

Environmental Protection Agency

Pt. 63, Subpt. UUU, Table 28

For . . .	For this emission limit . . .	You shall demonstrate continuous compliance during coke burn-off and catalyst rejuvenation by . . .	For . . .	For this emission limit . . .	You shall demonstrate continuous compliance during coke burn-off and catalyst rejuvenation by . . .
1. Each existing semi-regenerative catalytic reforming unit.	Reduce uncontrolled emissions of HCl by 92 percent by weight or to a concentration of 30 ppmv (dry basis), corrected to 3 percent oxygen.	Maintaining a 92 percent HCl emission reduction or an HCl concentration no more than 30 ppmv (dry basis), corrected to 3 percent oxygen.	3. Each new semi-regenerative, cyclic, or continuous catalytic reforming unit.	Reduce uncontrolled emissions of HCl by 97 percent by weight or to a concentration of 10 ppmv (dry basis), corrected to 3 percent oxygen.	Maintaining a 97 percent HCl control efficiency or an HCl concentration no more than 10 ppmv (dry basis), corrected to 3 percent oxygen.
2. Each existing cyclic or continuous catalytic reforming unit.	Reduce uncontrolled emissions of HCl by 97 percent by weight or to a concentration of 10 ppmv (dry basis), corrected to 3 percent oxygen.	Maintaining a 97 percent HCl control efficiency or an HCl concentration no more than 10 ppmv (dry basis), corrected to 3 percent oxygen.			

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TABLE 28 TO SUBPART UUU OF PART 63—CONTINUOUS COMPLIANCE WITH OPERATING LIMITS FOR INORGANIC HAP EMISSIONS FROM CATALYTIC REFORMING UNITS

As stated in §63.1567(c)(1), you shall meet each requirement in the following table that applies to you.

For each new and existing catalytic reforming unit using this type of control device or system . . .	For this operating limit . . .	You shall demonstrate continuous compliance during coke burn-off and catalyst rejuvenation by . . .
1. Wet scrubber .....	<p>a. The daily average pH or alkalinity of the water (or scrubbing liquid) exiting the scrubber must not fall below the level established during the performance test.</p> <p>b. The daily average liquid-to-gas ratio must not fall below the level established during the performance test.</p>	<p>Collecting the hourly and daily average pH or alkalinity monitoring data according to §63.1572<sup>1</sup>; and maintaining the daily average pH or alkalinity above the operating limit established during the performance test.</p> <p>Collecting the hourly average gas flow rate<sup>2</sup> and total water (or scrubbing liquid) flow rate monitoring data according to §63.1572; and determining and recording the hourly average liquid-to-gas ratio; and determining and recording the daily average liquid-to-gas ratio; and maintaining the daily average liquid-to-gas ratio above the limit established during the performance test.</p>
2. Internal scrubbing system or no control device (e.g., hot regen system) meeting HCl concentration limit.	The daily average HCl concentration in the catalyst regenerator exhaust gas must not exceed the limit established during the performance test.	Measuring and recording the HCl concentration at least 4 times during a regeneration cycle (equally spaced in time) or every 4 hours, whichever is more frequent, using a colorimetric tube sampling system; calculating the daily average HCl concentration as an arithmetic average of all samples collected in each 24-hour period from the start of the coke burn-off cycle or for the entire duration of the coke burn-off cycle if the coke burn-off cycle is less than 24 hours; and maintaining the daily average HCl concentration below the applicable operating limit.
3. Internal scrubbing system meeting percent HCl reduction standard.	a. The daily average pH or alkalinity of the water (or scrubbing liquid) exiting the internal scrubbing system must not fall below the limit established during the performance test.	Collecting the hourly and daily average pH or alkalinity monitoring data according to §63.1572 <sup>1</sup> and maintaining the daily average pH or alkalinity above the operating limit established during the performance test.

Pt. 63, Subpt. UUU, Table 28

40 CFR Ch. I (7–1–14 Edition)

For each new and existing catalytic reforming unit using this type of control device or system . . .	For this operating limit . . .	You shall demonstrate continuous compliance during coke burn-off and catalyst rejuvenation by . . .
4. Fixed-bed gas-solid adsorption systems.	<p>b. The daily average liquid-to-gas ratio must not fall below the level established during the performance test.</p> <p>a. The daily average temperature of the gas entering or exiting the adsorption system must not exceed the limit established during the performance test.</p> <p>b. The HCl concentration in the exhaust gas from the fixed-bed gas-solid adsorption system must not exceed the limit established during the performance test.</p>	<p>Collecting the hourly average gas flow rate<sup>2</sup> and total water (or scrubbing liquid) flow rate monitoring data according to § 63.1572; and determining and recording the hourly average liquid-to-gas ratio; and determining and recording the daily average liquid-to-gas ratio; and maintaining the daily average liquid-to-gas ratio above the limit established during the performance test.</p> <p>Collecting the hourly and daily average temperature monitoring data according to § 63.1572; and maintaining the daily average temperature below the operating limit established during the performance test.</p> <p>Measuring and recording the concentration of HCl weekly or during each regeneration cycle, whichever is less frequent, using a colorimetric tube sampling system at a point within the adsorbent bed not to exceed 90 percent of the total length of the adsorption bed during coke burn-off and catalyst rejuvenation; implementing procedures in the operating and maintenance plan if the HCl concentration at the sampling location within the adsorption bed exceeds the operating limit; and maintaining the HCl concentration in the gas from the adsorption system below the applicable operating limit.</p>
5. Moving-bed gas-solid adsorption system (e.g., Chlorsorb™ System).	<p>a. The daily average temperature of the gas entering or exiting the adsorption system must not exceed the limit established during the performance test.</p> <p>b. The weekly average chloride level on the sorbent entering the adsorption system must not exceed the design or manufacturer's recommended limit (1.35 weight percent for the Chlorsorb™).</p> <p>c. The weekly average chloride level on the sorbent exiting the adsorption system must not exceed the design or manufacturer's recommended limit (1.8 weight percent for the Chlorsorb™ System).</p>	<p>Collecting the hourly and daily average temperature monitoring data according to § 63.1572; and maintaining the daily average temperature below the operating limit established during the performance test.</p> <p>Collecting samples of the sorbent exiting the adsorption system three times per week (on non-consecutive days); and analyzing the samples for total chloride<sup>3</sup>; and determining and recording the weekly average chloride concentration; and maintaining the chloride concentration below the design or manufacturer's recommended limit (1.35 weight percent for the Chlorsorb™ System).</p> <p>Collecting samples of the sorbent exiting the adsorption system three times per week (on non-consecutive days); and analyzing the samples for total chloride concentration; and determining and recording the weekly average chloride concentration; and maintaining the chloride concentration below the design or manufacturer's recommended limit (1.8 weight percent Chlorsorb™ System).</p>

<sup>1</sup> If applicable, you can use either alternative in § 63.1573(b) instead of a continuous parameter monitoring system for pH or alkalinity if you used the alternative method in the initial performance test.

<sup>2</sup> If applicable, you can use the alternative in § 63.1573(a)(1) instead of a continuous parameter monitoring system for the gas flow rate or cumulative volume of gas entering or exiting the system if you used the alternative method in the initial performance test.

<sup>3</sup> The total chloride concentration of the sorbent material must be measured by the procedure, "Determination of Metal Concentration on Catalyst Particles (Instrumental Analyzer Procedure)" in appendix A to this subpart; or by using EPA Method 5050, Bomb Preparation Method for Solid Waste, combined either with EPA Method 9056, Determination of Inorganic Anions by Ion Chromatography, or with EPA Method 9253, Chloride (Titrimetric, Silver Nitrate); or by using EPA Method 9212, Potentiometric Determination of Chloride in Aqueous Samples with Ion-Selective Electrode, and using the soil extraction procedures listed within the method. The EPA Methods 5050, 9056, 9212 and 9253 are included in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846, Revision 5 (April 1998). The SW-846 and Updates (document number 955-001-00000-1) are available for purchase from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402, (202) 512-1800; and from the National Technical Information Services (NTIS), 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4650. Copies may be inspected at the EPA Docket Center (Air Docket), EPA West, Room B-108, 1301 Constitution Ave., NW., Washington, DC; or at the Office of the Federal Register, 800 North Capitol Street, NW., Suite 700, Washington, DC. These methods are also available at <http://www.epa.gov/epaoswer/hazwaste/test/main.htm>.