

Environmental Protection Agency

§ 98.54

AF_N = Abatement factor of N_2O abatement technology (fraction of annual production that abatement technology is operating).

P_a Abate = Annual adipic acid production during which N_2O abatement was used.

P_a = Total annual adipic acid production (ton acid produced).

(f) You must determine the annual amount of adipic acid produced and the

annual adipic acid production during which N_2O abatement is operating.

(g) You must calculate annual adipic acid production process emissions of N_2O by multiplying the emissions factor (determined using Equation E-1 of this section) by the total annual adipic acid production and accounting for N_2O abatement, according to Equation E-3 of this section:

$$N_2O = \sum_1^N \frac{EF_{N_2O} * P_a * (1 - (DF_N * AF_N))}{2205} \quad (\text{Eq. E-3})$$

Where:

N_2O = Annual N_2O mass emissions from adipic acid production (metric tons).

EF_{N_2O} = Facility-specific N_2O emissions factor (lb N_2O generated/ton adipic acid produced).

P_a = Annual adipic acid produced (tons).

DF_N = Destruction efficiency of N_2O abatement technology N (abatement device destruction efficiency, percent of N_2O removed from air stream).

AF_N = Abatement factor of N_2O abatement technology N (fraction of annual production abatement technology is operating).

2205 = Conversion factor (lb/metric ton).

N = Number of different N_2O abatement technologies.

(h) You must determine the amount of process N_2O emissions that is sold or transferred off site (if applicable). You can determine the amount using existing process flow meters and N_2O analyzers.

§ 98.54 Monitoring and QA/QC requirements.

(a) You must conduct a new performance test and calculate a new facility-specific emissions factor according to the frequency specified in paragraphs (a)(1) through (a)(3) of this section.

(1) Conduct the performance test annually.

(2) Conduct the performance test when your adipic acid production process is changed either by altering the ratio of cyclohexanone to cyclohexanol or by installing abatement equipment.

(3) If you requested Administrator approval for an alternative method of determining N_2O concentration under § 98.53(a)(2), you must conduct the per-

formance test if your request has not been approved by the Administrator within 150 days of the end of the reporting year in which it was submitted.

(b) You must measure the N_2O concentration during the performance test using one of the methods in paragraphs (b)(1) through (b)(3) of this section.

(1) EPA Method 320, Measurement of Vapor Phase Organic and Inorganic Emissions by Extractive Fourier Transform Infrared (FTIR) Spectroscopy in 40 CFR part 63, appendix A;

(2) ASTM D6348-03 Standard Test Method for Determination of Gaseous Compounds by Extractive Direct Interface Fourier Transform Infrared (FTIR) Spectroscopy (incorporated by reference, see § 98.7); or

(3) An equivalent method, with Administrator approval.

(c) You must determine the production rate(s) during the performance test according to paragraph (c)(1) or (c)(2) of this section.

(1) Direct measurement (such as using flow meters or weigh scales).

(2) Existing plant procedures used for accounting purposes.

(d) You must conduct all required performance tests according to the methods in § 98.54(b) in conjunction with the applicable EPA methods in 40 CFR part 60, appendices A-1 through A-4. Conduct three emissions test runs of 1 hour each. All QA/QC procedures specified in the reference test methods and any associated performance specifications apply. For each test, the facility must prepare an emissions factor

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determination report that must include the items in paragraphs (d)(1) through (d)(3) of this section:

(1) Analysis of samples, determination of emissions, and raw data.

(2) All information and data used to derive the emissions factor.

(3) The production rate(s) during the performance test and how each production rate was determined.

(e) You must determine the monthly adipic acid production quantity and the monthly adipic acid production during which N₂O abatement technology is operating according to the methods in paragraphs (c)(1) or (c)(2) of this section.

(f) You must determine the annual adipic acid production quantity and the annual adipic acid production quantity during which N₂O abatement technology is operating by summing the respective monthly adipic acid production quantities.

§ 98.55 Procedures for estimating missing data.

A complete record of all measured parameters used in the GHG emissions calculations is required. Therefore, whenever a quality-assured value of a required parameter is unavailable, a substitute data value for the missing parameter shall be used in the calculations as specified in paragraphs (a) and (b) of this section.

(a) For each missing value of monthly adipic acid production, the substitute data shall be the best available estimate based on all available process data or data used for accounting purposes (such as sales records).

(b) For missing values related to the performance test, including emission factors, production rate, and N₂O concentration, you must conduct a new performance test according to the procedures in § 98.54 (a) through (d).

§ 98.56 Data reporting requirements.

In addition to the information required by § 98.3(c), each annual report must contain the information specified in paragraphs (a) through (k) of this section at the facility level:

(a) Annual process N₂O emissions from adipic acid production (metric tons).

(b) Annual adipic acid production (tons).

(c) Annual adipic acid production during which N₂O abatement technology is operating (tons).

(d) Annual process N₂O emissions from adipic acid production facility that is sold or transferred off site (metric tons).

(e) Number of abatement technologies (if applicable).

(f) Types of abatement technologies used (if applicable).

(g) Abatement technology destruction efficiency for each abatement technology (percent destruction).

(h) Abatement utilization factor for each abatement technology (fraction of annual production that abatement technology is operating).

(i) Number of times in the reporting year that missing data procedures were followed to measure adipic acid production (months).

(j) If you conducted a performance test and calculated a site-specific emissions factor according to § 98.53(a)(1), each annual report must also contain the information specified in paragraphs (j)(1) through (j)(7) of this section for each adipic acid production facility.

(1) Emissions factor (lb N₂O/ton adipic acid).

(2) Test method used for performance test.

(3) Production rate per test run during performance test (tons/hr).

(4) N₂O concentration per test run during performance test (ppm N₂O).

(5) Volumetric flow rate per test run during performance test (dscf/hr).

(6) Number of test runs.

(7) Number of times in the reporting year that a performance test had to be repeated (number).

(k) If you requested Administrator approval for an alternative method of determining N₂O concentration under § 98.53(a)(2), each annual report must also contain the information specified in paragraphs (k)(1) through (k)(4) of this section for each adipic acid production facility.

(1) Name of alternative method.

(2) Description of alternative method.

(3) Request date.

(4) Approval date.