

**MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY
AIR QUALITY DIVISION**

June 4, 2020

PERMIT TO INSTALL
114-13A

ISSUED TO
Sheridan Publishing Grand Rapids, Inc.

LOCATED AT
5100 33rd Street, S. E.
Grand Rapids, Michigan 49512

IN THE COUNTY OF
Kent

STATE REGISTRATION NUMBER
N2829

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Environment, Great Lakes, and Energy. This permit is hereby issued in accordance with and subject to Section 5505(1) of Article II, Chapter I, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Pursuant to Air Pollution Control Rule 336.1201(1), this permit constitutes the permittee's authority to install the identified emission unit(s) in accordance with all administrative rules of the Department and the attached conditions. Operation of the emission unit(s) identified in this Permit to Install is allowed pursuant to Rule 336.1201(6).

DATE OF RECEIPT OF ALL INFORMATION REQUIRED BY RULE 203: May 21, 2020	
DATE PERMIT TO INSTALL APPROVED: June 4, 2020	SIGNATURE:
DATE PERMIT VOIDED:	SIGNATURE:
DATE PERMIT REVOKED:	SIGNATURE:

PERMIT TO INSTALL

Table of Contents

COMMON ACRONYMS	2
POLLUTANT / MEASUREMENT ABBREVIATIONS.....	3
GENERAL CONDITIONS	4
EMISSION UNIT SPECIAL CONDITIONS.....	6
EMISSION UNIT SUMMARY TABLE	6
FLEXIBLE GROUP SPECIAL CONDITIONS.....	7
FLEXIBLE GROUP SUMMARY TABLE	7
FG-OffsetLitho	8
FGFACILITY CONDITIONS.....	12
APPENDIX A.....	14
APPENDIX B.....	15

COMMON ACRONYMS

AQD	Air Quality Division
BACT	Best Available Control Technology
CAA	Clean Air Act
CAM	Compliance Assurance Monitoring
CEMS	Continuous Emission Monitoring System
CFR	Code of Federal Regulations
COMS	Continuous Opacity Monitoring System
Department/department/EGLE	Michigan Department of Environment, Great Lakes, and Energy
EU	Emission Unit
FG	Flexible Group
GACS	Gallons of Applied Coating Solids
GC	General Condition
GHGs	Greenhouse Gases
HVLP	High Volume Low Pressure*
ID	Identification
IRSL	Initial Risk Screening Level
ITSL	Initial Threshold Screening Level
LAER	Lowest Achievable Emission Rate
MACT	Maximum Achievable Control Technology
MAERS	Michigan Air Emissions Reporting System
MAP	Malfunction Abatement Plan
MSDS	Material Safety Data Sheet
NA	Not Applicable
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standard for Hazardous Air Pollutants
NSPS	New Source Performance Standards
NSR	New Source Review
PS	Performance Specification
PSD	Prevention of Significant Deterioration
PTE	Permanent Total Enclosure
PTI	Permit to Install
RACT	Reasonable Available Control Technology
ROP	Renewable Operating Permit
SC	Special Condition
SCR	Selective Catalytic Reduction
SNCR	Selective Non-Catalytic Reduction
SRN	State Registration Number
TBD	To Be Determined
TEQ	Toxicity Equivalence Quotient
USEPA/EPA	United States Environmental Protection Agency
VE	Visible Emissions

*For HVLP applicators, the pressure measured at the gun air cap shall not exceed 10

POLLUTANT / MEASUREMENT ABBREVIATIONS

acfm	Actual cubic feet per minute
BTU	British Thermal Unit
°C	Degrees Celsius
CO	Carbon Monoxide
CO ₂ e	Carbon Dioxide Equivalent
dscf	Dry standard cubic foot
dscm	Dry standard cubic meter
°F	Degrees Fahrenheit
gr	Grains
HAP	Hazardous Air Pollutant
Hg	Mercury
hr	Hour
HP	Horsepower
H ₂ S	Hydrogen Sulfide
kW	Kilowatt
lb	Pound
m	Meter
mg	Milligram
mm	Millimeter
MM	Million
MW	Megawatts
NMOC	Non-Methane Organic Compounds
NO _x	Oxides of Nitrogen
ng	Nanogram
PM	Particulate Matter
PM10	Particulate Matter equal to or less than 10 microns in diameter
PM2.5	Particulate Matter equal to or less than 2.5 microns in diameter
pph	Pounds per hour
ppm	Parts per million
ppmv	Parts per million by volume
ppmw	Parts per million by weight
psia	Pounds per square inch absolute
psig	Pounds per square inch gauge
scf	Standard cubic feet
sec	Seconds
SO ₂	Sulfur Dioxide
TAC	Toxic Air Contaminant
Temp	Temperature
THC	Total Hydrocarbons
tpy	Tons per year
µg	Microgram
µm	Micrometer or Micron
VOC	Volatile Organic Compounds
yr	Year

GENERAL CONDITIONS

1. The process or process equipment covered by this permit shall not be reconstructed, relocated, or modified, unless a Permit to Install authorizing such action is issued by the Department, except to the extent such action is exempt from the Permit to Install requirements by any applicable rule. **(R 336.1201(1))**
2. If the installation, construction, reconstruction, relocation, or modification of the equipment for which this permit has been approved has not commenced within 18 months, or has been interrupted for 18 months, this permit shall become void unless otherwise authorized by the Department. Furthermore, the permittee or the designated authorized agent shall notify the Department via the Supervisor, Permit Section, Air Quality Division, Michigan Department of Environment, Great Lakes, and Energy, P.O. Box 30260, Lansing, Michigan 48909-7760, if it is decided not to pursue the installation, construction, reconstruction, relocation, or modification of the equipment allowed by this Permit to Install. **(R 336.1201(4))**
3. If this Permit to Install is issued for a process or process equipment located at a stationary source that is not subject to the Renewable Operating Permit program requirements pursuant to Rule 210 (R 336.1210), operation of the process or process equipment is allowed by this permit if the equipment performs in accordance with the terms and conditions of this Permit to Install. **(R 336.1201(6)(b))**
4. The Department may, after notice and opportunity for a hearing, revoke this Permit to Install if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of this permit or is violating the Department's rules or the Clean Air Act. **(R 336.1201(8), Section 5510 of Act 451, PA 1994)**
5. The terms and conditions of this Permit to Install shall apply to any person or legal entity that now or hereafter owns or operates the process or process equipment at the location authorized by this Permit to Install. If the new owner or operator submits a written request to the Department pursuant to Rule 219 and the Department approves the request, this permit will be amended to reflect the change of ownership or operational control. The request must include all of the information required by subrules (1)(a), (b), and (c) of Rule 219 and shall be sent to the District Supervisor, Air Quality Division, Michigan Department of Environment, Great Lakes, and Energy. **(R 336.1219)**
6. Operation of this equipment shall not result in the emission of an air contaminant which causes injurious effects to human health or safety, animal life, plant life of significant economic value, or property, or which causes unreasonable interference with the comfortable enjoyment of life and property. **(R 336.1901)**
7. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the Department. The notice shall be provided not later than two business days after start-up, shutdown, or discovery of the abnormal condition or malfunction. Written reports, if required, must be filed with the Department within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal condition or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5). **(R 336.1912)**
8. Approval of this permit does not exempt the permittee from complying with any future applicable requirements which may be promulgated under Part 55 of 1994 PA 451, as amended or the Federal Clean Air Act.
9. Approval of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.
10. Operation of this equipment may be subject to other requirements of Part 55 of 1994 PA 451, as amended and the rules promulgated thereunder.

11. Except as provided in subrules (2) and (3) or unless the special conditions of the Permit to Install include an alternate opacity limit established pursuant to subrule (4) of Rule 301, the permittee shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of density greater than the most stringent of the following. The grading of visible emissions shall be determined in accordance with Rule 303 (R 336.1303). **(R 336.1301)**
 - a) A six-minute average of 20 percent opacity, except for one six-minute average per hour of not more than 27 percent opacity.
 - b) A visible emission limit specified by an applicable federal new source performance standard.
 - c) A visible emission limit specified as a condition of this Permit to Install.
12. Collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in Rule 370(2). **(R 336.1370)**
13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with Rule 1001 and Rule 1003, under any of the conditions listed in Rule 1001. **(R 336.2001)**

EMISSION UNIT SPECIAL CONDITIONS

EMISSION UNIT SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date / Modification Date	Flexible Group ID
EU-T11	Timson T-11 UV Web Press	05/01/2019	FG-OffsetLitho
EU-T9	Timson T-9 heatset webfed offset lithographic printing press. Manual blanket wash.	04/01/2019	FG-OffsetLitho
EU-T54	Timson 54 heatset webfed offset lithographic printing press. Automatic and/or manual blanket wash.	11/01/2003	FG-OffsetLitho
EU-T47	Timson 47 heatset webfed offset lithographic printing press. Automatic and/or manual blanket wash.	10/01/1998	FG-OffsetLitho

Changes to the equipment described in this table are subject to the requirements of R 336.1201, except as allowed by R 336.1278 to R 336.1291.

FLEXIBLE GROUP SPECIAL CONDITIONS

FLEXIBLE GROUP SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGOffsetLitho	One (1) uncontrolled Timson T-11 UV web press and three (3) heatset webfed offset lithographic printing presses controlled by a regenerative thermal oxidizer (RTO). EU-T9 is manually washed with blanket wash. EU-T54 and EU-T47 can be manually or automatically washed with blanket wash.	EU-T11, EU-T9, EU-T54, EU-T47

**FG-OffsetLitho
 EMISSION UNIT CONDITIONS**

DESCRIPTION

One (1) uncontrolled Timson T-11 UV web press and three (3) heatset webfed offset lithographic printing presses controlled by a regenerative thermal oxidizer (RTO). EU-T9 is manually washed with blanket wash. EU-T54 and EU-T47 can be manually or automatically washed with blanket wash.

Emission Unit: EU-T11, EU-T9, EU-T54, EU-T47

POLLUTION CONTROL EQUIPMENT

A regenerative thermal oxidizer (RTO) to control VOC emissions from EU-T9, EU-T54, and EU-T47

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. VOC	27.3 tpy	12-month rolling time period as determined at the end of each calendar month	FG-OffsetLitho	SC VI.1, SC VI.2, SC VI.3	R 336.1205, R 336.1225, R 336.1702(a)

II. MATERIAL LIMIT(S)

- The VOC content of the fountain solution used in any heatset webfed offset lithographic printing press portion of FG-OffsetLitho, shall meet the following requirement:

Type of Lithographic Printer	VOC Content of Fountain Solution, As applied
Heatset Web (EU-T9, EU-T54, and EU-T47)	≤ 5.0 percent, by weight, and use no alcohol (propyl alcohol, CAS No. 71-23-8; ethanol, CAS No. 64-17-5; IPA, CAS No. 67-63-0) in the fountain solution

(R 336.1205, R 336.1225, R 336.1702(a))

- The VOC content of the cleaning solvents (blanket and roller washes) used in any heatset webfed offset lithographic printing press portion of FG-OffsetLitho, shall have a VOC composite vapor pressure of less than 10 mm Hg at 68°F. **(R 336.1205, R 336.1225, R 336.1702(a))**

III. PROCESS/OPERATIONAL RESTRICTION(S)

- The permittee shall capture all waste inks, fountain solution, coatings, cleaning solvents such as blanket and roller washes, used shop towels, etc. (materials) and shall store them in closed containers. The permittee shall dispose of all waste materials in an acceptable manner in compliance with all applicable state rules and federal regulations. **(R 336.1205, R 336.1225, R 336.1702(a))**
- The permittee shall handle all VOC and/or HAP containing materials, in a manner to minimize the generation of fugitive emissions. The permittee shall keep containers of VOC and/or HAP containing materials covered at all times except when operator access is necessary. **(R 336.1205(3), R 336.1225, R 336.1702(a))**
- The permittee shall not operate any heatset webfed offset lithographic printing press portion of FG-OffsetLitho unless a malfunction abatement plan (MAP) as described in Rule 911(2), for the associated regenerative thermal oxidizer (RTO), has been submitted within 90 days of permit issuance, and is implemented and maintained. The MAP shall, at a minimum, specify the following:

- a) A complete preventative maintenance program including identification of the supervisory personnel responsible for overseeing the inspection, maintenance, and repair of air-cleaning devices, a description of the items or conditions that shall be inspected, the frequency of the inspections or repairs, and an identification of the major replacement parts that shall be maintained in inventory for quick replacement.
- b) An identification of the source and air-cleaning device operating variables that shall be monitored to detect a malfunction or failure, the normal operating range of these variables, and a description of the method of monitoring or surveillance procedures.
- c) A description of the corrective procedures or operational changes that shall be taken in the event of a malfunction or failure to achieve compliance with the applicable emission limits.
- d) A description of the procedures to capture, handle, and dispose of all materials to minimize the generation of fugitive emissions per SC III.1 and III.2.

If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. The permittee shall also amend the MAP within 45 days, if new equipment is installed or upon request from the District Supervisor. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the MAP or amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits. **(R 336.1225, R 336.1702(a), R 336.1910, R 336.1911, 40 CFR 52.21(c) and (d))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate any heatset webfed offset lithographic printing press portion of FG-OffsetLitho unless the RTO is installed, maintained and operated in a satisfactory manner. Satisfactory operation of the RTO includes a minimum VOC destruction efficiency of 95 percent (by weight), a minimum retention time of 0.5 seconds, a minimum RTO combustion chamber temperature of 1500°F or at the minimum temperature during the most recent RTO performance test which demonstrates compliance with a minimum of 95 percent destruction efficiency, and in accordance with the MAP required in SC III.4. **(R 336.1205(1)(a)(ii), R 336.1225, R 336.1702, R 336.1910)**
2. The permittee shall install, calibrate, maintain and operate in a satisfactory manner, a temperature monitoring device in the combustion chamber of the RTO to monitor and record the temperature, on a continuous basis, during operation of any heatset webfed offset lithographic printing press portion of FG-OffsetLitho. **(R 336.1205, R 336.1225, R 336.1702, R 336.1910)**
3. The permittee shall not operate any heatset webfed offset lithographic printing press in FG-OffsetLitho unless the associated dryer is installed, maintained and operated in a satisfactory manner. Satisfactory operation requires that the associated dryer is operating at a pressure lower than all adjacent areas so that air flows into the associated dryer through all natural draft openings (NDO) at all times. This shall be achieved by using built-in interlock systems which will trigger automatically and disable printing if the dryer is not operating in negative pressure. **(R 336.1205(3), R 336.1225, R 336.1702(a), R 336.1910)**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall determine the VOC content of any material, as received / as applied, using federal Reference Test Method 24/24A pursuant to Rule 1040(5). Upon prior written approval by the AQD District Supervisor, the permittee may determine the VOC content from manufacturer's formulation data. If the Method 24/24A and the formulation values should differ, the permittee shall use the Method 24/24A results to determine compliance. **(R 336.1702, R 336.2001, R 336.2003, R 336.2004, R 336.2040(5))**
2. Within 365 days from issuance of this permit, the permittee shall verify the destruction efficiency of the RTO by testing at the owner's expense, in accordance with Department requirements. Testing shall be performed using an approved EPA Method listed in 40 CFR Part 60, Appendix A. An alternate method, or a modification to the approved EPA Method, may be specified in an AQD approved Test Protocol. No less than 60 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing, including any modifications to the method

in the test protocol that are proposed after initial submittal. The permittee must submit a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. **(R 336.1205, R 336.1225, R 336.1702, R 336.1902, R 336.2001, R 336.2003, R 336.2004, 40 CFR 52.21(c) & (d))**

3. The permittee shall annually test and certify the built-in interlock systems for each dryer associated with heatset webfed offset lithographic printing press in FG-OffsetLitho to show compliance with SC. IV.3. **(R 336.1205(3), R 336.1225, R 336.1702(a))**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1205, R 336.1225, R 336.1702(a))**
2. The permittee shall maintain a current listing from the manufacturer of the chemical composition of each material, including the weight percent of each component. The data may consist of Material Safety Data Sheets, manufacturer's formulation data, or both as deemed acceptable by the AQD District Supervisor. The permittee shall keep all records on file and make them available to the Department upon request. **(R 336.1224, R 336.1225, R 336.1702)**
3. The permittee shall keep a separate record of the following for FG-OffsetLitho on a calendar month averaging period:
 - a) The type of each material used. This includes but is not limited to inks, fountain solutions, blanket wash/press wash or cleaning solvents, adhesives, ink-jet inks, makeup solvents, UV coatings, purge and clean-up solvents.
 - b) Chemical composition of each material, including weight percent of each component.
 - c) The VOC content of each material, with water, (in percent by weight or pounds per gallon), as received and as applied.
 - d) The usage rate (in pounds or gallons) of each material as applied.
 - e) The amount (in pounds) of blanket wash reclaimed.
 - f) VOC emission calculations determining the annual emission rate in tons per 12-month rolling time period as determined at the end of each calendar month (Retention factors from Control Techniques Guidelines for Offset Lithographic Printing and Letterpress Printing, EPA-453/R-06-002, September 2006 may be used as mentioned in the Appendix A or an alternate factor approved by the AQD District Supervisor).

The permittee shall keep the records using mass balance, or an alternative method and format acceptable to the AQD District Supervisor. The permittee shall keep all records on file and make them available to the Department upon request. **(R 336.1205, R 336.1225, R 336.1702(a))**

4. The permittee shall monitor and record, in a satisfactory manner, the temperature in the combustion chamber of the RTO, on a continuous basis, during operation of any heatset webfed offset lithographic printing press portion of FG-OffsetLitho. Temperature data recording shall consist of measurements made at equally spaced intervals, not to exceed 15 minutes per interval. **(R 336.1205, R 336.1224, R 336.1225, R 336.1702, R 336.1910)**
5. The permittee shall calculate the VOC content of the fountain solution using the method detailed in Appendix A or an alternate method approved by the AQD District Supervisor. Calculations shall include both dampening aid and wetting agent, as used, in percent by weight. **(R 336.1205, R 336.1225, R 336.1702(a))**
6. The permittee shall keep annual testing and certification records of the built-in interlock systems to show compliance with SC V.3. All records shall be kept on file and made available to the Department upon request. **(R 336.1205(3), R 336.1225, R 336.1702(a))**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Diameter / Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-T11 (UV Press: EU-T11)	20	30.5	R 336.1225, 40 CFR 52.21(c) & (d)
2. SV-RTO (Three Heatset Presses: EU-T9, EU-T54, and EU-T47)	32	35	R 336.1225, 40 CFR 52.21(c) & (d)

IX. OTHER REQUIREMENT(S)

1. The permittee shall label each emission unit of FG-OffsetLitho in a method acceptable to the AQD District Supervisor. **(R 336.1201)**

Footnotes:

¹ This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

FG FACILITY CONDITIONS

DESCRIPTION

The following conditions apply source-wide to all process equipment including equipment covered by other permits, grand-fathered equipment and exempt equipment.

POLLUTION CONTROL EQUIPMENT

A regenerative thermal oxidizer (RTO) to control VOC emissions from EU-T9, EU-T54, and EU-T47

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. Each Individual HAP	Less than 9.0 tpy	12-month rolling time period as determined at the end of each calendar month	FG-Facility	SC VI.2	R 336.1205(3)
2. Aggregate HAPs	Less than 22.5 tpy	12-month rolling time period as determined at the end of each calendar month	FG-Facility	SC VI.2	R 336.1205(3)

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall determine the HAP content of any material, as received / as applied, using manufacturer's formulation data. Upon request of the AQD District Supervisor, the permittee shall verify the manufacturer's HAP formulation data using EPA Test Method 311. **(R 336.1205(3))**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R336.1205(3))**
2. The permittee shall keep the following information on a calendar month basis for FG-Facility:
 - a) Gallons or pounds of each HAP containing material used.
 - b) Where applicable, gallons or pounds of each HAP containing material reclaimed.
 - c) HAP content, in pounds per gallon or pounds per pound, of each HAP containing material used.
 - d) Individual and aggregate HAP emission calculations determining the monthly emission rate of each in tons per calendar month.

- e) Individual and aggregate HAP emission calculations determining the annual emission rate of each in tons per 12-month rolling time period as determined at the end of each calendar month.

The permittee shall keep the records using mass balance, or an alternative method and format acceptable to the AQD District Supervisor. The permittee shall keep all records on file and make them available to the Department upon request. **(R 336.1205(3))**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

¹ This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

APPENDIX B

Retention Factors and Capture Efficiency for Heatset & Coldset Offset Lithographic Printing Presses

Source: Control Techniques Guidelines for Offset Lithographic Printing and Letterpress Printing, EPA-453/R-06-002, September 2006

	Retention Factor (on substrate)	Fugitive	Captured by Dryer (if applicable)	Destruction Efficiency (if applicable)
Heatset Inks	20%	80%	^a 100%	^d 95%
Coldset (non-heatset) Inks	95%	5%	NA	NA
Vegetable Oil in Heatset & Coldset Inks	100%	0%	NA	NA
UV Curable Inks & Coatings	0%	100%	NA	NA
Water-Based Coatings	0%	100%	NA	NA
Manual Wash Cleaning Materials	^b 50%	^b 50%	NA	NA
Automatic Blanket Wash Materials (Heatset)	0%	^c 60%	^c 40%	^d 95%
Automatic Blanket Wash Materials (Coldset)	0%	100%	NA	NA
Fountain Solution (Heatset)	0%	30%	70%	^d 95%
Fountain Solution (Coldset)	0%	100%	NA	NA

- ^a As long as the dryer operates at negative pressure
- ^b Retention factor in shop towels for cleaning materials with composite VOC vapor pressure less than 10 mmHg at 20° C. The cleaning materials and used shop towels must be kept in closed containers at all times they are not in use.
- ^c For cleaning materials with composite VOC vapor pressure less than 10 mmHg at 20° C.
- ^d Actual destruction efficiency will vary based on the type and configuration of the oxidizer.