

Titanium Dioxide Production

Subpart EE, Greenhouse Gas Reporting Program

OVERVIEW

Subpart EE of the Greenhouse Gas Reporting Program (GHGRP) (40 CFR 98.310 – 98.318) applies to any facility that produces titanium dioxide (TiO₂) and meets the Subpart EE 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 98.311 and the GHGRP [Applicability Tool](#).

This Information Sheet is intended to help facilities reporting under Subpart EE 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 titanium dioxide (TiO₂) production source category consists of any facility that uses the chloride (Cl⁻) process to produce TiO₂.



What GHGs Must Be Reported?

Each TiO₂ production facility must report carbon dioxide (CO₂) process emissions from each Cl⁻ process line.

If multiple Greenhouse Gas Reporting Program (GHGRP) source categories are co-located at a facility, the facility may need to report greenhouse gas (GHG) emissions under a different subpart. For example, facilities must report CO₂, nitrous oxide (N₂O), and methane (CH₄) emissions from each stationary combustion unit on site by following the requirements under Subpart C (Fuel Combustion Sources), found at 40 CFR 98.30 – 98.38. 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?

Reporters must calculate CO₂ process emissions using one of two methods, as appropriate:

- **Method 1:** Install and operate a continuous emission monitoring system (CEMS) according to the Tier 4 Calculation Methodology in 40 CFR 98.33(a)(4) and all associated requirements for Tier 4 specified in Subpart C (40 CFR 98.30 – 98.38).
- **Method 2:** Calculate the process CO₂ emissions for each process line using monthly measurements of the mass and carbon (C) content of calcined petroleum coke.

However, if process CO₂ emissions from TiO₂ production are emitted through the same stack as a combustion unit or process equipment that is monitor for CO₂ using a CEMS that complies with the Tier 4 Calculation Methodology in Subpart C (40 CFR 98.30 – 98.38), then the reporter must use the CEMS to measure and report combined CO₂ emissions from the stack instead of using the calculation procedures in Subpart EE found at 40 CFR 98.310 – 98.318.

A checklist for data that must be monitored is available here: [Subpart EE 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 emissions, then report under this subpart the relevant information required by Subpart C (Fuel Combustion Sources) found at 40 CFR 98.30 – 98.38 for the Tier 4 Calculation Methodology and the following information for each process line:
 - Identification number of separate Cl⁻ process lines.
 - Annual consumption of calcined petroleum coke (tons).
 - Annual production of TiO₂ (tons).
 - Annual production capacity of TiO₂ (tons).
 - Annual production of C-containing waste (tons), if applicable.
- If a CEMS is not used to measure emissions, then the following information must be reported:
 - Identification number of each process line.
 - Annual CO₂ emissions from each Cl⁻ process line (metric tons/year).
 - Annual consumption of calcined petroleum coke for each process line (tons).
 - Annual production of TiO₂ for each process line (tons).
 - Annual production capacity of TiO₂ for each process line (tons).
 - Annual production of C-containing waste for each process line (tons), if applicable.
 - Monthly production of TiO₂ for each process line (tons).
 - Whether monthly C content of the petroleum coke is based on reports from the supplier or through self-measurement using applicable American Society for Testing and Materials (ASTM) Standard Test Methods.
 - C content for C-containing waste (% by weight expressed as a decimal fraction).
 - If C content of petroleum coke is based on self-measurement, the ASTM Standard Test Methods used.
 - Sampling analysis results of C content of petroleum coke as determined for quality assurance/quality control (QA/QC) of supplier data under 40 CFR 98.314(d) (% by weight expressed as a decimal fraction).
 - Number of separate Cl⁻ process lines located at the facility.
 - The number of times in the reporting year that missing data procedures were followed to measure the C content of petroleum coke (number of months), petroleum coke consumption (number of months), C-containing waste generated (number of months), and C contents of the C-containing waste (number of times during year).



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 EE are listed at 40 CFR 98.317.



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 EE, please visit the [Subpart EE 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.