

Silicon Carbide Production



Final Rule: Mandatory Reporting for Greenhouse Gases

Under the Mandatory Reporting of Greenhouse Gases (GHGs) rule, owners or operators of facilities that produce silicon carbide (as defined below) must report emissions from silicon carbide 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 silicon carbide production source category consists of any process that produces silicon carbide for abrasive purposes.

What GHGs Must Be Reported?

Silicon carbide production facilities must report the following emissions:

- Carbon dioxide (CO₂) and methane (CH₄) process emissions from all silicon carbide process units or furnaces combined.
- CO₂, nitrous oxide (N₂O), and CH₄ emissions from each stationary combustion unit on site under 40 CFR part 98, subpart C (General Stationary Fuel Combustion Sources).

In addition, each facility must report GHG emissions for other source categories for which calculation methods are provided in the rule. Please refer to the relevant information sheet for a summary of the rule requirements for calculating and reporting emissions from any other source categories located at the facility.

How Must GHG Emissions Be Calculated?

Calculate CO₂ emissions as follows:

- If the CO₂ process emissions from a silicon carbide production furnace or process unit are vented through the same stack as a combustion unit or other process equipment that reports CO₂ emissions using a CEMS that complies with the Tier 4 Calculation Methodology in 40 CFR part 98, subpart C, then the combined CO₂ stack emissions must be reported according to the Tier 4 Calculation Methodology in 40 CFR part 98, subpart C.
- If the CO₂ process emissions from a silicon carbide production furnace or process unit are not vented through the same stack as a combustion unit or other process equipment that reports CO₂ emissions using a CEMS that complies with the Tier 4 Calculation Methodology in 40 CFR part 98, subpart C, then report using one of the following two alternative methods:
 - Calculate CO₂ emissions by operating and maintaining the CEMS according to the Tier 4 Calculation Methodology specified in 40 CFR 98, subpart C; or
 - Calculate CO₂ emissions using the measured monthly petroleum coke consumption and a monthly facility-specific emission factor. The facility-specific emission factor is the carbon content of the petroleum coke adjusted for carbon in the silicon carbide product. The adjustment factor is provided in the rule. The carbon content of the petroleum coke may be provided by the supplier or measured by the facility using methods specified in the rule. If carbon content data provided by the supplier is used, then an annual analysis must be performed to confirm that the supplier data is accurate.

Calculate CH₄ emissions using measured monthly petroleum coke consumption and a default emission factor of 10.2 kg/metric ton of coke consumed.

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

www.epa.gov/climatechange/emissions/downloads/checklists/siliconcarbideproduction.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), each silicon carbide manufacturing facility must report the following information:

If a CEMS is used to measure CO₂ emissions, then under this subpart the relevant information required by 40 CFR subpart C (General Stationary Fuel Combustion Sources) for the Tier 4 Calculation Methodology and the following information must be reported:

- Annual consumption of petroleum coke (tons).
- Annual production of silicon carbide (tons).
- Annual production capacity of silicon carbide (tons).

If a CEMS is not used to measure CO₂ emissions, the following information must be reported:

- Monthly consumption of petroleum coke (tons).
- Annual production of silicon carbide (tons).
- Annual production capacity of silicon carbide (tons).
- Monthly carbon content of the petroleum coke (percent by weight expressed as a decimal fraction) and the source of the data (i.e., supplier provided data or facility analysis).
- CO₂ emission factor calculated for each month (metric tons CO₂/metric ton of petroleum coke consumed).
- If using supplier carbon content data, the results of the sampling analysis for QA/QC of supplier data (percent by weight expressed as a decimal fraction).
- Number of months for which missing data procedures were followed for petroleum coke and petroleum coke consumption.

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.