

# Soda Ash Manufacturing

## Subpart CC, Greenhouse Gas Reporting Program

### OVERVIEW

Subpart CC of the Greenhouse Gas Reporting Program (GHGRP) (40 CFR §§ 98.290 – 98.298) applies to any facility that contains a soda ash manufacturing process and meets the Subpart CC 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 § 98.291 and the GHGRP [Applicability Tool](#).

This Information Sheet is intended to help facilities reporting under Subpart CC 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?

A soda ash manufacturing facility is any facility that produces soda ash by calcining trona ( $\text{Na}_3(\text{CO}_3)(\text{HCO}_3) \cdot 2(\text{H}_2\text{O})$ ), calcining sodium sesquicarbonate ( $\text{Na}_3\text{H}(\text{CO}_3)_2$ ), or by using a liquid alkaline feedstock process that directly produces carbon dioxide ( $\text{CO}_2$ ).

In the context of the soda ash manufacturing sector, “calcining” means the thermal/chemical conversion of the bicarbonate ( $\text{HCO}_3^-$ ) fraction of the feedstock to sodium carbonate ( $\text{Na}_2\text{CO}_3$ ).



## What GHGs Must Be Reported?

Soda ash manufacturing facilities must report  $\text{CO}_2$  process emissions from each soda ash manufacturing 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  $\text{CO}_2$ , nitrous oxide ( $\text{N}_2\text{O}$ ), and methane ( $\text{CH}_4$ ) emissions from each stationary combustion unit on site by following the requirements under Subpart C (General Stationary 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?

For  $\text{CO}_2$  emissions from soda ash manufacturing lines, facilities must use one of the following methods, as appropriate:

- Soda ash manufacturing lines that meet the conditions of 40 CFR § 98.33(b)(4)(ii) or § 98.33(b)(4)(iii) must report using a continuous emission monitoring system (CEMS) and follow the Tier 4 methodology of Subpart C (General Stationary Fuel Combustion Sources) found at 40 CFR §§ 98.30 – 98.38 to report combined  $\text{CO}_2$  emissions from calcination and fuel combustion.
- For other soda ash manufacturing lines, reporters can elect to use one of the following:
  - Install and operate a CEMS to measure combined process and combustion  $\text{CO}_2$  emissions

according to the requirements specified in Subpart C (40 CFR §§ 98.30 – 98.38).

- Calculate CO<sub>2</sub> process emissions using one of three alternative methods, as applicable:
  - **Trona (Na<sub>3</sub>(CO<sub>3</sub>)(HCO<sub>3</sub>)•2(H<sub>2</sub>O)) input method.** Calculate calcination emissions using the following measurements:
    - Monthly mass of Na<sub>3</sub>(CO<sub>3</sub>)(HCO<sub>3</sub>)•2(H<sub>2</sub>O) input.
    - The monthly inorganic carbon in the Na<sub>3</sub>(CO<sub>3</sub>)(HCO<sub>3</sub>)•2(H<sub>2</sub>O) based on weekly composite analysis.
  - **Soda ash output method.** Calculate calcination emissions using the following measurements:
    - Monthly mass of soda ash produced.
    - The monthly inorganic carbon in the soda ash.
  - **Site-specific emission factor method.** Can only be used to calculate emissions from the liquid alkaline feedstock process through an annual performance test using:
    - Direct measurements of hourly CO<sub>2</sub> concentration at process vents.
    - Hourly stack gas volumetric flow rate from mine water stripper/evaporate.

A checklist for data that must be monitored is available here: [Subpart CC 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<sub>2</sub> emissions, then under Subpart CC the relevant information required by Subpart C (40 CFR §§ 98.30 – 98.38) and the following information for each manufacturing line must be reported:
  - Line identification number.
  - Annual consumption of Na<sub>3</sub>(CO<sub>3</sub>)(HCO<sub>3</sub>)•2(H<sub>2</sub>O) or liquid alkaline feedstock (metric tons (tonnes)).
  - Annual production of soda ash (short tons (tons)).
  - Annual production capacity of soda ash (tons).
- If a CEMS is not used to measure emissions, then the following information must be reported for each manufacturing line:
  - Line identification number.
  - Annual process CO<sub>2</sub> emissions (tonnes).
  - Annual soda ash production (tons).
  - Annual soda ash production capacity (tons).
  - Method used to calculate CO<sub>2</sub> emissions for each manufacturing line (Na<sub>3</sub>(CO<sub>3</sub>)(HCO<sub>3</sub>)•2(H<sub>2</sub>O) input method, soda ash output method, or site-specific emission factor method).
  - Number of manufacturing lines used to produce soda ash.
  - If producing soda ash using the liquid alkaline feedstock process and using the site-specific emission factor method, then report the following relevant information:
    - Stack gas volumetric flow rate during performance test (dry standard cubic feet per

- minute (dscfm)).
- Hourly CO<sub>2</sub> concentration during performance test (% CO<sub>2</sub>).
- CO<sub>2</sub> emission factor (tonnes CO<sub>2</sub>/tonnes of process vent flow from mine water stripper/evaporator).
- CO<sub>2</sub> mass emission rate during performance test (tonnes/hour).
- Average process vent flow from mine water stripper/evaporator during performance test (pounds (lbs)/hour).
- Annual process vent flow rate from mine water stripper/evaporator (thousand pounds (KIP)/hour).
- Number of times that missing data procedures were used for the following parameters:
  - Na<sub>3</sub>(CO<sub>3</sub>)(HCO<sub>3</sub>)•2(H<sub>2</sub>O) or soda ash (number of months).
  - Inorganic carbon contents of Na<sub>3</sub>(CO<sub>3</sub>)(HCO<sub>3</sub>)•2(H<sub>2</sub>O) or soda ash (weeks).
  - Process vent flow rate from mine water stripper/evaporator (number of 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 CC are listed at 40 CFR § 98.297.



## When and How Must Reports Be Submitted?

Reporters must submit their annual GHGRP reports for the previous calendar year to the EPA by March 31<sup>st</sup>, unless the 31<sup>st</sup> 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. For facilities required to use the e-GGRT *Inputs Verifier Tool* (IVT), reporters must enter required data into the e-GGRT IVT, which includes inputs to emission equations for which reporting is not required. IVT uses these data to calculate the equation results.

Each report may be prepared by either a designated representative, an alternate designated representative or agent(s) of the owner or operator. The report must be signed by a designated representative of the owner or operator, certifying under penalty of law that the report has been prepared in accordance with the requirements of the rule. 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 CC, please visit the [Subpart CC 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](mailto: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.*