Glass Production

Subpart N, Greenhouse Gas Reporting Program

OVERVIEW

Subpart N of the Greenhouse Gas Reporting Program (GHGRP) (40 CFR 98.140 – 98.148) applies to any glass manufacturing facility that meets the Subpart N source category definition. Some subparts have thresholds that determine applicability for reporting, and some do not. To decide whether your facility must report under this Subpart, please refer to 40 CFR 98.141 and the GHGRP Applicability Tool.

This Information Sheet is intended to help facilities reporting under Subpart N understand how the source category is defined, what greenhouse gases (GHGs) must be reported, how GHG emissions must be calculated and shared with EPA, and where to find more information

How is This Source Category Defined?

The glass production source category consists of facilities that produce glass (including flat, container, or pressed and blown glass) or wool fiberglass by melting a mixture of raw materials to produce molten glass using one or more continuous glass melting furnaces. Experimental furnaces and research and development process units are excluded.

What GHGs Must Be Reported?

Glass production facilities must report the following:

- Carbon dioxide (CO_2) process emissions from each continuous glass melting furnace.
- CO_2 combustion emissions from each continuous glass melting furnace.
- Methane (CH_4) and nitrous oxide (N_2O) combustion emissions at each continuous glass melting furnace. Report these emissions under Subpart C (General Stationary Fuel Combustion Sources) found at 40 CFR Part 98.30 – 98.38. The Subpart C Information Sheet summarizes the rule requirements for calculating and reporting emissions from these units.
- CO_2, CH_4, and N_2O emissions from each onsite stationary fuel combustion unit other than continuous glass melting furnaces under Subpart C.

If multiple Greenhouse Gas Reporting Program (GHGRP) source categories are co-located at a facility, the facility may also need to report greenhouse gas (GHG) emissions under a different subpart. Please refer to the relevant information sheet for a summary of the rule requirements for any other source categories located at the facility.

How Must GHG Emissions Be Calculated?

For CO_2 emissions from continuous glass melting furnaces, facilities must use one of three methods, as appropriate:

Continuous glass melting furnaces with certain types of continuous emission monitoring systems (CEMS) in place as specified in Subpart C, 40 CFR 98.33(b)(4)(ii) or (iii):

- Facilities must report combined process and combustion CO_2 emissions under Subpart N using the CEMS in accordance with the Tier 4 Calculation Methodology of Subpart C.

Other continuous glass melting furnaces with CEMS:

- For other continuous glass melting furnaces with CEMS, facilities can choose to operate and maintain a CEMS according to the Tier 4 Calculation Methodology specified in 40 CFR 98.33(a)(4) to measure combined process and combustion CO_2 emissions and report these emissions under this subpart.

Calculate process and combustion emissions separately:

- Process emissions:
  - Measure the annual mass of each carbonate (CO_3^{2-})-based raw material charged to each continuous glass melting furnace.
  - Determine the mineral mass-fraction of CO_3^{2-} in the raw material.
    - Obtain the data from the raw material supplier and verify the data through an annual measurement, or
    - Use a default value of 1.0.
  - Determine the fraction of calcination achieved for each CO_3^{2-}-based raw material:
    - Perform sampling and chemical analysis using an x-ray fluorescence test or other enhanced testing method published by an industry consensus standards organization, or
    - Use a default value of 1.0.
  - Identify the default emission factor (EF) appropriate for each CO_3^{2-}-based raw material from Table N-1.
  - Use Equation 1 of N to calculate process mass emissions of CO_2 for each furnace.
  - Use Equation 2 of N to calculate the total process mass emissions of CO_2 for all continuous glass melting furnaces at the facility.
- Combustion emissions:
  - Calculate and report under Subpart C (General Stationary Fuel Combustion Sources), found at 40 CFR 98.30 – 98.38, the combustion CO_2 emissions from the continuous glass furnace according to the applicable requirements in Subpart C.
  - For CH_4 and N_2O emissions from glass melting furnaces, owners or operators must follow the requirements of Subpart C.

A checklist for data that must be monitored is available here: Subpart N Monitoring Checklist.

What Information Must Be Reported?

In addition to the information required by the General Provisions in Subpart A, found at 40 CFR 98.3(c), the following must be reported under the circumstances indicated:

- If a CEMS is used to measure CO_2 emissions, then you must report under this subpart the relevant information required under 40 CFR 98.36 for the Tier 4 Calculation Methodology and the following

information:

- Annual quantity of each CO_3^{2-}-based raw material (tons) charged to each continuous glass melting furnace and for all furnaces combined.
- Annual quantity of glass produced (tons), by glass type, from each continuous glass melting furnace and from all furnaces combined.
- Annual quantity (tons), by glass type, of recycled scrap glass (cullet) charged to each continuous glass melting furnace and for all furnaces combined.

- If a CEMS is not used to determine CO_2 emissions from continuous glass melting furnaces, then the following information must be reported for each continuous glass melting furnace:
  - Annual process emissions of CO_2 (metric tons) for each continuous glass melting furnace and for all furnaces combined.
  - Annual quantity of each CO_3^{2-}-based raw material charged (tons) to all furnaces combined.
  - Annual quantity of glass produced (tons), by glass type, from each continuous glass melting furnace and for all furnaces combined.
  - Annual quantity (tons), by glass type, of recycled scrap glass (cullet) charged to each continuous glass melting furnace and for all furnaces combined.
  - Results of all tests used to verify the CO_3^{2-}-based mineral mass fraction for each CO_3^{2-}-based raw material charged, including the following:
    - Date of test.
    - Method(s) used and any variations.
    - Mass fraction of each sample.
  - Method used to determine decimal fraction of calcination, unless you used the default value of 1.0.
  - Number of continuous glass melting furnaces.
  - The number of times in the reporting year that missing data procedures were followed to measure monthly quantities of CO_3^{2-}-based raw materials, recycled scrap glass (cullet) or mass fraction of the CO_3^{2-}-based minerals for any continuous glass melting furnace (months).

What Records Must Be Maintained?

Reporters are required to retain records that pertain to their annual GHGRP report for at least three years after the date the report is submitted. Please see the Subpart A Information Sheet and 40 CFR 98.3(g) for general recordkeeping requirements. Specific recordkeeping requirements for Subpart N are listed at 40 CFR 98.147.

When and How Must Reports Be Submitted?

Reporters must submit their annual GHGRP reports for the previous calendar year to the EPA by March 31st, unless the 31st falls on a Saturday, Sunday, or federal holiday, in which case reports are due on the next business day. Annual reports must be submitted electronically using the electronic Greenhouse Gas Reporting Tool (e-GGRT), the GHGRP's online reporting system.

Additional information on setting up user accounts, registering a facility, and submitting annual reports is available on the GHGRP Help webpage.

When Can a Facility Stop Reporting?

A facility may discontinue reporting under several scenarios, which are summarized in Subpart A (found at 40 CFR 98.2(i)) and the Subpart A Information Sheet.

For More Information

For additional information on Subpart N, please visit the Subpart N webpage. For additional information on the GHGRP, please visit the GHGRP website, which includes additional information sheets, data previously reported to the GHGRP, training materials, and links to Frequently Asked Questions (FAQs). For questions that cannot be answered through the GHGRP website, please contact us at: GHGreporting@epa.gov.

This Information Sheet is provided solely for informational purposes. It does not replace the need to read and comply with the regulatory text contained in the rule. Rather, it is intended to help reporting facilities and suppliers understand key provisions of the GHGRP. It does not provide legal advice; have a legally binding effect; or expressly or implicitly create, expand, or limit any legal rights, obligations, responsibilities, expectations, or benefits with regard to any person or entity.