Step-by-Step C Compliance Demonstration
Overall Control Efficiency, Single Oxidizer
'63.3370(e) and (k)

Overview: This approach is valid when using a single capture system and a single oxidizer **on always controlled work stations** to demonstrate compliance with the volatile organic matter collection and recovery efficiency. If you have one or more intermittently-controlled work station or one or more never-controlled work station, you must use Step-by-Step I.

MACT limits

Existing Affected Sources
R = ≥ 95%

New Affected Sources
R = ≥ 98%

In this approach, a facility needs to:

1. Demonstrate the efficiency of the capture system.
2. Demonstrate the destruction efficiency of control device.
3. Calculate the overall control efficiency.
4. Compare the overall monthly efficiencies to MACT control requirements.
5. Maintain monitoring and other compliance records.

Detailed Approach	Citation
1. Demonstrate efficiency of the capture system through one of the following methods: • Install a Permanent Total Enclosure (PTE) and demonstrate that enclosure meets the requirements of Section 6 of EPA Method 204 [§63.3360(f)(1)]. • Determine capture efficiency according to the protocols for testing with temporary total enclosures as spelled out in Method 204 and 204A through F of 40 CFR part 51, Appendix M [§63.3360(f)(2)]. • Determine capture efficiency using any protocol and test method that satisfies the criteria of either the Data Quality Objective or the Lower Confidence Limit approach (40 CFR part 63, subpart KK, Appendix A) [§63.3360(f)(3)].	'63.3370(k)(1)(ii)
2. Demonstrate the destruction efficiency of the control device. Use the following methods and procedural requirements • Conduct an initial performance test to establish the destruction efficiency of the control device such that the control device inlet and outlet testing is conducted simultaneously and the data is reduced in accordance with test methods and procedures identified under '63.3360(e)(1)(i) through (x). • For each run, calculate emission reduction using Equation 2 of §63.3360(e)(1)(ix). • Record such process information as may be necessary to determine the conditions in existence at the time of the performance test ['63.3360(e)(2)] • Establish applicable operating limits for the control device as required by '63.3321 and by '63.3360(e)(3)(i) for thermal oxidation devices and '63.3360(e)(3)(ii) for catalytic oxidation devices	'63.3370(k)(1)(i)

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3. Monitor operating parameters established for the oxidizer • For each **oxidizer (not including catalytic oxidizers)**, install, calibrate, maintain, and operate a temperature monitoring device equipped with a continuous recorder, and with an accuracy of ± 1 percent of the temperature being monitored (^{o}C), or ± 1 ^{o}C, whichever is greater. Install the thermocouple or sensor in the combustion zone of the combustion chamber ['63.3350(e)(9)(ii)]. • For each **catalytic oxidizer,** install, calibrate, maintain, and operate a temperature monitoring device equipped with a continuous recorder, and with an accuracy of ± 1 percent of the temperature being monitored (^{o}C), or ± 1 ^{o}C, whichever is greater. Install the thermocouple or sensor in the vent stream at the nearest feasible point to the inlet or outlet of the catalyst bed. Calculate temperature rise across the catalyst ['63.3350(e)(9)(iii)]. • Install, calibrate, maintain, and operate temperature monitoring equipment according to manufacturer specifications. Verify the calibration of the chart recorder, data logger, or temperature indicator every three months ['63.3350(e)(9)(i)]. • Develop a capture system monitoring plan and monitor capture system operating parameters as specified in the monitoring plan ['63.3350(f)].	'63.3370(k)(1)(iii)
4. Calculate overall control efficiency • Calculate overall efficiency, R, using Equation 11 of §63.3370(i)(2)(iv). Providing a facility employs a control system meeting 100 capture efficiency, the facility may meet the MACT limit by demonstrating that an outlet organic HAP concentration of no greater than 20 ppmv by	§63.3370(k)(2)(i)
5. Compare Overall Efficiencies to MACT control requirements. • You are in compliance if R is equal to or greater than the 95 percent for existing affected sources or 98 percent for new affected sources	§63.3370(k)(3)(i)
6. Maintain monitoring and other compliance records. • Develop and implement an inspection and maintenance plan for your catalytic oxidizer if you choose to monitor the catalyst bed inlet temperature only. • Maintain average oxidizer parameter value (3-hr block averages) at or above the level established during initial performance test (see Step 2)	§63.3360(e)(3)(ii)(D) §63.3370(k)(3)

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• Maintain parameter selected to demonstrate capture efficiency within accepted ranges.	§63.3370(k)(3)
• Maintain records of continuous emission monitoring data	'63.3410(a)(1)(i)
• Maintain records of control device and capture system operating parameter data	'63.3410(a)(1)(ii)
• Maintain records of overall control efficiency determination using capture efficiency and control device destruction efficiency or removal efficiency test results	'63.3410(a)(1)(v)
• Other records required for CMS under '63.10(c)	'63.3410(a)(2)

Per §63.3370(e)(3):
As an alternative to demonstrating compliance through the above approach, a facility can: install a PTE that meets the EPA Method 204 requirements (i.e., Step 1), install a Continuous Emission Monitor (CEM) for measuring organic HAPs, and demonstrate that the outlet concentration of organic HAPs is no greater than 20 ppmv (dry) on a continuous basis. Note: the capture efficiency for this approach must be 100 percent (i.e., a PTE)

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