizemore
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 03/23/06



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100 North Senate Avenue
Indianapolis, Indiana 46204-2251
(317) 232-8603
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Ms. Shirley Renfrew
Cardinal IG
301 East McSwain Drive
Fremont, Indiana 46737

October 17, 2006

Re: Revised Registered Construction and Operation
Status,
151-23469-00056

Dear Ms. Renfrew:

The application from Cardinal IG received on August 7, 2006, has been reviewed. Based on the data submitted and the provisions in 326 IAC 2-5.5, it has been determined that the following commercial and residential sealed window fabrication operation located at 301 East McSwain Drive, Fremont, Indiana, 46737 is classified as registered:

- (a) Fifteen (15) natural gas-fired space heating and air conditioning York units, identified as FC-6 through FC-20, constructed in 1997, with a combined maximum heat input capacity of 2.29 million Btu per hour. These units vent inside the building.
- (b) One (1) natural gas-fired tempering oven, identified as OVN-1, constructed in 1997, with a maximum heat input capacity of 8 million Btu per hour. This unit vents to the atmosphere via stack OVN-1.
- (c) Three (3) natural gas-fired thermocyclers, identified as FC-1 through FC-3, constructed in 1997, with a combined maximum heat input capacity of 0.96 million Btu per hour. These units vent to the atmosphere via stacks FC-01, FC-02, and FC-03.
- (d) Two (2) natural gas-fired Reznor space heaters, identified as FC-4 and FC-5, constructed in 1997, with a combined maximum heat input capacity of 0.15 million Btu per hour. These stacks vent to the atmosphere via stacks FC-04 and FC-05.
- (e) One (1) touch-up paint booth, constructed in 1997, using aerosol cans, and consisting of a manual alcohol cleaning step using isopropyl alcohol prior to touch-up. This unit is identified as PB-1 and it has a maximum capacity of 0.12 gallons of paint per hour (0.000906 gallons per unit and 133 units per hour) and 0.00391 gallons of alcohol per hour. This unit exhausts inside the building, with a roof exhaust vent directly above the booth.
- (f) Three (3) Punch Masters, identified as PM-1, PM-2, and PM-3, constructed in 1997, with a maximum alcohol usage of 2.75 ounces per hour. The Punch Masters are used to punch the perimeter metal seals to accept the metal muntins, and alcohol is used as a lubricant.
- (g) Three (3) Muntin Masters, identified as M-1, M-2, and M-3, constructed in 1997, with a maximum alcohol usage of 5.5 ounces per hour. The Muntin Masters are used to cut metal muntins (lattices) and use alcohol as a lubricant.



- (h) Two (2) natural gas-fired thermocyclers, identified as FC-21 and FC-22, constructed in 2004, with a combined maximum heat input capacity of 1.16 million Btu per hour. These units vent to the atmosphere via stacks FC-21 and FC-22.
- (i) Four (4) natural gas-fired thermocyclers, identified as FC-23 through FC-26, constructed in 2006, with a combined maximum heat input capacity of 3.125 million Btu per hour. These units vent to the atmosphere via stacks FC-23 through FC-26.
- (j) One (1) touch-up paint booth, constructed in 2004, using aerosol cans, and consisting of a manual alcohol cleaning step using isopropyl alcohol prior to touch-up. This unit is identified as PB-2 and it has a maximum capacity of 0.12 gallons of paint per hour (0.000906 gallons per unit and 133 units per hour) and 0.00391 gallons of alcohol per hour. This unit exhausts inside the building, with a roof exhaust vent directly above the booth.
- (k) One (1) touch-up paint booth, constructed in 2006, using aerosol cans, and consisting of a manual alcohol cleaning step using isopropyl alcohol prior to touch-up. This unit is identified as PB-3 and it has a maximum capacity of 0.12 gallons of paint per hour (0.000906 gallons per unit and 133 units per hour) and 0.00391 gallons of alcohol per hour. This unit exhausts inside the building, with a roof exhaust vent directly above the booth.
- (l) One (1) Punch Master, identified as PM-4, constructed in 2004, with a maximum alcohol usage of 2.75 ounces per hour. The Punch Masters are used to punch the perimeter metal seals to accept the metal muntins, and alcohol is used as a lubricant.
- (m) One (1) Punch Master, identified as PM-5, constructed in 2006, with a maximum alcohol usage of 2.75 ounces per hour. The Punch Masters are used to punch the perimeter metal seals to accept the metal muntins, and alcohol is used as a lubricant.
- (n) One (1) Muntin Master, identified as M-4, constructed in 2004, with a maximum alcohol usage of 5.5 ounces per hour. The Muntin Masters are used to cut metal muntins (lattices) and use alcohol as a lubricant.
- (o) One (1) Muntin Master, identified as M-5, constructed in 2006, with a maximum alcohol usage of 5.5 ounces per hour. The Muntin Masters are used to cut metal muntins (lattices) and use alcohol as a lubricant.

The following conditions shall be applicable:

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 twenty percent (20%) 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 (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.

This registration is a revised registration issued to this source. The source may operate according to 326 IAC 2-5.5. Any change or modification that would increase the potential emissions to 25 tons per year or more of volatile organic compounds must be approved by the Office of Air Quality before any such change may occur. Additionally, any change or modification which may increase the potential emissions of a single HAP to greater than 10 tons per year or a combination of HAPs to greater than 25 tons per year must be approved by OAQ before such change may occur.

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
Indianapolis, IN 46204-2251**

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.

Pursuant to Contract No. A305-5-65, IDEM, OAQ has assigned the processing of this application to Eastern Research Group, Inc., (ERG). Therefore, questions should be directed to Stacie Enoch, ERG, 1600 Perimeter Park Drive, Morrisville, North Carolina 27560, or call (919) 468-7895 to speak directly to Ms. Enoch. Questions may also be directed to Duane Van Laningham at IDEM, OAQ, 100 North Senate Avenue, Indianapolis, Indiana, 46204-2251, or call (800) 451-6027 and ask for Duane Van Laningham or extension 3-6878, or dial (317) 233-6878.

Sincerely,
Original signed by

Nisha Sizemore, Chief
Permits Branch
Office of Air Quality

Attachments

ERG/SE

cc: File – Steuben County
Steuben County Health Department
Air Compliance Section Inspector – Doyle Houser
Northern Regional Office
Permit Tracking
Compliance Data Section
Office of Enforcement

| |
|---|
| Registration Annual Notification |
|---|

This form should be used to comply with the notification requirements under 326 IAC 2-5.5-4(a)(3)

| | |
|-------------------------------|------------------------|
| Company Name: | Cardinal IG |
| Address: | 301 East McSwain Drive |
| City: | Fremont, Indiana 46737 |
| Authorized individual: | Shirley Renfrew |
| Phone #: | (260) 495-4105 |
| Registration #: | 151-23469-00056 |

I hereby certify that Cardinal IG is still in operation and is in compliance with the requirements of Registration 151-23469-00056.

| |
|----------------------|
| Name (typed): |
| Title: |
| Signature: |
| Date: |

**Indiana Department of Environmental Management
Office of Air Quality**

Technical Support Document (TSD) for a Registration Revision

Source Background and Description

| | |
|-----------------------|--|
| Source Name: | Cardinal IG |
| Source Location: | 301 East McSwain Drive, Fremont, Indiana 46737 |
| County: | Steuben |
| SIC Code: | 3231 |
| Operation Permit No.: | 151-23469-00056 |
| Permit Reviewer: | ERG/SE |

The Office of Air Quality (OAQ) has reviewed an application from Cardinal IG relating to the operation of a commercial and residential sealed window fabrication facility.

Registered Emission Units and Pollution Control Equipment

The source consists of the following registered emission units and pollution control devices:

- (a) Fifteen (15) natural gas-fired space heating and air conditioning York units, identified as FC-6 through FC-20, constructed in 1997, with a combined maximum heat input capacity of 2.29 million Btu per hour. These units vent inside the building.
- (b) One (1) natural gas-fired tempering oven, identified as OVN-1, constructed in 1997, with a maximum heat input capacity of 8 million Btu per hour. This unit vents to the atmosphere via stack OVN-1.
- (c) Three (3) natural gas-fired thermocyclers, identified as FC-1 through FC-3, constructed in 1997, with a combined maximum heat input capacity of 0.96 million Btu per hour. These units vent to the atmosphere via stacks FC-01, FC-02, and FC-03.
- (d) Two (2) natural gas-fired Reznor space heaters, identified as FC-4 and FC-5, constructed in 1997, with a combined maximum heat input capacity of 0.15 million Btu per hour. These stacks vent to the atmosphere via stacks FC-04 and FC-05.
- (e) One (1) touch-up paint booth, constructed in 1997, using aerosol cans, and consisting of a manual alcohol cleaning step using isopropyl alcohol prior to touch-up. This unit is identified as PB-1 and it has a maximum capacity of 0.12 gallons of paint per hour (0.000906 gallons per unit and 133 units per hour) and 0.00391 gallons of alcohol per hour. This unit exhausts inside the building, with a roof exhaust vent directly above the booth.
- (f) Three (3) Punch Masters, identified as PM-1, PM-2, and PM-3, constructed in 1997, with a maximum alcohol usage of 2.75 ounces per hour. The Punch Masters are used to punch the perimeter metal seals to accept the metal muntins, and alcohol is used as a lubricant.
- (g) Three (3) Muntin Masters, identified as M-1, M-2, and M-3, constructed in 1997, with a maximum alcohol usage of 5.5 ounces per hour. The Muntin Masters are used to cut metal muntins (lattices) and use alcohol as a lubricant.

Unpermitted Emission Units and Pollution Control Equipment

The source also consists of the following unpermitted emission units:

- (h) Two (2) natural gas-fired thermocyclers, identified as FC-21 and FC-22, constructed in 2004, with a combined maximum heat input capacity of 1.16 million Btu per hour. These units vent to the atmosphere via stacks FC-21 and FC-22.
- (i) Four (4) natural gas-fired thermocyclers, identified as FC-23 through FC-26, constructed in 2006, with a combined maximum heat input capacity of 3.125 million Btu per hour. These units vent to the atmosphere via stacks FC-23 through FC-26.
- (j) One (1) touch-up paint booth, constructed in 2004, using aerosol cans, and consisting of a manual alcohol cleaning step using isopropyl alcohol prior to touch-up. This unit is identified as PB-2 and it has a maximum capacity of 0.12 gallons of paint per hour (0.000906 gallons per unit and 133 units per hour) and 0.00391 gallons of alcohol per hour. This unit exhausts inside the building, with a roof exhaust vent directly above the booth.
- (k) One (1) touch-up paint booth, constructed in 2006, using aerosol cans, and consisting of a manual alcohol cleaning step using isopropyl alcohol prior to touch-up. This unit is identified as PB-3 and it has a maximum capacity of 0.12 gallons of paint per hour (0.000906 gallons per unit and 133 units per hour) and 0.00391 gallons of alcohol per hour. This unit exhausts inside the building, with a roof exhaust vent directly above the booth.
- (l) One (1) Punch Master, identified as PM-4, constructed in 2004, with a maximum alcohol usage of 2.75 ounces per hour. The Punch Masters are used to punch the perimeter metal seals to accept the metal muntins, and alcohol is used as a lubricant.
- (m) One (1) Punch Master, identified as PM-5, constructed in 2006, with a maximum alcohol usage of 2.75 ounces per hour. The Punch Masters are used to punch the perimeter metal seals to accept the metal muntins, and alcohol is used as a lubricant.
- (n) One (1) Muntin Master, identified as M-4, constructed in 2004, with a maximum alcohol usage of 5.5 ounces per hour. The Muntin Masters are used to cut metal muntins (lattices) and use alcohol as a lubricant.
- (o) One (1) Muntin Master, identified as M-5, constructed in 2006, with a maximum alcohol usage of 5.5 ounces per hour. The Muntin Masters are used to cut metal muntins (lattices) and use alcohol as a lubricant.

Existing Approvals

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

- (a) Registration No.: 151-14740-00056, issued on October 12, 2001.

All conditions from previous approvals were incorporated into this permit except the following:

- (a) R151-14740-00056 issued on October 12, 2001

Condition pursuant to 326 IAC 6-3-2: This condition set a pound per hour particulate limit for the paint booths and required a dry filter to be used to control particulates from the paint booths at all times.

Reason not incorporated: Revisions to 326 IAC 6-3 were effective June 12, 2002 and approved into the Indiana State Implementation Plan (SIP) on September 23, 2005. Those revisions created a new requirement for surface coating operations. The revised rule requires surface

coating operations to use a control device rather than meet a pound per hour emission limit. The revisions also included several exemptions. Pursuant to 326 IAC 6-3-1(b)(12), the paint booths are not subject to the requirements of 326 IAC 6-3 because they are only used for the application of aerosol coating products to repair minor surface damage and imperfections.

(b) R151-14740-00056 issued on October 12, 2001.

Condition requiring record keeping: This condition required record keeping for the amount of VOC, HAPs, and cleanup solvent used per month in order to demonstrate compliance with the Registration status.

Reason not incorporated: The potential to emit VOC and HAPs are below the Registration threshold levels. Any change or modification that would increase the potential emissions to 25 tons per year or more of volatile organic compounds must be approved by the Office of Air Quality before any such change may occur. Additionally, any change or modification which may increase the potential emissions of a single HAP to greater than 10 tons per year or a combination of HAPs to greater than 25 tons per year must be approved by OAQ before such change may occur.

Enforcement Issue

- (a) IDEM is aware that equipment has been constructed and/or operated prior to receipt of the proper approval. The subject equipment is listed in this Technical Support Document under the condition entitled "Unpermitted Emission Units and Pollution Control Equipment".
- (b) IDEM is reviewing this matter and will take appropriate action. This proposed registration is intended to satisfy the requirements of 326 IAC 2-5.5.

Stack Summary

| Stack ID | Operation | Height (feet) | Diameter (feet) | Flow Rate (acfm) | Temperature (°F) |
|----------------------|---|---------------|-----------------|------------------|------------------|
| OVN-1 | COMBUSTION STACK for tempering oven | 28 | 3 | 700 | 400 |
| PB-1, PB-2, and PB-3 | Paint Booths (INSIDE EXHAUST but roof vent located immediately above.) The roof vents are closed off in winter. | 24 | 2 | 1,400 | 75 |
| FC-01, 02, 03 | Space Heat - Thermocyclers | 26 | .75 | 90 | 340 |
| FC-04, 05 | Space Heat - Reznor | 26 | .25 | 25 | 170 |
| FC-21 to FC-26 | Thermocyclers | 26 | 0.67 | 90 | 340 |
| EV-1 to EV-13 | Exhaust Vents (One directly above paint booth exhaust is exhausted 365 days per year.) | 26 | 24 | 7,000 | 72 |
| EV-14 to EV-37 | Exhaust Vents | 26 | 4.5 | 30,000 | 72 |

Recommendation

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

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

An application for the purposes of this review was received on August 8, 2006, with additional information received on August 24, 2006 and August 30, 2006.

Emission Calculations

See Appendix A of this document for detailed emission calculations Appendix A (pages 1 through 8).

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 | 5.10 |
| PM10 | 5.48 |
| SO ₂ | 0.04 |
| VOC | 20.7 |
| CO | 5.66 |
| NO _x | 6.74 |

| HAPs | Potential to Emit (tons/yr) |
|------------------------------------|-----------------------------|
| Worst Case Single HAP – Isophorone | 1.73 |
| Worst Case Total HAPs | 4.16 |

- (a) The potential to emit (as defined in 326 IAC 2-1.1-1(16)) of all criteria pollutants are less than 25 tons per year. The potential to emit of VOC is greater than 10 tons per year, and the potential to emit of PM10 is greater than 5 tons per year. Therefore, the source is subject to the provisions of 326 IAC 2-5.5. A registration will be issued.
- (b) The potential to emit (as defined in 326 IAC 2-1.1-1(16)) of any single HAP is less than ten (10) tons per year and the potential to emit (as defined in 326 IAC 2-1.1-1(16)) of a combination of HAPs is less than twenty-five (25) tons per year. Therefore, the source is not subject to the provisions of 326 IAC 2-7.
- (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 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 Steuben County.

| Pollutant | Status |
|-----------------|------------|
| PM-10 | Attainment |
| PM 2.5 | Attainment |
| SO ₂ | Attainment |
| NO ₂ | Attainment |
| 8-hour Ozone | Attainment |
| CO | Attainment |
| Lead | Attainment |

Note: On August 7, 2006, a temporary emergency rule took effect revoking the one-hour ozone standard in Indiana. The Indiana Air Pollution Control Board has approved a

permanent rule revision to incorporate these changes into 326 IAC 1-4-1. The permanent revision to 326 IAC 1-4-1 will take effect prior to the expiration of the emergency rule.

- (a) Steuben County has been classified as unclassifiable or attainment for PM2.5. U.S. EPA has not yet established the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 for PM 2.5 emissions. Therefore, until the U.S.EPA adopts specific provisions for PSD review for PM2.5 emissions, it has directed states to regulate PM10 emissions as surrogate for PM2.5 emissions. See the State Rule Applicability – Entire Source section.
- (b) Volatile organic compounds (VOC) and Nitrogen Oxides (NOx) emissions 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 ozone. Steuben County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NOx 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.
- (c) Steuben County has been classified as attainment or unclassifiable in Indiana 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.

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):

| Pollutant | Emissions (tons/yr) |
|------------------|---------------------|
| PM | 5.10 |
| PM10 | 5.48 |
| SO ₂ | 0.04 |
| VOC | 20.7 |
| CO | 5.66 |
| NO _x | 6.74 |
| Single HAP | 1.73 |
| Combination HAPs | 4.16 |

- (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) These emissions were based on the calculations in Appendix A of this document.

Part 70 Permit Determination

326 IAC 2-7 (Part 70 Permit Program)

This existing source, including the emissions from this Registration 151-23469-00056, is still 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 per year.

This status is based on all the air approvals issued to the source.

Federal Rule Applicability

- (a) There are no New Source Performance Standards (40 CFR 60) included in this registration for this source.
- (b) The requirements of 40 CFR 61, Subpart N (National Emission Standard for Hazardous Air Pollutants (NESHAP) for Inorganic Arsenic Emissions from Glass Manufacturing Plants) are not included in this registration for this source, because the source does not have any glass melting furnaces.
- (c) The requirements of 40 CFR 63, Subpart M (NESHAP for Surface Coating of Miscellaneous Metal Parts and Products) are not included in this registration for this source, because the source is not a major source of HAPs.
- (d) The requirements of 40 CFR 63, Subpart D (NESHAP for Industrial, Commercial, and Institutional Boilers and Process Heaters) are not included in this registration for this source, because the source is not a major source of HAPs.

State Rule Applicability – Entire Source

326 IAC 2-2 (PSD)

This source is located in Steuben County and is not one of the 28 listed source categories. The source was initially constructed in 1997, and consisted of three (3) natural gas-fired thermocyclers, fifteen (15) natural gas-fired York heating and air conditioning units, one (1) natural gas-fired tempering oven, two (2) natural gas fired Reznor space heaters, three Punch Masters, three Muntin Masters, and one (1) touch-up paint booth. The potential emissions of all criteria pollutants were less than 250 tons per year at that time. In 2004, the source added two (2) thermocyclers, one (1) touch-up paint booth, one (1) Punch Master, and one (1) Muntin Master. The source did not apply for a registration revision; however, the potential emissions after the additional units were added in 2004 remained less than 250 tons per year for all criteria pollutants. In 2006, the source added four (4) thermocyclers, one (1) paint booth, one (1) Punch Master, and one (1) Muntin Master. The potential to emit of all criteria pollutants after the units are added in 2006 is still less than 250 tons per year. Therefore, this source has not triggered 326 IAC 2-2, and the requirements of 326 IAC 2-2 are not applicable.

326 IAC 2-4.1 (New Source Toxics Control)

This commercial and residential sealed window fabrication facility will emit less than 10 tons per year of a single HAP and less than 25 tons per year of a combination of HAPs. Therefore, 326 IAC 2-4.1 does not apply.

326 IAC 2-6 (Emission Reporting)

This source is located in Steuben County, is not required to operate under a Part 70 permit, and does not emit lead into the ambient air at levels equal to or greater than five (5) tons per year. Therefore, 326 IAC 2-6 does not apply.

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.

State Rule Applicability – Surface Coating

326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes)

Pursuant to 326 IAC 6-3-1(b)(12), the paint booths are not subject to the requirements of 326 IAC 6-3-2 because the paint booth operations only involve the application of aerosol coating products to repair minor surface damage and imperfections.

326 IAC 8-1-6 (Volatile Organic Compounds)

The paint booths are not subject to the requirements of 326 IAC 8-1-6, because they have potential VOC emissions less than twenty-five (25) tons per year.

326 IAC 8-2 (Surface Coating Emission Limitations)

Although the potential VOC emissions from the three paint booths are greater than fifteen (15) pounds per day and they were each constructed after July 1, 1990, and are used to apply touch-up paint to the metal window frames and/or muntins (lattices) using aerosol cans, they are not subject to the requirements of 326 IAC 8-2-2 through 326 IAC 8-2-13 because they are not used to apply surface coating to automobiles or light duty trucks, cans, coils, paper, metal furniture, large appliances, magnet wire, flat wood panels, fabric or vinyl, or wood furniture and cabinets. The paint booths are not subject to the requirements of 326 IAC 8-2-9 (Miscellaneous Metal Coating Operations) because they do not coat farm machinery, small household appliances, office equipment, industrial machinery, and the Standard Industrial Classification Code for this source is not in groups #33, 34, 35, 36, 37, 38, or 39. This source is operating under Standard Industrial Classification Code 3231, which is for glass products made of purchased glass (this source is a window fabrication facility). Also, this source does not perform any of the following operations: maintenance coating of production equipment, application of adhesives or preparation of adhesives, applying lubricants used to prevent sticking of internally moving parts, or preparing chromium plated plastics. Therefore, there are no applicable rules in 326 IAC 8-2.

State Rule Applicability – Alcohol

326 IAC 8-1-6 (Volatile Organic Compounds)

The Punch Masters, Muntin Masters, extruders, and assembly lines are not subject to the requirements of 326 IAC 8-1-6, because they have potential VOC emissions less than twenty-five (25) tons per year.

326 IAC 8-2 (Surface Coating Emission Limitations)

The Punch Masters, Muntin Masters, extruders, and assembly lines are not subject to the requirements of 326 IAC 8-2 because they do not have potential VOC emissions of twenty-five (25) tons or more per year or actual VOC emissions of fifteen (15) pounds or more per day per facility, and because they are not used to apply a surface coating material as defined in 326 IAC 8-1-0.5(c).

326 IAC 8-3 (Organic Solvent Degreasing Operations)

The Punch Masters and Muntin Masters are not subject to 326 IAC 8-3 because the alcohol used in these machines is used as a lubricant, and not as a degreaser. The extruders and assembly lines are not subject to 326 IAC 8-3 because these processes do not involve cold cleaners, open top vapor degreasers, or conveyORIZED degreasing operations.

State Rule Applicability – Natural Gas Combustion

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

The natural gas combustion facilities are not subject to the requirements of 326 IAC 6-3 because they have potential particulate emissions less than five hundred fifty-one thousandths (0.000551) pound per hour.

326 IAC 7-1.1 (Sulfur Dioxide Emission Limitations)

The natural gas combustion facilities are not subject to the requirements of 326 IAC 7-1.1 because they do not have potential SO₂ emissions of twenty-five (25) tons or more per year or ten (10) pounds or more per hour.

326 IAC 9-1 (Carbon Monoxide Emission Limits)

The natural gas combustion facilities are not subject to the requirements of 326 IAC 9-1 because there are no applicable emission limits established in 326 IAC 9-1-2 for these facilities.

326 IAC 10-1 (Nitrogen Oxides Control in Clark and Floyd Counties)

The natural gas combustion facilities are not subject to the requirements of 326 IAC 10-1 because the source is not located in Clark or Floyd Counties.

326 IAC 10-3 (Nitrogen Oxide Reduction Program for Specific Source Categories)

The natural gas combustion facilities are not subject to the requirements of 326 IAC 10-3 because they are not Portland cement kilns, are not specifically listed in 326 IAC 10-3-1(a)(2), and are not blast furnaces.

Conclusion

The operation of this commercial and residential sealed window fabrication facility shall be subject to the conditions of the Registration 151-23469-00056.

Appendix A: Emission Calculations
VOC and Particulate Emissions from Surface Coating

Company Name: Cardinal IG
Address: 301 East McSwain Drive, Fremont, IN 46737
Registration: 151-23469-00056
Reviewer: ERG/SE
Date: September 7, 2006

| | | |
|--|------------------------|------------------------|
| Maximum Throughput Capacity per Booth (units/hr) | Number of Paint Booths | Paint Usage (gal/unit) |
| 133 | 3 | 0.000906 |

1. Worst Case VOC

| Unit | Material | Density (lbs/gal) | Weight % Volatile (H ₂ O & Organics) | Weight % Water | Maximum Usage (gal/hr) | Pounds VOC per gallon of coating less water | Pounds VOC per gallon of coating | PTE VOC (lbs/hr) | PTE VOC (lbs/day) | PTE VOC (tons/yr) | PTE Particulate (tons/yr) | *Transfer Efficiency |
|---------------|----------------|-------------------|---|----------------|------------------------|---|----------------------------------|------------------|-------------------|-------------------|---------------------------|----------------------|
| Paint Booth 1 | Cranberry Wine | 9.90 | 61.0% | 0.00% | 0.12 | 6.04 | 6.04 | 0.73 | 17.5 | 3.20 | 1.43 | 30% |
| Paint Booth 2 | Cranberry Wine | 9.90 | 61.0% | 0.00% | 0.12 | 6.04 | 6.04 | 0.73 | 17.5 | 3.20 | 1.43 | 30% |
| Paint Booth 3 | Cranberry Wine | 9.90 | 61.0% | 0.00% | 0.12 | 6.04 | 6.04 | 0.73 | 17.5 | 3.20 | 1.43 | 30% |
| Total | | | | | | | 2.19 | 52.5 | 9.59 | 4.29 | | |

2. Worst Case PM/PM10

| Unit | Material | Density (lbs/gal) | Weight % Volatile (H ₂ O & Organics) | Weight % Water | Maximum Usage (gal/hr) | Pounds VOC per gallon of coating less water | Pounds VOC per gallon of coating | PTE VOC (lbs/hr) | PTE VOC (lbs/day) | PTE VOC (tons/yr) | PTE Particulate (tons/yr) | *Transfer Efficiency |
|---------------|---------------|-------------------|---|----------------|------------------------|---|----------------------------------|------------------|-------------------|-------------------|---------------------------|----------------------|
| Paint Booth 1 | Vanilla Cream | 10.4 | 57.0% | 0.00% | 0.12 | 5.93 | 5.93 | 0.72 | 17.2 | 3.14 | 1.66 | 30% |
| Paint Booth 2 | Vanilla Cream | 10.4 | 57.0% | 0.00% | 0.12 | 5.93 | 5.93 | 0.72 | 17.2 | 3.14 | 1.66 | 30% |
| Paint Booth 3 | Vanilla Cream | 10.4 | 57.0% | 0.00% | 0.12 | 5.93 | 5.93 | 0.72 | 17.2 | 3.14 | 1.66 | 30% |
| Total | | | | | | | 2.15 | 51.6 | 9.41 | 4.97 | | |

*The transfer efficiency shown above is for aerosol spray cans and is from the registration R151-14740-00056 issued to this source on October 12, 2001.

Methodology

Maximum Usage (gal/hr) = Paint Usage (gal/unit) * Maximum Throughput Capacity per Booth (units/hr)

PTE VOC (lbs/hr) = Pounds VOC per gallon of coating (lb/gal) * Maximum Usage (gal/hr)

PTE VOC (lbs/day) = PTE VOC (lbs/hr) * 24 hrs/day

PTE VOC (tons/yr) = Pounds VOC per Gallon of Coating (lb/gal) * Maximum Usage (gal/hr) * 8760 hrs/yr * 1 ton/2000 lbs

PTE Particulate (tons/yr) = Density (lbs/gal) * (1-Weight % Volatile) * Maximum Usage (gal/hr) * 8760 hrs/yr * 1 ton/2000 lbs * (1-Transfer Efficiency %)

**Appendix A: Emission Calculations
HAP Emissions from Surface Coating**

**Company Name: Cardinal IG
Address: 301 East McSwain Drive, Fremont, IN 46737
Registration: 151-23469-00056
Reviewer: ERG/SE
Date: September 7, 2006**

| | | |
|---|---------------------------|---------------------------|
| Maximum Throughput Capacity per Booth (units/hr) | Number of Paint Booths | Paint Usage (gal/unit) |
| 133 | 3 | 0.000906 |

1. Worst Case Single HAP

| Unit | Material | Density (lbs/gal) | Maximum Usage (gal/hr) | Weight % Xylene | Weight % Glycol Ethers | Weight % Isophorone | PTE Xylene (tons/yr) | PTE Glycol Ethers (tons/yr) | PTE Isophorone (tons/yr) |
|---------------|-----------|-------------------|------------------------|-----------------|------------------------|---------------------|----------------------|-----------------------------|--------------------------|
| Paint Booth 1 | Cranberry | 9.90 | 0.12 | 3.10% | 10.5% | 11.0% | 0.16 | 0.55 | 0.58 |
| Paint Booth 2 | Cranberry | 9.90 | 0.12 | 3.10% | 10.5% | 11.0% | 0.16 | 0.55 | 0.58 |
| Paint Booth 3 | Cranberry | 9.90 | 0.12 | 3.10% | 10.5% | 11.0% | 0.16 | 0.55 | 0.58 |
| Total | | | | | | | 0.49 | 1.65 | 1.73 |

Worst Case Single HAP (tons/yr) 1.73

2. Worst Case Total HAPs

| Unit | Material | Density (lbs/gal) | Maximum Usage (gal/hr) | Weight % Xylene | Weight % Glycol Ethers | Weight % Isophorone | PTE Xylene (tons/yr) | PTE Glycol Ethers (tons/yr) | PTE Isophorone (tons/yr) |
|---------------|---------------|-------------------|------------------------|-----------------|------------------------|---------------------|----------------------|-----------------------------|--------------------------|
| Paint Booth 1 | Vanilla Cream | 10.4 | 0.12 | 4.50% | 9.90% | 10.0% | 0.25 | 0.54 | 0.55 |
| Paint Booth 2 | Vanilla Cream | 10.4 | 0.12 | 4.50% | 9.90% | 10.0% | 0.25 | 0.54 | 0.55 |
| Paint Booth 3 | Vanilla Cream | 10.4 | 0.12 | 4.50% | 9.90% | 10.0% | 0.25 | 0.54 | 0.55 |
| Total | | | | | | | 0.74 | 1.63 | 1.65 |

Worst Case Total HAPs (tons/yr) 4.03

Methodology

Maximum Usage (gal/hr) = Paint Usage (gal/unit) * Maximum Throughput Capacity per Booth (units/hr)

PTE HAPs (tons/yr) = Density (lbs/gal) * Maximum Usage (gal/hr) * Weight % HAP * 8760 hrs/yr * 1 ton/2000 lbs

**Appendix A: Emission Calculations
VOC Emissions from Alcohol Use**

**Company Name: Cardinal IG
Address: 301 East McSwain Drive, Fremont, IN 46737
Registration: 151-23469-00056
Reviewer: ERG/SE
Date: September 7, 2006**

| Unit | Material | Number of Units | Density (lbs/gal) | Weight % VOC | Maximum Usage per Unit (gal/hr) | Pounds VOC per gallon of coating less water | Pounds VOC per gallon of coating | PTE VOC (lbs/hr) | PTE VOC (lbs/day) | PTE VOC (tons/yr) |
|----------------|-------------------|-----------------|-------------------|--------------|---------------------------------|---|----------------------------------|------------------|-------------------|-------------------|
| Paint Booths | Isopropyl Alcohol | 3 | 6.55 | 100% | 3.91E-03 | 6.55 | 6.55 | 0.08 | 1.84 | 0.34 |
| Punch Masters | Isopropyl Alcohol | 5 | 6.55 | 100% | 2.15E-02 | 6.55 | 6.55 | 0.70 | 16.89 | 3.08 |
| Muntin Masters | Isopropyl Alcohol | 5 | 6.55 | 100% | 4.30E-02 | 6.55 | 6.55 | 1.41 | 33.77 | 6.16 |
| Extruders | Isopropyl Alcohol | 8 | 6.55 | 100% | 2.58E-03 | 6.55 | 6.55 | 0.14 | 3.24 | 0.59 |
| Assembly | Isopropyl Alcohol | 4 | 6.55 | 100% | 5.16E-03 | 6.55 | 6.55 | 0.14 | 3.24 | 0.59 |
| Total | | | | | | | | 2.46 | 59.0 | 10.8 |

Methodology

Pounds VOC per gallon of coating = Density (lbs/gal) * Weight % VOC

PTE VOC (lbs/hr) = Maximum Usage per Unit (gal/hr) * Pounds VOC per Gallon of Coating (lbs/gal) * Number of Units

PTE VOC (lbs/day) = PTE VOC (lbs/hr) * 24 hrs/day

PTE VOC (tons/yr) = PTE VOC (lbs/hr) * 8760 hrs/yr * 1 ton/2000 lbs

**Appendix A: Emission Calculations
Natural Gas Combustion - Curing Oven**

Company Name: Cardinal IG
Address: 301 East McSwain Drive, Fremont, IN 46737
Registration: 151-23469-00056
Reviewer: ERG/SE
Date: September 7, 2006

| |
|---|
| Heat Input Capacity (1 unit) MMBtu/hour 8.00 |
|---|

| |
|--|
| Potential Throughput MMscf/year 68.7 |
|--|

| Emission Factor (lbs/MMscf) | Pollutant | | | | | | |
|-----------------------------|-----------|----------|-----------------|--------|----------|------|----------|
| | PM* | PM10* | SO ₂ | NOx ** | VOC | CO | HAPs |
| | 1.9 | 7.6 | 0.6 | 100 | 5.5 | 84.0 | 1.89 |
| PTE (tons/year) | 6.53E-02 | 2.61E-01 | 2.06E-02 | 3.44 | 1.89E-01 | 2.89 | 6.49E-02 |

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

**Emission factor for NOx (Uncontrolled) = 100 lb/MMscf.

Emission factors are from AP-42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4, SCC #1-02-006-02, 1-03-006-02, and 1-03-006-03 (7/98).
 All emission factors are based on normal firing.

Methodology

Potential Throughput (MMscf/year) = Heat Input Capacity (MMBtu/hour) x 8,760 hours/year x 1 MMscf/1,020 MMBtu

PTE (tons/year) = Potential Throughput (MMscf/year) x Emission Factor (lbs/MMscf) x 1 ton/2,000 lbs

Appendix A: Emission Calculations
Natural Gas Combustion - York Heat/AC Temperature Control Units

Company Name: Cardinal IG
Address: 301 East McSwain Drive, Fremont, IN 46737
Registration: 151-23469-00056
Reviewer: ERG/SE
Date: September 7, 2006

| |
|---|
| Total Heat Input Capacity (15 units) MMBtu/hour 2.29 |
|---|

| |
|--|
| Potential Throughput MMscf/year 19.7 |
|--|

| | Pollutant | | | | | | |
|-----------------------------|-----------|----------|-----------------|----------|----------|----------|----------|
| Emission Factor (lbs/MMscf) | PM* | PM10* | SO ₂ | NOx ** | VOC | CO | HAPs |
| | 1.9 | 7.6 | 0.6 | 100 | 5.5 | 84.0 | 1.89 |
| PTE (tons/year) | 1.87E-02 | 7.47E-02 | 5.90E-03 | 9.83E-01 | 5.41E-02 | 8.26E-01 | 1.86E-02 |

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

**Emission factor for NOx (Uncontrolled) = 100 lb/MMscf.

Emission factors are from AP-42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4, SCC #1-02-006-02, 1-03-006-02, and 1-03-006-03 (7/98). All emission factors are based on normal firing.

Methodology

Potential Throughput (MMscf/year) = Heat Input Capacity (MMBtu/hour) x 8,760 hours/year x 1 MMscf/1,020 MMBtu

PTE (tons/year) = Potential Throughput (MMscf/year) x Emission Factor (lbs/MMscf) x 1 ton/2,000 lbs

**Appendix A: Emission Calculations
Natural Gas Combustion - Reznor Space Heaters**

Company Name: Cardinal IG
Address: 301 East McSwain Drive, Fremont, IN 46737
Registration: 151-23469-00056
Reviewer: ERG/SE
Date: September 7, 2006

| |
|--|
| Total Heat Input Capacity (2 units) MMBtu/hour 0.15 |
|--|

| |
|---|
| Potential Throughput MMscf/year 1.3 |
|---|

| | Pollutant | | | | | | |
|-----------------------------|-----------|----------|-----------------|----------|----------|----------|----------|
| Emission Factor (lbs/MMscf) | PM* | PM10* | SO ₂ | NOx ** | VOC | CO | HAPs |
| | 1.9 | 7.6 | 0.6 | 100 | 5.5 | 84.0 | 1.89 |
| PTE (tons/year) | 1.22E-03 | 4.90E-03 | 3.86E-04 | 6.44E-02 | 3.54E-03 | 5.41E-02 | 1.22E-03 |

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

**Emission factor for NOx (Uncontrolled) = 100 lb/MMscf.

Emission factors are from AP-42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4, SCC #1-02-006-02, 1-03-006-02, and 1-03-006-03 (7/98).

All emission factors are based on normal firing.

Methodology

Potential Throughput (MMscf/year) = Heat Input Capacity (MMBtu/hour) x 8,760 hours/year x 1 MMscf/1,020 MMBtu

PTE (tons/year) = Potential Throughput (MMscf/year) x Emission Factor (lbs/MMscf) x 1 ton/2,000 lbs

**Appendix A: Emission Calculations
Natural Gas Combustion - Thermocyclers**

Company Name: Cardinal IG

Address: 301 East McSwain Drive, Fremont, IN 46737

Registration: 151-23469-00056

Reviewer: ERG/SE

Date: September 7, 2006

| |
|--|
| Total Heat Input Capacity (9 units) MMBtu/hour 5.25 |
|--|

| |
|--|
| Potential Throughput MMscf/year 45.0 |
|--|

| Emission Factor (lbs/MMscf) | Pollutant | | | | | | |
|-----------------------------|-----------|-------|-----------------|--------|------|------|------|
| | PM* | PM10* | SO ₂ | NOx ** | VOC | CO | HAPs |
| PTE (tons/year) | 0.04 | 0.17 | 0.01 | 2.25 | 0.12 | 1.89 | 0.04 |

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

**Emission factor for NOx (Uncontrolled) = 100 lb/MMscf.

Emission factors are from AP-42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4, SCC #1-02-006-02, 1-03-006-02, and 1-03-006-03 (7/98).

All emission factors are based on normal firing.

Methodology

Potential Throughput (MMscf/year) = Heat Input Capacity (MMBtu/hour) x 8,760 hours/year x 1 MMscf/1,020 MMBtu

PTE (tons/year) = Potential Throughput (MMscf/year) x Emission Factor (lbs/MMscf) x 1 ton/2,000 lbs

**Appendix A: Emission Calculations
Natural Gas Combustion - Thermocyclers**

Company Name: Cardinal IG
Address: 301 East McSwain Drive, Fremont, IN 46737
Registration: 151-23469-00056
Reviewer: ERG/SE
Date: September 7, 2006

| | PM | PM10 | SO ₂ | NOx | VOC | CO | HAPs |
|-----------------------|-------------|-------------|-----------------|-------------|-------------|-------------|-------------|
| Paint Booths | 4.97 | 4.97 | | | 9.59 | | 4.03 |
| Alcohol Use | | | | | 10.8 | | |
| Thermocyclers | 0.04 | 0.17 | 0.01 | 2.25 | 0.12 | 1.89 | 0.04 |
| Curing Oven | 6.53E-02 | 2.61E-01 | 2.06E-02 | 3.44 | 1.89E-01 | 2.89 | 6.49E-02 |
| York Heating/AC Units | 1.87E-02 | 7.47E-02 | 5.90E-03 | 9.83E-01 | 5.41E-02 | 8.26E-01 | 1.86E-02 |
| Reznor Space Heaters | 1.22E-03 | 4.90E-03 | 3.86E-04 | 6.44E-02 | 3.54E-03 | 5.41E-02 | 1.22E-03 |
| Total | 5.10 | 5.48 | 0.04 | 6.74 | 20.7 | 5.66 | 4.16 |