

# HCFC-22 Production and HFC-23 Destruction

## Final Rule: Mandatory Reporting of Greenhouse Gases



*Under the Mandatory Reporting of Greenhouse Gases (GHGs) rule, owners or operators of facilities that contain hydrochlorofluorocarbon-22 (HCFC-22) production or hydrofluorocarbon-23 (HFC-23) destruction processes (as defined below) must report emissions from HCFC-22 production, HFC-23 destruction 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?

This source category consists of:

- Processes that produce HCFC-22 (chlorodifluoromethane, or  $\text{CHClF}_2$ ) using chloroform and hydrogen fluoride.
- HFC-23 destruction processes located at HCFC-22 production facilities.
- HFC-23 destruction processes that destroy more than 2.14 metric tons of HFC-23 per year and that are not located at HCFC-22 production facilities.

## What GHGs Must Be Reported?

Facilities that produce HCFC-22 or destroy HFC-23 must report the following emissions:

- HFC-23 emissions from HCFC-22 production processes at the facility.
- HFC-23 emissions from HFC-23 destruction processes.

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 ( $\text{CO}_2$ ), nitrous oxide ( $\text{N}_2\text{O}$ ), and methane ( $\text{CH}_4$ ) emissions from each stationary combustion unit on site by following the requirements of 40 CFR 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?

Owners or operators must calculate HFC-23 emissions as follows:

- For HCFC-22 production processes that do not use a thermal oxidizer or that have a thermal oxidizer that is not connected to the production equipment, calculate annual HFC-23 emissions at the facility level using a mass balance equation and the following annual information:
  - Mass of HFC-23 generated (using one of two alternative estimation methods specified in the rule).
  - Mass of HFC-23 sent off site for sale.
  - Mass of HFC-23 sent off site for destruction.
  - Mass of HFC-23 destroyed on site (calculated by multiplying the mass of HFC-23 fed into the destruction device by the destruction efficiency).
  - Increase in the HFC-23 inventory.

- For HCFC-22 production processes with a thermal oxidizer that is connected to the production equipment, calculate annual HFC-23 emissions at the facility level using an equation and the following annual information:
  - Mass of HFC-23 emissions from equipment leaks (calculated using default emission factors and measured number of leaks in valves, pump seals, compressor seals, pressure relief valves, connectors, and open-ended lines).
  - Mass of HFC-23 emissions from process vents (calculated for each vent using the HFC-23 emission rate from the most recent emission test and the ratio of the actual production rate and the production rate during the performance test). Emission tests must be conducted every five years, or after significant changes to the process.
  - Mass of HFC-23 from the thermal oxidizer (calculated by subtracting the amount of HFC-23 destroyed by the destruction device from the measured mass of HFC-23 fed into the destruction device).
- For HFC-23 destruction processes, calculate HFC-23 emissions based on the mass of HFC-23 fed into the destruction device and the destruction efficiency.

For the destruction efficiency, the owner or operator must conduct a performance test or use the destruction efficiency determined during a previous performance test. To confirm the destruction efficiency, the owner or operator must measure the fluorinated GHG concentration at the outlet to the destruction device annually.

A checklist for data that must be monitored is available at:  
[www.epa.gov/ghgreporting/documents/pdf/checklists/HCFC-22-HFC-23.pdf](http://www.epa.gov/ghgreporting/documents/pdf/checklists/HCFC-22-HFC-23.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), the rule requires owners or operators to report the following information on an annual basis at the facility level:

- For each HCFC-22 production process, owners or operators must report:
  - Mass of HCFC-22 produced (metric tons).
  - Loss factor accounting for loss of HCFC-22 upstream of the measurement.
  - Reactants input to the HCFC-22 production process.
  - Mass of materials other than HCFC-22 and HFC-23 (e.g., unreacted reactants, hydrogen chloride [HCl], other byproducts) that occur in more than trace concentrations and that are permanently removed from the process.
  - Method for tracking startups, shutdowns, and malfunctions and the HFC-23 generation/emissions during these events.
  - Names and addresses of facilities to which HFC-23 was sent for destruction and the quantity of HFC-23 sent to each facility.
  - Mass of HFC-23 generated and emitted (metric tons).
  - Mass of HFC-23 sent off site for sale and for destruction (metric tons).
  - Mass of HFC-23 in storage at the beginning and end of the year (metric tons).
  - Mass of HFC-23 emitted from equipment leaks and process vents (metric tons).
- For each HFC-23 destruction process, owners or operators must report the following on an annual basis:
  - Mass of HFC-23 emissions from the thermal oxidizer.
  - Mass of HFC-23 fed into and destroyed by the thermal oxidizer.
  - The results of the annual emission measurements (and performance test, if applicable), including, as applicable, the HFC-23 flow rate into the destruction device, the flow rate of the gas at the outlet of the destruction device, the HFC-23 concentration in the gas at the outlet, and the calculated HFC-23 emission rate.
- Facilities with HFC-23 destruction processes are also required to submit a one-time report that must include the following:
  - Destruction efficiency.
  - Methods used to determine the destruction efficiency.
  - Methods used to record the amount of HFC-23 destroyed.

- Name of other relevant federal or state regulations that may apply to the destruction process.
- A revised report must be submitted if any changes are made that affect destruction efficiency or the HFC-23 measurement methods used

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).