

Subpart Monitoring Requirements	40 CFR 60 Subpart QQ – Standards of Performance for the Graphic Arts Industry: Publication Rotogravure Printing	40 CFR 63 Subpart KK – National Emission Standards for the Printing and Publishing Industry	40 CFR 63 Subpart JJJJ – National Emission Standards for Hazardous Air Pollutants: Paper and Other Web Coating
Thermal Oxidizer (TO)	Not Applicable	<p>Continuous monitoring of oxidizer operating parameter (minimum combustion temperature). The average combustion temperature for all 3-hour periods must be <math>\geq</math> to the established parameter. Device shall have an accuracy of <math>\pm 1</math> percent of the temperature being monitored. Thermocouple or temperature sensor must be installed in the combustion chamber at a location in the combustion zone.</p> <p>Oxidizer operating parameter shall be determined from performance test data. Each performance test shall consist of 3 separate runs with each run conducted for at least one hour. Parameter is based on the time-weighted average of the values recorded during the performance test.</p> <p>Continuous monitoring of an appropriate capture system monitoring parameter as determined from performance test to measure capture efficiency. The capture system operating parameter is operated at an average value greater than or less than (as appropriate) the established value for each 3-hour period. See capture efficiency for more details.</p> <p><b><u>Alternative:</u></b></p> <p>Install a continuous emissions monitor (CEM) to determine the total organic volatile matter mass flow rate at both the inlet to and the outlet from the control device, such that the percent control efficiency can be calculated for each month.</p> <p>Conduct an initial performance test of capture efficiency and continuously monitor a site specific operating parameter to assure capture efficiency for each 3-hour period. See capture efficiency for more details.</p>	<p>Install, calibrate, maintain and operate temperature monitoring equipment according to the manufacturer’s specifications. The calibration of the chart recorder, data logger, or temperature indicator must be verified every 3 months or replaced. Device must be equipped with a continuous recorder and must have an accuracy of <math>\pm 1</math> percent of the temperature being monitored. Thermocouple or temperature sensor must be installed in the combustion chamber at a location in the combustion zone.</p> <p>During the performance test, you must establish the destruction or removal efficiency of the control device and establish the operating limits. Performance test consists of 3 test runs and each run must last at least one hour. Monitor and record the combustion temperature at least once every 15 minutes during each of the three test runs. You must monitor the temperature in the firebox of the thermal oxidizer or immediately downstream of the firebox before any substantial heat exchange occurs.</p> <p>The operating parameter limit is the average of the combustion temperatures determined from the test runs.</p> <p>The average combustion temperature in any 3-hour period must not fall below the established limit determined from the performance test.</p> <p>Demonstrate initial compliance through a performance test on capture efficiency and continuing compliance through continuous monitoring of capture system operating parameters (see capture efficiency for more detail).</p>

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Catalytic Oxidizer (CATOX)	Not Applicable	<p>Continuous monitoring of oxidizer operating parameter (minimum gas temperature upstream of the catalyst bed). The average catalytic bed inlet temperature for all 3-hour periods must be <math>\geq</math> to the established parameter. Device shall have an accuracy of <math>\pm 1</math> percent of the temperature being monitored. The thermocouple or temperature sensor must be installed in the vent stream at the nearest feasible point to the catalyst bed inlet.</p> <p>Oxidizer operating parameter shall be determined from performance test data. Each performance test shall consist of 3 separate runs with each run conducted for at least one hour. Parameter is based on the time-weighted average of the values recorded during the performance test.</p> <p>Continuous monitoring of an appropriate capture system monitoring parameter as determined from performance test to measure capture efficiency. The capture system operating parameter is operated at an average value greater than or less than (as appropriate) the established value for each 3-hour period. See capture efficiency for more detail.</p> <p><b><u>Alternative:</u></b> Install CEMs to determine the total organic volatile matter mass flow rate at both the inlet to and the outlet from the control device, such that the percent control efficiency can be calculated for each month..</p> <p>Conduct an initial performance test of capture efficiency and continuously monitor a site specific operating parameter to assure capture efficiency for each 3-hour period. See capture efficiency for more detail.</p>	<p>Install, calibrate, maintain and operate temperature monitoring equipment according to the manufacturer’s specifications. The calibration of the chart recorder, data logger, or temperature indicator must be verified every 3 months or replaced. The thermocouple or temperature sensor must be installed in the vent stream at the nearest feasible point to the inlet and outlet of the catalyst bed. Calculate the temperature rise across the catalyst.</p> <p>During the performance test, you must establish the destruction or removal efficiency of the control device and establish the operating limits. Performance test consists of 3 test runs and each run must last at least one hour.</p> <p>Establish the operating limits by doing one of the following during the performance test:</p> <p>Monitor and record the temperature just before the catalyst bed and the temperature difference across the catalyst bed at least once every 15 minutes during each of the 3 test runs. Use recorded data to calculate the average temperature just before the catalyst bed and the average temperature difference across the catalyst bed. These are your minimum operating limits for the oxidizer. The average temperature at the inlet to the catalyst bed in any 3-hour period must not fall below the combustion temperature limit established from the performance test.</p> <p><b><u>Alternative:</u></b> Monitor temperature at the inlet to the catalyst bed and implement a site-specific inspection and maintenance plan for the catalytic oxidizer. During the performance test, monitor and record the temperature just before the catalyst bed at least once every 15 minutes during each of the 3 test runs. Use this data to calculate the average temperature just before the catalyst bed. This is the minimum operating limit. The temperature rise across the catalyst bed must not fall below the limit established from the performance test.</p> <p>If you use this option, you must develop and implement an inspection and maintenance plan for your catalytic oxidizer. The plan must include the following:</p>

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Catalytic Oxidizer (CATOX) (Continued)			<p>1) Annual sampling and analysis of the catalyst activity.  2) Monthly inspection of the oxidizer system including the burner assembly and fuel supply lines for problems.  3) Annual internal and monthly external visual inspection of the catalyst bed to check for channeling, abrasion and settling.</p> <p>Demonstrate initial compliance through a performance test on capture efficiency and continuing compliance through continuous monitoring of capture system operating parameters (see capture efficiency for more detail).</p>
Continuous Parameter Monitoring System (CPMS)	Not Applicable	<p>Conduct quarterly audits for all CEMs.</p> <p>All temperature monitoring equipment shall require that the calibration of the chart recorder, data logger, or temperature indicator be verified every 3 months.</p> <p>Or</p> <p>The equipment shall be replaced. The replacement should be done if the facility chooses not to perform the calibration or if the equipment cannot be calibrated properly .</p>	<p>Each CPMS must complete a minimum of 1 cycle of operation for each successive 15-minute period. Must have a minimum of 4 equally spaced successive cycles of CPMS operation to have valid 1-hour data.</p> <p>Must have valid data from at least 90% of the hours during which the process is operated.</p> <p>A valid hourly average must consist of at least 3 of four equally spaced data values from that hour from a CPMS that is not out-of-control.</p> <p>You must determine the rolling 3-hour average of all recorded readings for each operating period. To calculate the average for each 3-hour averaging period, you must have at least 2 of 3 of the hourly averages for that period using only average values that are based on valid data.</p> <p>You must record the results of each inspection, calibration and validation check of the CPMS.</p> <p>At all times, maintain the monitoring system in proper working order and maintain necessary parts for routine repairs of the monitoring equipment.</p> <p>Except for monitoring malfunctions, associated repairs or required quality assurance or control activities, conduct monitoring at all times that the unit is operating.</p>

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Thermal Oxidizer (TO) and Catalytic Oxidizer (CATOX) Alternate Monitoring	Not Applicable	Not Applicable	Install a PTE (must meet requirements of section 6 of EPA Method 204 of 40 CFR part 51, appendix M) around the web coating line that achieves 100% capture efficiency and ventilation of all organic HAP emissions from the total enclosure to an oxidizer with an outlet organic HAP concentration $\leq 20$ ppmv by compound on a dry basis. Use a CEMs to determine the organic HAP emission rate. If the concentration at the outlet of the incinerator is demonstrated to be no more than 20 ppmv by compound on a dry basis, you are in compliance.
Solvent Recovery Unit (SRU)	After completion of performance test, the affected facility using waterborne ink systems or solvent-borne ink systems with solvent recovery systems shall record amount of solvent and water used, solvent recovered and estimated emission percentage for each performance averaging period. The performance averaging period for monitoring of proper operation and maintenance is 30 calendar days (month) or 4 consecutive weeks.	<p><b>Liquid-liquid material balance on a monthly basis requires:</b></p> <p>Install, calibrate, maintain and operate a device (according to manufacturer's specifications) that indicates the cumulative amount of volatile matter recovered by the solvent recovery unit on a monthly basis. Initially certified by the manufacturer to be accurate within <math>\pm 2</math> %.</p> <p><b>Alternative:</b></p> <p>Install CEMs to determine the total organic volatile matter mass flow rate at both the inlet to and the outlet from the control device, such that the control device efficiency can be calculated for each month.</p> <p>Conduct an initial performance test of capture efficiency and continuously monitor a site specific operating parameter to assure capture efficiency is being maintained for each 3-hour period. See capture efficiency for more detail.</p>	<p><b>Liquid-liquid material balance on a monthly basis requires:</b></p> <p>Install, calibrate, maintain and operate a device (according to manufacturer's specifications) that indicates the cumulative amount of volatile matter recovered by the solvent recovery unit on a monthly basis. Initially certified by the manufacturer to be accurate within <math>\pm 2.0</math> % by mass.</p> <p><b>Alternative:</b></p> <p>Install CEMs to determine the total organic volatile matter mass flow rate at both the inlet to and the outlet from the control device, such that the control device efficiency can be calculated for each month.</p> <p>You must follow the quality assurance procedures in procedure 1, appendix F of 40 CFR part 60. Conduct quarterly audits.</p> <p>You must have valid data from at least 90 percent of the hours during which the process is operated.</p> <p>Demonstrate initial compliance through a performance test on capture efficiency and continuing compliance through continuous monitoring of capture system operating parameters (see capture efficiency for more detail).</p>

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Bypass Indication for Control Devices	Not Applicable	<p><b>If operations consist of intermittently-controllable work stations, then follow one of the following procedures:</b></p> <p>1) Install, calibrate, maintain and operate a flow control position indicator that provides a record indicating whether the exhaust stream from the dryer was directed to the control device or was diverted from the control device. The time and control position must be recorded at least once per hour, as well as every time the flow direction is changed. Install at the entrance to any bypass line.</p> <p>2) Secure a bypass line valve in the closed position with a car-seal or a lock-and-key type configuration; a visible inspection of the seal or closure mechanism shall be performed at least once every month to ensure that the valve or damper is maintained in the closed position and the exhaust stream is not diverted through the bypass line.</p> <p>3) Ensure that any bypass line valve or damper is in the closed position through continuous monitoring of valve position. The monitoring system shall be inspected at least once every month to ensure that it is functioning properly.</p> <p>4) Use an automatic shutdown system in which the press is stopped when flow is diverted away from the control device to any bypass line. The automatic system shall be inspected at least once every month to ensure proper functioning.</p>	<p><b>If operations consist of intermittently-controllable work stations, then follow one of the following procedures:</b></p> <p>1) Install, calibrate, maintain and operate a flow control position indicator that provides a record indicating whether the exhaust stream from the dryer was directed to the control device or was diverted from the control device. The time and control position must be recorded at least once per hour, as well as every time the flow direction is changed. Install at the entrance to any bypass line.</p> <p>2) Secure a bypass line valve in the closed position with a car-seal or a lock-and-key type configuration; a visible inspection of the seal or closure mechanism shall be performed at least once every month to ensure that the valve or damper is maintained in the closed position and the exhaust stream is not diverted through the bypass line.</p> <p>3) Ensure that any bypass line valve or damper is in the closed position through continuous monitoring of valve position. The monitoring system shall be inspected at least once every month to ensure that it is functioning properly.</p> <p>4) Use an automatic shutdown system in which the web coating line is stopped when flow is diverted away from the control device to any bypass line when the device is in operation. The automatic system shall be inspected at least once every month to ensure proper functioning.</p> <p>Must monitor bypasses of the control device and the mass of each coating material applied at the work station during any such bypass.</p>

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Capture Efficiency	Not Applicable	<p>If a permanent total enclosure (PTE), capture efficiency is assumed to be 100%. Procedure T-Criteria for a Verification of a Permanent or Temporary Total Enclosure as found in Appendix B to Section 52.741 of part 52 shall be used to confirm that an enclosure meets the requirements for permanent total enclosures.</p> <p>If not a PTE, conduct a performance test to determine capture efficiency.</p> <p><b><u>Capture Efficiency Plan:</u></b></p> <p>If you are complying with the emission standards through the use of capture system and control device, develop a plan that contains the following:</p> <ol style="list-style-type: none"> <li>1) Identifies the operating parameter to be monitored to ensure that the capture efficiency measured during the initial compliance test is maintained.</li> <li>2) Discuss why this parameter is appropriate for demonstrating ongoing compliance.</li> <li>3) Identify the specific monitoring procedures.</li> </ol> <p>Must conduct monitoring in accordance with the plan unless comments received from the Administrator require an alternate monitoring scheme.</p> <p>Any excursion from the required operating parameters shall be considered a violation of the emission standard.</p>	<p>If a permanent total enclosure (PTE), capture efficiency is assumed to be 100%. Section 6 of EPA Method 204 of 40 CFR part 51, appendix M shall be used to confirm that an enclosure meets the requirements for permanent total enclosures.</p> <p>If not a PTE, conduct a performance test to determine capture efficiency.</p> <p><b><u>Capture Efficiency Plan for Continuous Parameter Monitoring Systems (CPMS):</u></b></p> <p>If you use a capture system and control device for one or more web coating lines, you must develop a site-specific monitoring plan containing the following:</p> <ol style="list-style-type: none"> <li>1) Identify the operating parameter to be monitored to ensure capture efficiency</li> <li>2) Explain why this parameter is appropriate for demonstrating ongoing compliance</li> <li>3) Identify the specific monitoring procedures.</li> <li>4) Specify the operating parameter value or range of values that demonstrate compliance with the emission standards. These values must represent conditions present when the capture system is being properly operated and maintained.</li> </ol> <p>Conduct all capture system monitoring in accordance with the plan and any deviation from the operating parameter value or range of values, monitored by the plan, will be considered a deviation from the operating limit.</p> <p>You must review and update the capture system monitoring plan at least annually.</p>