

October 3, 2003

Mr. Daniel Luedke
Vice President
Keller Crescent Company, Inc.
6454 Saguaro Court
Indianapolis, Indiana 46278

Re: Registered Construction and Operation Status,
097-15855-00270

Dear Mr. Luedke:

The application from Keller Crescent Company, received on August 18, 2003, related to addition of one (1) sheetfed offset lithographic press Miller TP-104, has been reviewed. Based on the data submitted and the state regulations 326 IAC 2-5.1-2 and 326 IAC 2-5.5, it has been determined that the following printing operations, to be located at 6454 Saguaro Court, Indianapolis, Indiana, are classified as registered.

The source consists of the following facilities:

- (a) One (1) Hamilton 140 nonheatset web offset lithographic printer utilizing the following materials:
 - 1. Litho Inks, maximum throughput of 588 gal/yr;
 - 2. Acetone, maximum throughput of 40 gal/yr;
 - 3. Type Wash, maximum throughput of 300 gal/yr;
 - 4. Roller Wash, maximum throughput of 120 gal/yr; and
 - 5. PR-628 Alcohol, maximum throughput of 24 gal/yr.

- (b) One (1) Heidleberg GT02-52 sheetfed offset lithographic printer utilizing the following materials:
 - 1. Litho ink, maximum throughput of 294 gal/yr;
 - 2. Acetone, maximum throughput of 20 gal/yr;
 - 3. Type wash, maximum throughput of 150 gal/yr;
 - 4. Roller wash, maximum throughput of 60 gal/yr; and
 - 5. PR-628 Alcohol, maximum throughput of 12 gal/yr.

- (c) Two (2) sheetfed offset lithographic printers Miller TP-38A and Miller TP-104 utilizing the following materials, each:
 - 1. Litho ink, maximum throughput of 294 gal/yr;
 - 2. Acetone, maximum throughput of 20 gal/yr;
 - 3. Type wash, maximum throughput of 150 gal/yr;
 - 4. Roller wash, maximum throughput of 60 gal/yr; and
 - 5. PR-628 Alcohol, maximum throughput of 12 gal/yr.

- (d) One (1) Comco UV Ink Flexographic printing press utilizing the following materials:
 - 1. UV inks, maximum throughput 210 gal/yr;
 - 2. Acetone, maximum throughput 20 gal/yr; and
 - 3. Roller Wash, maximum throughput 90 gal/yr.

- (e) One (1) Gallus R160E02 Rotary UV Ink Letterpress Label Printer utilizing the following materials:
 - 1. UV inks, maximum throughput 210 gal/yr;
 - 2. Acetone, maximum throughput 10 gal/yr; and
 - 3. Roller Wash, maximum throughput 60 gal/yr.

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- (f) One (1) Gallus R160-B03 Rotary Letterpress and Screen Combination Printer utilizing the following materials:
 - 1. UV inks, maximum throughput 210 gal/yr;
 - 2. Acetone, maximum throughput 10 gal/yr;
 - 3. Roller Wash, maximum throughput 30 gal/yr; and
 - 4. Propylene Glycol Monoethyl Ether maximum throughput 100 gal/yr.

- (g) One (1) Mark Andy 404 Waterbase Flexographic Printing Press utilizing the following materials:
 - 1. Litho inks, maximum throughput 263 gal/yr;
 - 2. Acetone, maximum throughput 2 gal/yr;
 - 3. Type Wash, maximum throughput 7 gal/yr; and
 - 4. Roller Wash, maximum throughput 10 gal/yr.

- (h) One (1) Miller 407 Sheetfed Offset Lithographic Printer utilizing the following materials:
 - 1. Litho inks, maximum throughput 205 gal/yr;
 - 2. Acetone, maximum throughput 5 gal/yr;
 - 3. Type Wash, maximum throughput 127 gal/yr; and
 - 4. Roller Wash, maximum throughput 104 gal/yr.

- (i) One (1) Kelleigh 210 Cyrel Platemaking System utilizing Optisol Rotary Solution, maximum throughput 30 gal/yr.

- (j) One (1) Stevens 2000 Flexographic Printing Press utilizing a water based ink, maximum throughput of 133,680 gal/yr.

All printing presses (printers) manufacture either paper labels, paper literature, or paperboard cartons produced for pharmaceutical clients.

The following conditions shall be applicable:

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

- (b) Pursuant to The Code of Indianapolis and Marion County Chapter 511, this registration will be subject to annual operating fees.

- (c) Pursuant to 326 IAC 2-6(Emission Reporting), an authorized individual shall provide an annual emission statement to the IDEM Office of Air Quality (OAQ) and Indianapolis Office of Environmental Services (OES) at the addresses listed below, no later than April 15 of each year:

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**Technical Support and Modeling
Office of Air Quality
100 North Senate Avenue
P.O. Box 6015
Indianapolis, Indiana 46206-6015**

and

**Office of Environmental Services
Air Compliance
2700 South Belmont Avenue
Indianapolis, Indiana 46221-2097**

- (d) Pursuant to 326 IAC 2-5.1-2(f)(3), an authorized individual shall provide an annual notice to the IDEM OAQ and Indianapolis OES that the source is in operation and in compliance with this registration at the addresses listed below, in the format attached, no later than April 15 of each year.

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

and

**Office of Environmental Services
Air Compliance
2700 South Belmont Avenue
Indianapolis, Indiana 46221-2097**

- (e) An application or notification shall be submitted in accordance with 326 IAC 2 to the IDEM OAQ and the Indianapolis OES if the source proposes to construct new emission units, modify existing emission units, or otherwise modify the source.

This registration is the second air approval issued to this source. The source may operate according to 326 IAC 2-5.5.

Sincerely,

Original Signed by John B. Chavez
John B. Chavez
Administrator

cc: file
Air Compliance

Keller Crescent Company
Indianapolis, Indiana

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00270

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Mindy Hahn, IDEM
BG

Registration

This form should be used to comply with the notification requirements under **326 IAC 2-5.1-2(f)(3)** or **326 IAC 2-5.5-4(a)(3)**

Company Name:

Address:

City:

Authorized individual:

Phone #:

Registration #:

I hereby certify that **Keller Crescent Company** is still in operation and is in compliance with the requirements of Registration **097-15855-00270**.

Name (typed):

Title:

Signature:

Date:

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

and

Indianapolis Office of Environmental Services

Technical Support Document (TSD) for a Registration

Source Background and Description

Source Name: Keller Crescent Company, Inc.
Source Location: 6454 Saguaro Court, Indianapolis, IN
County: Marion
SIC Code: 2752
Operation Permit No.: 097-15855-00270
Permit Reviewer: Boris Gorlin

The Indianapolis Office of Environmental Services(OES) has reviewed an application for Keller Crescent Company, Inc., relating to modification consisting of addition of one (1) Sheetfed Offset Lithographic Press Miller TP-104.

Existing Emission Units and Pollution Control Equipment

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

- (a) One (1) Hamilton 140 nonheatset web offset lithographic printer utilizing the following materials:
 - 1. Litho Inks, maximum throughput of 588 gal/yr;
 - 2. Acetone, maximum throughput of 40 gal/yr;
 - 3. Type Wash, maximum throughput of 300 gal/yr;
 - 4. Roller Wash, maximum throughput of 120 gal/yr; and
 - 5. PR-628 Alcohol, maximum throughput of 24 gal/yr.

- (b) One (1) Heidleberg GT02-52 sheetfed offset lithographic printer utilizing the following materials:
 - 1. Litho ink, maximum throughput of 294 gal/yr;
 - 2. Acetone, maximum throughput of 20 gal/yr;
 - 3. Type wash, maximum throughput of 150 gal/yr;
 - 4. Roller wash, maximum throughput of 60 gal/yr; and
 - 5. PR-628 Alcohol, maximum throughput of 12 gal/yr.

- (c) Two (2) sheetfed offset lithographic printers Miller TP-38A and Miller TP-104 utilizing the following materials, each:
 - 1. Litho ink, maximum throughput of 294 gal/yr;
 - 2. Acetone, maximum throughput of 20 gal/yr;

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3. Type wash, maximum throughput of 150 gal/yr;
 4. Roller wash, maximum throughput of 60 gal/yr; and
 5. PR-628 Alcohol, maximum throughput of 12 gal/yr.
- (d) One (1) Comco UV Ink Flexographic printing press utilizing the following materials:
1. UV inks, maximum throughput 210 gal/yr;
 2. Acetone, maximum throughput 20 gal/yr; and
 3. Roller Wash, maximum throughput 90 gal/yr.
- (e) One (1) Gallus R160E02 Rotary UV Ink Letterpress Label Printer utilizing the following materials:
1. UV inks, maximum throughput 210 gal/yr;
 2. Acetone, maximum throughput 10 gal/yr; and
 3. Roller Wash, maximum throughput 60 gal/yr.
- (f) One (1) Gallus R160-B03 Rotary Letterpress and Screen Combination Printer utilizing the following materials:
1. UV inks, maximum throughput 210 gal/yr;
 2. Acetone, maximum throughput 10 gal/yr;
 3. Roller Wash, maximum throughput 30 gal/yr; and
 4. Propylene Glycol Monoethyl Ether maximum throughput 100 gal/yr.
- (g) One (1) Mark Andy 404 Waterbase Flexographic Printing Press utilizing the following materials:
1. Litho inks, maximum throughput 263 gal/yr;
 2. Acetone, maximum throughput 2 gal/yr;
 3. Type Wash, maximum throughput 7 gal/yr; and
 4. Roller Wash, maximum throughput 10 gal/yr.
- (h) One (1) Miller 407 Sheetfed Offset Lithographic Printer utilizing the following materials:
1. Litho inks, maximum throughput 205 gal/yr;
 2. Acetone, maximum throughput 5 gal/yr;
 3. Type Wash, maximum throughput 127 gal/yr; and
 4. Roller Wash, maximum throughput 104 gal/yr.
- (i) One (1) Kelleigh 210 Cyrel Platemaking System utilizing Optisol Rotary Solution, maximum throughput 30 gal/yr.
- (j) One (1) Stevens 2000 Flexographic Printing Press utilizing a water based ink, maximum throughput of 133,680 gal/yr.

All printing presses (printers) manufacture either paper labels, paper literature, or paperboard cartons produced for pharmaceutical clients.

New Emission Units and Pollution Control Equipment

One (1) Miller TP-104 sheetfed offset lithographic printer, constructed in August, 2003 in accordance with 326 IAC 2-5.5-6(d) (change/modification falling under an exemption category, pursuant to 326 IAC 2-1.1-3), utilizing the following materials:

- (a) Litho ink, maximum throughput of 294 gal/yr;

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- (b) Acetone, maximum throughput of 20 gal/yr;
- (c) Type wash, maximum throughput of 150 gal/yr;
- (d) Roller wash, maximum throughput of 60 gal/yr; and
- (e) PR-628 Alcohol, maximum throughput of 12 gal/yr.

There are no other unpermitted facilities operating at this source during this review process.

Existing Approvals

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

- (a) OP 945349, issued on October 12, 1994 and OPR 985349 issued on September 17, 1998;
- (f) Registration 097-11622-00270, issued on December 9, 1999.

All conditions from previous approvals were incorporated into this permit.

Stack Summary

There are no stacks at this facility.

Enforcement Issue

There are no enforcement actions pending.

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 18, 2003, with additional information received on September 15, 2003.

Emission Calculations

See Appendix A , of this document for detailed emissions calculations (5 pages).

Potential To Emit

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

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enforceable by the U. S. EPA, the department, or the appropriate local air pollution control agency.”

| Pollutant | Potential To Emit (tons/year) Existing equipment | Potential To Emit (tons/year) New Press - Miller TP-104 |
|-----------------|--|---|
| PM | 0.0 | 0 |
| PM-10 | 0.0 | 0 |
| SO ₂ | 0.00 | 0 |
| VOC | 18.31 | 0.8 |
| CO | 0.00 | 0 |
| NO _x | 0.00 | 0 |

| HAP's | Potential To Emit (tons/year) Existing equipment | Potential To Emit (tons/year) New Press - Miller TP-104 |
|-------------|--|--|
| Combination | 0.25 | 0 |
| TOTAL | 0.25 | 0 |

- (a) This source is **not** a major stationary source because no attainment regulated pollutant is emitted at a rate of 250 tons per year or more, and it is not in one of the 28 listed source categories. Therefore the requirements of 326 IAC 2-5 apply.
- (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.

Actual Emissions

The following table shows the actual emissions from the source. This information reflects the 2002 OAQ and OES emission data.

| Pollutant | Actual Emissions (tons/year) |
|-----------------|------------------------------|
| PM | 0.0 |
| PM-10 | 0.0 |
| SO ₂ | 0.0 |
| VOC | 2.2 |
| CO | 0.0 |
| NO _x | 0.0 |

County Attainment Status

The source is located in Marion County.

| Pollutant | Status |
|-----------------|-------------|
| PM-10 | attainment |
| SO ₂ | maintenance |
| NO ₂ | attainment |

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| | |
|-------|-------------|
| Ozone | maintenance |
| CO | maintenance |
| Lead | maintenance |

- (a) Volatile organic compounds (VOC) are precursors for the formation of ozone. Therefore, VOC emissions are considered when evaluating the rule applicability relating to the ozone standards. Marion County has been designated as attainment or unclassifiable for ozone. Therefore, VOC emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.
- (b) Marion County has been classified as attainment or unclassifiable for PM₁₀, SO₂, NO_x, and CO. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.
- (c) Fugitive Emissions
Since this type of operation is not one of the 28 listed source categories under 326 IAC 2-2, 40 CFR 52.21, or 326 IAC 2-3 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.

Source Status

| Pollutant | Emissions (ton/yr) |
|------------------|--------------------|
| PM | 0.0 |
| PM ₁₀ | 0.0 |
| SO ₂ | 0.0 |
| VOC | 19.11 |
| CO | 0.0 |
| NO _x | 0.0 |

This source is not a major stationary source because no attainment regulated pollutant is emitted at a rate of 250 tons per year or more, 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 new source is not subject to the Part 70 Permit requirements because the potential to emit (PTE) of:

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

Federal Rule Applicability

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- (a) The printing operation is not subject to the New Source Performance Standards for the Graphic Arts Industry: Publication Rotogravure Printing, 40 CFR Part 60.430, Subpart QQ (312 IAC 12), because it is not a publication Rotogravure printing operation.
- (b) This printing operation is not subject to the National Emission Standards for Hazardous Air Pollutants (NESHAPs) 40 CFR Part 63, Subpart KK (Printing and Publishing Industry), and 40 CFR Part 63, Subpart JJJJ (Paper and Other Web Coating), because it is not a major source of HAPs.
- (c) There are no other National Emission Standards for Hazardous Air Pollutants (NESHAPs) (326 IAC 14 and 40 CFR Part 63) applicable to this source.

State and Local Rule Applicability - Entire Source

326 IAC 2-5 (Registration Content)

Pursuant to 326 IAC 2-5.5-4 (Registration Content), an authorized individual shall provide an annual notice to the IDEM OAQ and OES that the source is in operation and in compliance with this registration pursuant to state regulation 326 IAC 2-5.5-4(a)(3).

326 IAC 2-6 (Emission Reporting)

This source is subject to 326 IAC 2-6 (Emission Reporting), because the source has a potential to emit more than ten (10) tons per year of VOC. Pursuant to this rule, the owner/operator of this source must annually submit an emission statement of the source. The annual statement must be received by April 15 of each year and must comply with the minimum requirements specified in 326 IAC 2-6-4.

26 IAC 5-1 (Opacity Regulations)

Pursuant to 326 IAC 5-1-2 (Opacity Regulations), 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 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

326 IAC 2-4.1-1 (New Source Toxics Control)

This rule is not applicable because single HAP emissions are not greater than or equal to 10 tons per year and the combination HAPs emissions are not greater than or equal to 25 tons per year.

State and Local Rule Applicability - Individual Facilities

326 IAC 8-1-6 (General Provisions relating to VOC rules: general reduction requirements for new facilities)

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The printing operation is not subject to the requirements of 326 IAC 8-1-6 due to the potential volatile organic compound emissions of each press being less than twenty-five (25) tons per year.

326 IAC 8-5-5 (Graphic arts operations)

There are no rotogravure printing presses at this source. Printers Comco UV Ink, Mark Andy 404, and Stevens 2000 are flexographic printing presses and, as such, are subject to 326 IAC 8-5-5. However, their individual and combined VOC potential emissions are less than 25 tons per year; therefore, requirements of 326 IAC 8-5-5 are not applicable to this source.

Conclusion

The operation of Keller Crescent Company, Inc. shall be subject to the conditions of the attached proposed Registration R097-15855-00270.

Company Name: Keller Crescent Co, Inc.
Address: 6454 Saguaro Court, Indianapolis, 46268
Permit #: R097-15855-00270
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TOTAL VOCs AND HAPS FROM ALL PRINTING OPERATIONS

Lithographic Printers ton/yr
Hamilton 140 1.6
Heidelberg GT02-52 0.8
Miller TP-38A 0.8
Miller TP-104 0.8
Miller 407 0.8

Flexographic Printers
Comco UV Ink 0.37
Mark Andy 404 0.2
Stevens 2000 12.87

Rotary Printers
Gallus R160E02 0.24
Gallus R160-B03 0.52

Kelleigh 210 Platemaking 0.11

TOTAL VOC 18.31
TOTAL HAPs 0.251

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Hamilton -140
Nonheatset Web Offset Lithographic Printing

Litho Inks Usage 588 gal/yr
Density 8.5 lb/gal
% Vol. by weight 17
Emission Factor 5%
VOC = 588 (gal/yr) x 8.5 (lb/gal) x 17% VOC x 5% = 42.5 lb/yr

Acetone Usage 40 gal/yr
Density 6.56 lb/gal
Specific Gravity 0.792
% Vol. by weight 100%
VOC = 40 (gal/yr) x 6.56 (lb/gal) x 0.792 x 100% = 208 lb/yr

Type Wash Usage 300 gal/yr
Density 6.23 lb/gal
% Vol. by weight 100%
VOC = 300 (gal/yr) x 6.23 (lb/gal) x 100% = 1,869 lb/yr

Roller Wash Usage 120 gal/yr
Density 7.22 lb/gal

% Vol. by weight 100%
VOC = 120 (gal/yr) x 7.22 (lb/gal) x 100% = 866 lb/yr

PR-628 Alcohol Sub. 24 gal/yr
Density 7.80 lb/gal
% Vol. by weight 99%
VOC = 24 (gal/yr) x 7.80 (lb/gal) x 99% x = 185 lb/yr
TOTAL VOC = 3171 (lb/yr) x 1/2000 (lb/ton) = 1.6 ton/yr

Heidelberg GT02-52 Sheetfed Offset Lithographic Printing

Litho Ink Usage 294 gal/yr
Density 8.5 lb/gal
% Vol. by weight 17%
Emission Factor 5%
VOC = 294 (gal/yr) x 8.5 (lb/gal) x 17% x 5% = 21 lb/yr

Acetone Usage 20 gal/yr
Density 6.56 lb/gal
Specific Gravity 0.792
% Vol. by weight 100%
VOC = 20 (gal/yr) x 6.56 (lb/gal) x 0.792 x 100% = 104 lb/yr

Type Wash Usage 150 gal/yr
Density 6.23 lb/gal
% vol. by weight 100%
VOC = 150 (gal/yr) x 6.23 (lb/gal) x 100% = 934 lb/yr

Roller Wash Usage 60 gal/yr
Density 7.22 lb/gal
% vol. by weight 100%
VOC = 60 (gal/yr) x 7.22 (lb/gal) x 100% x = 433 lb/yr

PR-628 Alcohol Subs. Usage 12 gal/yr
Density 7.80 lb/gal
% vol. by weight 99%
VOC = 12 (gal/yr) x 7.80 (lb/gal) x 99% = 93 lb/yr
TOTAL VOCs = 1585 (lb/yr) x 1/2000 (lb/ton) = 0.8 ton/yr

Miller TP-38A and TP-104 Sheetfed Offset Lithographic Printing (each)

Litho Inks Usage 294 gal/yr
Density 8.5 lb/gal
% vol. by weight 17%
Emission Factor 5%
VOC = 294 (gal/yr) x 8.5 (lb/gal) x 17% x 5% = 21 lb/yr

Acetone Usage 20 gal/yr
Density 6.56 lb/gal
Specific Gravity 0.792
% vol. by weight 100%
VOC = 20 (gal/yr) x 6.56 (lb/gal) x 0.792 x 100% = 104 lb/yr

Type Wash Usage 150 gal/yr
Density 6.23 lb/gal
% vol. by weight 100%
VOC = 150 (gal/yr) x 6.23 (lb/gal) x 100% = 934 lb/yr

Roller Wash Usage 60 gal/yr
Density 7.22 lb/gal
% vol. by weight 100%
VOC = 60 (gal/yr) x 7.22 (lb/gal) x 100% = 433 lb/yr

PR-628 Alcohol Subs. Usage 12 gal/yr
Density 7.80 lb/gal
% vol. by weight 99%
VOC = 12 (gal/yr) x 7.80 (lb/gal) x 99% = 93 lb/yr
TOTAL VOCs = 1585 (lb/yr) x 1/2000 (lb/ton) = 0.8 ton/yr
Total VOC - two (2) presses = 0.16 ton/yr

Comco UV Ink Flexo Printing

UV Inks Usage 210 gal/yr
Density 9.5 lb/gal
% vol. by weight 0%
VOC = 0 lb/yr

Acetone Usage 20 gal/yr
Density 6.56 lb/gal
Specific Gravity 0.792
% vol. by weight 100%
VOC = 20 (gal/yr) x 6.56 lb/gal x 0.792 x 100% = 104 lb/yr

Roller Wash Usage 90 gal/yr
Density 7.22 lb/gal
% vol. by weight 100%
VOC = 90 (gal/yr) x 7.22 (lb/gal) x 100% = 650 lb/yr
TOTAL VOC = (754lb/yr) x 1/2000 (lb/ton) = 0.37 ton/yr

Gallus R160E02 Rotary UV Ink Letterpress Label Printing

UV Ink Usage 210 gal/yr
Density 9.5 lb/gal
% vol. By weight 0%
VOC = 0 lb/yr

Acetone Usage 10 gal/yr
Density 6.56 lb/gal
Specific Gravity 0.792
% vol. by weight 100%
TOTAL VOC = 10 (gal/yr) x 6.56 (lb/gal) x 0.792 x 100% = 52 lb/yr

Roller Wash Usage 60 gal/yr
Density 7.22 lb/gal
% vol. by weight 100%

VOC = 60 (gal/yr) x 7.22 (lb/gal) x 100% = 433 lb/yr
TOTAL VOC = 485 (lb/yr) x 1/2000 (lb/ton) = 0.24 ton/yr

Gallus R160-B03 Rotary Letterpress and Screen Combination Printing

UV Ink Usage 210 gal/yr
Density 9.5 lb/gal
% vol. By weight 0%
VOC = 0 lb/yr

Acetone Usage 10 gal/yr
Density 6.56 lb/gal
Specific Gravity 0.792
% vol.by weight 100%
VOC = 10 (gal/yr) x 6.56 (lb/gal) x 0.792 x 100% = 52 lb/yr

Roller Wash Usage 30 gal/yr
Density 7.22 lb/gal
% vol. by weight 100%
VOC = 30 (gal/yr) x 7.22 (lb/gal) x 100% = 217 lb/yr

Propylene Glycol Monoethyl Ether Usage 100 gal/yr
Density 8.33 lb/gal
Specific Gravity 0.92
% vol. by weight 100%
VOC = 8.33 (lb/gal) x 0.92 x 100% = 766 lb/yr
TOTAL VOC = (1035lb/yr) x 1/2000 (lb/ton) = 0.52 ton/yr

Mark Andy 404 Waterbase Flexo Printing

Litho Inks Usage 263 gal/yr
Density 8.5 lb/gal
% Vol. by weight 17
Emission Factor 5%
VOC = 263 (gal/yr) x 8.5 (lb/gal) x 17% VOC x 5% = 19 lb/yr

Acetone Usage 2 gal/yr
Density 6.56 lb/gal
Specific Gravity 0.792
% Vol. by weight 100%
VOC = 40 (gal/yr) x 6.56 (lb/gal) x 0.792 x 100% = 208 lb/yr

Type Wash Usage 7 gal/yr
Density 6.23 lb/gal
% Vol. by weight 100%
VOC = 7 (gal/yr) x 6.23 (lb/gal) x 100% = 44 lb/yr

Roller Wash Usage 10 gal/yr
Density 6.97 lb/gal
% Vol. by weight 100%
VOC = 10 (gal/yr) x 6.97 (lb/gal) x 100% = 70 lb/yr

TOTAL VOC = 341 (lb/yr) x (1/2000) = 0.2 ton/yr

Miller 407 Sheetfed Offset Lithographic Printing

Litho Inks Usage 205 gal/yr
Density 8.5 lb/gal
% Vol. by weight 17
Emission Factor 5%
VOC = 205 (gal/yr) x 8.5 (lb/gal) x 17% VOC x 5% = 15 lb/yr

Acetone Usage 5 gal/yr
Density 6.56 lb/gal
Specific Gravity 0.792
% Vol. by weight 100%
VOC = 5 (gal/yr) x 6.56 (lb/gal) x 0.792 x 100% = 26 lb/yr

Type Wash Usage 127 gal/yr
Density 6.23 lb/gal
% Vol. by weight 100%
VOC = 127 (gal/yr) x 6.23 (lb/gal) x 100% = 791 lb/yr

Roller Wash Usage 104 gal/yr
Density 6.97 lb/gal
% Vol. by weight 98%
VOC = (104 gal/yr)(6.97 lb/gal)(98%) = 710 lb/yr
TOTAL VOC = 1,542 (lb/yr) x 1/2000 (lb/ton) = 0.8 ton/yr

Kelleigh 210 Cyrel Platemaking System

Optisol Rotary Solution usage 30 gal/yr
Density 7.64 lb/gal
% vol. by weight 100%
VOC = 30 (gal/yr) x 7.64 (lb/gal) x 100% = 229 lb/yr
TOTAL VOCs = 229 (lb/yr) x 1/2000 (lb/ton) = 0.11 ton/yr

Stevens 2000 Flexographic Printer

Water Based Ink usage 133,680 gal/yr
Maximum paper throughput 63,072 MMsq.in/yr
Maximum coverage 12 lb/MMsq.in
Weight % volatiles 68%
Flash Off % 5.0%
VOC = 12 (lb/MMsq.in) x 63,072 (MMsq.in/yr) x 68% x 5% = 25,734 lb/yr
TOTAL VOCs = 25,734 (lb/yr) x 1/2000 (lb/ton) = 12.87 ton/yr

| <u>HAPS</u> | <u>ton/yr</u> |
|-----------------|---------------|
| Ethylene Glycol | 0.011 |
| Methanol | 0.002 |
| Toluene | 0.171 |
| Vinyl Acetate | 0.022 |
| Xylenes | 0.036 |
| Glycol Ethers | 0.009 |

TOTALHAPS = 0.251 ton/yr (COMBINATION)