

10 CSR 10-5.340 Control of Emissions From Rotogravure and Flexographic Printing Facilities

(1) Application.

(A) This rule shall apply throughout St. Louis City and Jefferson, St. Charles, Franklin, and St. Louis Counties.

(B) This rule applies to installations with at least one (1) of the following:

1. Uncontrolled potential emissions equal to or greater than two hundred fifty kilograms (250 kg) per day or one hundred (100) tons per twelve (12)-consecutive-month period of volatile organic compounds (VOC) from the combination of rotogravure and flexographic printing presses. The uncontrolled potential emissions are the potential emissions (as defined) plus the amount by weight of VOCs whose emission into the atmosphere is prevented by the use of air pollution control devices;

2. Individual flexible package printing press(es) with the potential to emit VOCs in an amount equal to or greater than twenty-five (25) tons per twelve (12)-consecutive-month period; and

3. Flexible package printing operations that have actual VOC emissions, including related cleaning activities, before consideration of controls, of at least three (3) tons per twelve (12)-month rolling period. Once an installation exceeds this applicability level, it shall remain subject to this rule even if its actual emissions drop below this applicability level until it can demonstrate, to the satisfaction of the director, that the total actual VOC emissions from flexible package printing operations including related cleaning activities, is less than three (3) tons per twelve (12)-month rolling period for sixty (60) consecutive months

(2) Definitions. Definitions of certain terms specified in this rule may be found in 10 CSR 10-6.020.

(3) General Provisions.

(A) VOC Emission Control for Flexographic and Rotogravure Printing Presses. Each source that satisfies the applicability requirement of paragraph (1)(B)1. of this rule shall meet one (1) of the following:

1. No owner or operator shall use or permit the use of any of the following printing presses unless they are equipped with a control device. The control device shall remove, destroy, or prevent the emission of VOCs into the ambient air by at least the percentage indicated by weight of the uncontrolled VOC emissions on a daily weighted basis.

Printing Press	Percentage
Flexographic	60
Publication Rotogravure	75
Other Rotogravure	65

or

2. Low solvent technology may be used to achieve VOC emission reductions instead of the methods in paragraph (3)(A)1. of this rule. If low solvent technology is used, the following limits must be met for each press:

A. For waterborne inks, the volatile portion of the ink as applied to the substrate must contain no more than twenty-five percent (25%) by volume of VOC; and

B. For water-based or high solids inks, the ink as applied to the substrate must be at least sixty percent (60%) by volume non-VOC material.

(B) VOC Emission Control for Flexible Package Printing Presses. Each source that satisfies the applicability requirement of paragraph (1)(B)2. of this rule shall meet one (1) of the following:

1. No owner or operator shall use or permit the use of any of the following flexible packaging printing presses unless they are equipped with a control device. The control device shall remove, destroy, or prevent the emission of VOCs into the ambient air by at least the percentage indicated by weight of the uncontrolled VOC emissions on a daily weighted basis.

Flexible Package Printing Press First Installed	VOC Control Device First Installed	VOC Control Percentage
Prior to March 14, 1995	Prior to March 1, 2012	65
Prior to March 14, 1995	On or after March 1, 2012	70
On or after March 14, 1995	Prior to March 1, 2012	75
On or after March 14, 1995	On or after March 1, 2012	80

or

2. Low solvent technology may be used to achieve VOC emission reductions instead of the methods in paragraph (3)(B)1. of this rule. If low solvent technology is used, all inks, coatings, and adhesives combined must meet one (1) of the following limits for each press:

A. Contain no more than 0.8 pounds of VOC per pound solids applied; or

B. Contain no more than 0.16 pounds of VOC per pound materials applied.

(C) Press Cleaning. For the purpose of this rule, a cleaning operation is any activity involving the cleaning of a press or press parts or removal of dried ink from areas around a press including the off-line cleaning of inks, coatings, and adhesives from press parts that have been removed from the press for cleaning. It does not include the use of parts washers or cold cleaners for purposes other than removing inks, coatings, or adhesives or the use of janitorial supplies (e.g., detergents or floor cleaners) to clean areas around a press. For sources meeting any of the applicability requirements of subsection (1)(B) of this rule, no owner or operator of any applicable printing press shall perform a cleaning operation that uses cleaning solvents containing VOCs unless—

1. The cleaning solvents are kept in tightly-covered tanks or containers during transport and storage;

2. The used cleaning cloths contaminated with the cleaning solvents are placed in tightly-closed containers while awaiting off-site transportation. The cleaning cloths shall be properly cleaned and disposed of; and

3. An owner or operator may use an alternate method for reducing cleaning solvent VOC emissions, including the use of low VOC cleaning solvents, if the owner or operator shows the emission reduction is equal to or greater than paragraphs (3)(C)1. and 2. of this rule. This alternate method must be approved by the director.

(4) Reporting and Record Keeping. All owners and operators subject to this rule shall maintain records as required by this section to determine continuous compliance with this rule. These records shall be kept for at least five (5) years or longer if enforcement action is pending. These records shall be available immediately upon request for review by the Department of Natural Resources' personnel and other air pollution control agencies upon presentation of proper credentials.

(A) For owners or operators using an add-on control device(s) to meet the requirements of paragraph (3)(A)1. or (3)(B)1. of this rule, the following parameters shall be monitored and recorded to determine compliance with the applicable provisions of this rule:

1. Operating temperature of all VOC destruction devices monitored on a continuous basis while a connected printing press is operating and logged at least once every fifteen (15) minutes. The operating temperature is the gas temperature upstream of the catalyst bed for catalytic oxidizers and the oxidizer operating temperature for thermal and regenerative oxidizers;

2. VOC breakthrough on a carbon adsorption unit on a continuous basis;

3. Results of all emissions testing and inspections of control equipment as required in section (5) of this rule when performed;

4. Maintenance, repairs, and malfunction of any air pollution control equipment when performed;

5. The cumulative amount of VOC recovered during a calendar month for all VOC recovery equipment; and

6. Any other monitoring parameter required by the director to determine compliance with paragraph (3)(A)1. or (3)(B)1. of this rule.

(B) For owners or operators meeting the requirements of paragraphs (3)(A)2. and (3)(B)2. of this rule, for each ink formulation used, the following shall be recorded for each press to determine continuous compliance with the applicable provisions of this rule:

1. Volume-weighted ink VOC content in percent by volume for each ink formulation as applied on a monthly basis;

2. Results of ink testing as required in section (5) of this rule when performed, manufacturer's formula specification sheet, or Material Safety Data Sheets (MSDS) for each ink purchased; and

3. Any other information required by the director to determine compliance with paragraph (3)(A)2. or (3)(B)2. of this rule.

(C) For owners and operators using low solvent technology without the use of control equipment to meet the requirements of paragraphs (3)(A)2. and (3)(B)2. of this rule, and for whom subsection (4)(B) of this rule does not apply, the following shall be recorded in addition to the records required by subsection (4)(B) of this rule to determine daily compliance with the applicable provisions of this rule:

1. Ink usage in gallons for each ink formulation as applied on a daily basis for each press;

2. Volume-weighted density of VOCs in ink in pounds per gallon for each ink formulation as applied on a daily basis;

3. Volume-weighted average of the VOC content of each ink formulation as applied in percent by volume for each press on a daily basis;

4. Ink water content in percent by volume for each ink formulation as applied on a daily basis for each press; and

5. Ink exempt solvent content in percent by volume for each ink formulation as applied on a daily basis for each press.

(5) Test Methods.

(A) Testing and compliance demonstrations for the emission limits of paragraph (3)(A)1. or (3)(B)1. of this rule shall follow the procedures contained in 10 CSR 10-6.030(14)(A) and 10 CSR 10-6.030(20). The averaging time for these tests shall be three (3) one (1)-hour tests. These procedures will determine control device capture efficiency and destruction efficiency. Control device testing will be required as the director determines necessary to verify the capture and destruction efficiencies. At a minimum, an initial emission test shall be performed after any required control equipment is installed. The emission limits of paragraphs (3)(A)1. or (3)(B)1. of this rule shall not have been met until compliance has been verified at least once through this testing. Testing shall also be required within one hundred eighty (180) days after significant modifications to any control equipment required by this rule. Significant modifications include any repairs or changes that might substantially alter or affect the overall control efficiency. The oxidizer operating temperature or the temperature of the gas upstream of the catalyst bed monitored and recorded in accordance with paragraph (4)(A)1. of this rule shall be used as the operating parameter for determining continuous compliance. These temperatures

shall be monitored with an accuracy of the greater of plus or minus three-fourths percent ($\pm 0.75\%$) of the temperature being measured expressed in degrees Celsius or two and one-half degrees Celsius (2.5°C). The operating parameter temperatures shall be computed as the time-weighted average of the temperature values recorded during the test. The owner or operator must maintain the oxidizer at a three (3)-hour average temperature equal to or greater than a temperature fifty degrees Fahrenheit (50°F) below the average temperature observed during the most recent stack test to demonstrate continuous compliance.

(B) Testing and compliance demonstrations for the emission limits of paragraph (3)(A)2. or (3)(B)2. of this rule shall follow the procedures contained in 10 CSR 10-6.030 subsections (14)(C) and (D), respectively. These procedures will determine the VOC content of inks. Ink testing will be required as the director determines necessary to verify the manufacturers' formula specifications. Ink manufacturer's formula specifications or MSDS shall be used to determine compliance.

(C) Control Device Inspection. For catalytic oxidizers, the catalyst bed material shall be inspected annually for general catalyst condition and any signs of potential catalyst depletion. The owner or operator shall also collect a representative sample of the catalyst from the oxidizer, per manufacturer's recommendations, and have it tested to evaluate the catalyst's capability to continue to function at or above the required control efficiency. An evaluation of the catalyst bed material shall be conducted whenever the results of the inspection indicate signs of potential catalyst depletion or poor catalyst condition based on manufacturer's recommendations, but not less than once per year.

EPA Rulemakings

CFR: 40 C.F.R. 52.1320(c)
 FRM: 77 FR 3144 (1/23/12)
 PRM: 76 FR 66013
 State Submission: 1/17/2007
 State Final: section 643.050, RSMo Supp. 2010; effective Aug. 30, 2011.
 APDB File: MO-305
 Description: This revision adds specific limits of VOCs for flexible package printing operations in the St. Louis Ozone nonattainment ares. The amendment will add stricter emission limits and lower applicability limits and will add flexible package printing presses as a source subcategory.

CFR: 40 C.F.R. 52.1320(c)(84)(i)(A)
 FRM: 58 FR 45451 (8/30/93); Correction Notice 59 FR 43376 (9/6/94)
 PRM: 58 FR 30730 (5/27/93)
 State Submission: 9/23/92
 State Proposal: 16 MR 1068 (8/1/91)
 State Final: 10 C.S.R. 10-5 (3/30/92)
 APDB File: MO-99
 Description: The EPA approved revisions to the rule which: (1) improved changes to the language to aid in compliance and enforcement, (2) specified that exhaust temperature gas data and VOC breakthrough data for carbon adsorption units be recorded daily, (3) required testing to determine compliance with the rules be conducted within 180 days of the effective date of the rules, and (4) contained new requirements for cleanup solvent usage and storage.

CFR: 40 C.F.R. 52.1320(c)(71)(i)(B)
 FRM: 55 FR 7716 (3/5/90)
 PRM: 54 FR 43183 (10/23/89)
 State Submission: 3/30/89
 State Proposal: 13 MR 1710 (10/17/88)
 State Final: 14 MR 330 (3/1/89)
 APDB File: MO-75
 Description: The EPA approved revisions to the rule which: (1) requires daily compliance, (2) tightened recordkeeping requirements, and (3) made other miscellaneous changes. The EPA approved the rule with the understanding that any alternative compliance plans would have to be submitted and approved by the EPA as SIP revisions (40 C.F.R. 51.1323(d)).

CFR: 40 C.F.R. 52.1320(c)(36)
 FRM: 47 FR 25143 (5/10/82)
 PRM: None
 State Submission: 4/8/82
 State Proposal: 6 MR 1420 (12/1/81)
 State Final: 7 MR 767 (5/3/82)
 APDB File: MO-34
 Description: The EPA approved revisions to the regulation which required compliance by 1982 for sources relying on add-on controls and specified a compliance schedule for low solvent inks.

CFR: 40 C.F.R. 52.1320(c)(25)(vii)
 FRM: 46 FR 20172 (4/3/81)
 PRM: 45 FR 84099 (12/22/80)
 State Submission: 9/2/80
 State Proposal: 5 MR 3808 (4/1/80)
 State Final: 5 MR 1142 (9/2/80)
 APDB File: MO-12
 Description: The EPA conditionally approved a new regulation as part of the Set II VOC rules to control emissions from printing facilities. The condition required the state to amend the rule to require compliance by 1982 for sources relying on add-on controls and to specify a compliance schedule for low solvent inks.

Difference Between the State and EPA-Approved Regulation

The state rule has Section (6)(A)(B), which the EPA has not approved.