

# Adipic Acid Production



## Final Rule: Mandatory Reporting of Greenhouse Gases

*Under the Mandatory Reporting of Greenhouse Gases (GHGs) rule, owners or operators of facilities that produce adipic acid (as defined below) must report emissions from adipic acid production processes and all other source categories located at the facility for which methods are defined in the rule. Owners or operators are required to collect emission data; calculate GHG emissions; and follow the specified procedures for quality assurance, missing data, recordkeeping, and reporting.*

### How Is This Source Category Defined?

The adipic acid production source category consists of all processes that use oxidation to produce adipic acid.

### What GHGs Must Be Reported?

Adipic acid production facilities must report nitrous oxide (N<sub>2</sub>O) process emissions from all adipic acid production units combined.

In addition, each facility must report GHG emissions for other source categories for which calculation methods are provided in the rule. For example, facilities must report carbon dioxide (CO<sub>2</sub>), N<sub>2</sub>O, and methane (CH<sub>4</sub>) emissions from each stationary combustion unit on site by following the requirements of 40 CFR part 98, subpart C (General Stationary Fuel Combustion Sources). Please refer to the relevant information sheet for a summary of the rule requirements for calculating and reporting emissions from any other source categories at the facility.

### How Must GHG Emissions Be Calculated?

Calculate and sum N<sub>2</sub>O emissions for each adipic acid production unit using one of the following two options:

- Calculate N<sub>2</sub>O process emissions from adipic acid production by multiplying a site-specific emission factor by the annual adipic acid production level.
  - Perform an annual performance test to measure N<sub>2</sub>O emissions rate from the vent stream of each oxidation process and using the production rate recorded during the test.
  - Adjust the N<sub>2</sub>O process emissions for the amount of N<sub>2</sub>O removed, if applicable. Facilities that use N<sub>2</sub>O abatement devices (such as nonselective catalytic reduction) after the test point must determine a destruction factor for the abatement technology, the percent of time the control device operated, and the percentage of the vent stream that was directed to the abatement technology. The destruction efficiency can be determined through process knowledge or test data, or can be based on information specified by the abatement device manufacturer.
  - Calculate the site-specific emission factor using the N<sub>2</sub>O emission rate and the adipic acid production rate measured during the performance test.
- Directly measure N<sub>2</sub>O emissions using an EPA-approved alternative method to the site-specific emission factor. Any alternative must be approved by the Administrator before being used.

A checklist for data that must be monitored is available at:  
[www.epa.gov/ghgreporting/documents/pdf/checklists/adipicacidproduction.pdf](http://www.epa.gov/ghgreporting/documents/pdf/checklists/adipicacidproduction.pdf).

## **When Must Reports be Submitted?**

The submission date for the annual GHG report can vary in the first 3 years of the program.

- Reporting Year 2010. The report was required to be submitted by September 30, 2011.
  
- Reporting Year 2011. The due date depends on which source categories are included in the report. If the report includes one or more of the source categories listed below, then the report must be submitted by September 28, 2012. This reporting deadline applies to all subparts being reported by the facility. In addition, if the facility contains one or more of these source categories and the facility submitted a GHG annual report for reporting year 2010 under another subpart (e.g., subpart C for general stationary fuel combustion), then by April 2, 2012 you must notify EPA through e-GGRT that you are not required to submit the second annual report until September 28, 2012 (the notification deadline according to 4 CFR 98.3(b) is March 31, 2012, however, because this date falls on a Saturday in 2012, the notification is due on the next business day).
  - Electronics Manufacturing (subpart I)
  - Fluorinated Gas Production (subpart L)
  - Magnesium Production (subpart T)
  - Petroleum and Natural Gas Systems (subpart W)
  - Use of Electric Transmission and Distribution Equipment (subpart DD)
  - Underground Coal Mines (subpart FF)
  - Industrial Wastewater Treatment (subpart II)
  - Geologic Sequestration of Carbon Dioxide (subpart RR)
  - Manufacture of Electric Transmission and Distribution (subpart SS)
  - Industrial Waste Landfills (subpart TT)
  - Injection of Carbon Dioxide (subpart UU)
  - Imports and Exports of Equipment Pre-charged with Fluorinated GHGs or Containing Fluorinated GHGs in Closed-cell Foams (subpart QQ)

If the report contains none of the source categories listed above, then the report must be submitted by April 2, 2012 (the deadline is March 31, 2012, however, because this date falls on a Saturday, the annual report is due on the next business day).

- Reporting Year 2012. Starting in 2013 and each year thereafter, the report must be submitted by March 31 of each year, unless the 31st is a Saturday, Sunday, or federal holiday, in which case the reports are due on the next business day.

## What Information Must Be Reported?

In addition to the information required by the General Provisions at 40 CFR 98.3(c), adipic acid production facilities must report the following information at the facility level:

- Annual process N<sub>2</sub>O emissions (metric tons).
- Annual adipic acid production (tons).
- Annual adipic acid production during which N<sub>2</sub>O abatement technology is operating (tons).
- Annual amount of process N<sub>2</sub>O emissions from the adipic acid process that is sold or transferred off site (metric tons).
- Number of different abatement technologies (if applicable).
- Type of abatement technology or technologies used (if applicable).
- Abatement technology destruction efficiency for each abatement technology (percent destruction).
- Abatement utilization factor for each abatement technology (fraction of annual production that abatement technology is operating).
- Number of times in the reporting year that missing data procedures were followed to measure adipic acid production (months).

If a performance test was conducted and a site-specific emission factor was calculated, the following information must also be reported for each adipic acid production unit:

- Emission factor (lb N<sub>2</sub>O/ton adipic acid).
- Test method used for performance test.
- Production rates during performance test (tons/hr).
- N<sub>2</sub>O concentration during performance test (parts per million N<sub>2</sub>O).
- Volumetric flow rate during performance test (dry standard cubic feet/hr).
- Number of test runs.
- Number of times in the reporting year that a performance test had to be repeated (number).

If Administrator approval for an alternative method of determining N<sub>2</sub>O emissions was requested, each annual report must also contain the following information:

- Name of alternative method.
- Description of alternative method.
- Request date.
- Approval date.

EPA has temporarily deferred the requirement to report data elements in the above list that are used as inputs to emission equations (76 FR 53057, August 25, 2011). For the current status of reporting requirements, including the list of data elements that are considered to be inputs to emissions equations, consult the following link: <http://www.epa.gov/ghgreporting/reporters/cbi/index.html>

## For More Information

This document is provided solely for informational purposes. It does not provide legal advice, have legally binding effect, or expressly or implicitly create, expand, or limit any legal rights, obligations, responsibilities, expectations, or benefits in regard to any person. The series of information sheets is intended to assist reporting facilities/owners in understanding key provisions of the final rule.

Visit EPA's Web site ([www.epa.gov/ghgreporting/reporters/index.html](http://www.epa.gov/ghgreporting/reporters/index.html)) for more information, including the final preamble and rule, additional information sheets on specific industries, the schedule for training sessions, and other documents and tools. For questions that cannot be answered through the Web site, please contact us at: [GHGreporting@epa.gov](mailto:GHGreporting@epa.gov).