

Pulp and Paper Manufacturing



Final Rule: Mandatory Reporting of Greenhouse Gases

Under the Mandatory Reporting of Greenhouse Gases (GHGs) rule, owners or operators of facilities that produce pulp or paper (as defined below) and that emit 25,000 metric tons or more of GHGs per year (expressed as carbon dioxide equivalents but excluding biogenic carbon dioxide [CO₂]) from pulp and paper manufacturing processes, stationary combustion, miscellaneous uses of carbonate, and other source categories (see information sheet on General Provisions) must report emissions. These sites must report emissions from pulp and paper processes and all source categories located at the facility for which calculation 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 facilities that produce market pulp (i.e., stand-alone pulp facilities), manufacture pulp and paper (i.e., integrated mills), produce paper products from purchased pulp, produce secondary fiber from recycled paper, convert paper into paperboard products (e.g., containers), or operate coating and laminating processes.

This source category consists of the following processes:

- Chemical recovery furnaces at kraft and soda mills (including recovery furnaces that burn spent pulping liquor produced by both the kraft and co-located semichemical process).
- Chemical recovery combustion units at sulfite mills.
- Chemical recovery combustion units at stand-alone semichemical mills.
- Systems for adding makeup chemicals (calcium carbonate [CaCO₃], sodium carbonate [Na₂CO₃]).
- Lime kilns at kraft and soda pulp mills.

What GHGs Must Be Reported?

Pulp and paper manufacturing facilities must report:

- CO₂, biogenic CO₂, methane (CH₄), and nitrous oxide (N₂O) emissions from each chemical recovery furnace at kraft or soda mills and from each chemical recovery combustion unit at sulfite or stand-alone semichemical mills.
- CO₂ emissions from addition of makeup chemicals.
- CO₂, biogenic CO₂, CH₄, and N₂O emissions from combustion of fossil fuels in each kraft or soda pulp mill lime kiln.
- CO₂, CH₄, and N₂O from stationary fuel combustion units, other than chemical recovery units and lime kilns (e.g., boilers), by following the requirements of 40 CFR part 98, subpart C (General Stationary Fuel Combustion Sources).

Facilities must also report GHG emissions from other source categories for which calculation methods are provided in other parts the rule, as applicable.

How Should GHG Emissions Be Calculated?

Calculate GHG emissions as follows:

- Calculate CO₂ emissions from fossil fuels used in chemical recovery furnaces using direct measurement of fossil fuels consumed and default emission factors according to the Tier 1 methodology for stationary combustion sources in 40 CFR part 98, subpart C.

- Calculate biogenic CO₂ emissions from combustion of biomass in spent pulping liquor using:
 - Measured quantities of spent liquor solids fired, site-specific high heating value (HHV), and default or site-specific emission factors for each chemical recovery furnace located at kraft or soda facilities.
 - Measured quantities of spent liquor solids fired and the carbon content of the spent liquor solids for each chemical recovery unit at sulfite or stand-alone semichemical facilities.
- Calculate CH₄ and N₂O emissions as the sum of emissions from the combustion of fossil fuels and the combustion of biomass in spent pulping liquor, as follows:
 - For fossil fuel emissions, use direct measurement of fuels consumed, a default HHV, and default emission factors according to the methodology for stationary combustion sources in 40 CFR 98.33(c).
 - For biomass emissions, use measured quantities of spent liquor solids fired, site-specific HHV, and default emission factors for kraft facilities.
- Calculate CO₂ emissions from the use of makeup chemicals using direct or indirect measurement of the quantity of chemicals added and ratios of the molecular weights of CO₂ and the makeup chemicals.
- Calculate CO₂, CH₄, and N₂O emissions from combustion of fossil fuels in lime kilns using direct measurement of fossil fuels consumed and default emission factors and heating values found in 40 CFR part 98, subpart C. Biogenic CO₂ from the conversion of CaCO₃ to CaO in kraft or soda pulp mill lime kilns is accounted for in the biogenic CO₂ emission factor for the recovery furnace.

A checklist for data that must be monitored is available at:

www.epa.gov/climatechange/emissions/downloads/checklists/pulpandpapermanufacturing.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 40 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), each annual report must include the following information:

- Annual CO₂, biogenic CO₂, CH₄, and N₂O emissions for each chemical recovery unit and each lime kiln (metric tons per year).
- Annual quantity of fossil fuels for each chemical recovery furnace, combustion unit, and lime kiln (short tons for solid fuels, gallons for liquid fuels, and standard cubic feet for gaseous fuels).
- Default emission factor for CO₂, CH₄, or N₂O, used in equation AA-1 of this subpart (kg CO₂, CH₄, or N₂O per mmBtu).
- Annual mass of spent liquor solids fired at the facility (short tons per year).
- High heat value of spent liquor solids (mmBtu per kilogram).
- Carbon content of spent liquor solids fired at sulfite and stand-alone semichemical mills (percent by weight, expressed as a decimal fraction).
- Annual steam purchases (pounds of steam per year).
- Annual quantities of makeup chemicals (carbonates) used (metric tons).
- Total annual production of pulp and/or paper products produced (metric tons).

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/climatechange/emissions/CBI.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/climatechange/emissions/ghgrulemaking.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.