CaO_{\text{LKD},i,n} = \text{Calcium oxide content for calcined lime byproduct/waste type } i \text{ sold, for month } n \text{ (metric tons CaO/metric ton lime)}.

MgO_{\text{LKD},i,n} = \text{Magnesium oxide content for calcined lime byproduct/waste type } i \text{ sold, for month } n \text{ (metric tons MgO/metric ton lime)}.

2000/2205 = \text{Conversion factor for tons to metric tons.}

(iii) You must calculate the annual CO$_2$ emissions from each type of calcined byproduct or waste that is not sold (including lime kiln dust and scrubber sludge) using Equation S–3 of this section:

\[
E_{\text{waste},i} = \left( [SR_{\text{CaO}} \times \text{CaO}_{\text{waste},i}] + [SR_{\text{MgO}} \times \text{MgO}_{\text{waste},i}] \right) \times M_{\text{waste},i} \times \frac{2000}{2205} \quad \text{(Eq. S-3)}
\]

Where:

\(E_{\text{waste},i}\) = Annual CO$_2$ emissions for calcined lime byproduct or waste type \(i\) that is not sold (metric tons CO$_2$/year).

\(SR_{\text{CaO}}\) = Stoichiometric ratio of CO$_2$ and CaO for calcium carbonate (see Table S–1 of this subpart) (metric tons CO$_2$/metric tons CaO).

\(SR_{\text{MgO}}\) = Stoichiometric ratio of CO$_2$ and MgO for magnesium carbonate (See Table S–1 of this subpart) (metric tons CO$_2$/metric tons MgO).

\(\text{CaO}_{\text{waste},i}\) = Calcium oxide content for calcined lime byproduct or waste type \(i\) that is not sold (metric tons CaO/metric ton lime).

\(\text{MgO}_{\text{waste},i}\) = Magnesium oxide content for calcined lime byproduct or waste type \(i\) that is not sold (metric tons MgO/metric ton lime).

\(M_{\text{waste},i}\) = Annual weight or mass of calcined byproducts or wastes for lime type \(i\) that is not sold (tons).

\(\text{2000/2205}\) = Conversion factor for tons to metric tons.

(iv) You must calculate annual CO$_2$ process emissions for all lime kilns using Equation S–4 of this section:

\[
E_{\text{CO2}} = \sum_{i=1}^{t} \sum_{j=1}^{12} \left[ EF_{\text{LIME},i,j} \times M_{\text{LIME},i,j} \right] + \sum_{j=1}^{12} \left[ EF_{\text{LKD},i,j} \times M_{\text{LKD},i,j} \right] + \sum_{j=1}^{z} E_{\text{waste},j} \quad \text{(Eq. S-4)}
\]

Where:

\(E_{\text{CO2}}\) = Annual CO$_2$ process emissions from lime production from all lime kilns (metric tons/year).

\(EF_{\text{LIME},i,j}\) = Emission factor for lime type \(i\) produced, in calendar month \(j\) (metric tons CO$_2$/ton lime) from Equation S–1 of this section.

\(M_{\text{LIME},i,j}\) = Weight or mass of lime type \(i\) produced in calendar month \(j\) (tons).

\(EF_{\text{LKD},i,j}\) = Emission factor of calcined by-products or wastes sold for lime type \(i\) in calendar month \(j\) (metric tons CO$_2$/ton byproduct or waste) from Equation S–2 of this section.

\(M_{\text{LKD},i,j}\) = Monthly weight or mass of calcined by-products or waste sold for lime type \(i\) in calendar month \(j\) (tons).

\(E_{\text{waste},j}\) = Annual CO$_2$ emissions for calcined lime byproduct or waste type \(i\) that is not sold (metric tons CO$_2$/year) from Equation S–3 of this section.

\(z\) = Number of calcined byproducts or wastes that are not sold.

(v) Calculate and report under subpart C of this part (General Stationary Fuel Combustion Sources) the combustion CO$_2$ emissions from each lime kiln according to the applicable requirements in subpart C.


§ 98.194 Monitoring and QA/QC requirements.

(a) You must determine the total quantity of each type of lime product that is produced and each calcined byproduct or waste (such as lime kiln dust) that is sold. The quantities of each should be directly measured
§ 98.195 Procedures for estimating missing data.

For the procedure in §98.193(b)(1), a complete record of all measured parameters used in the GHG emissions calculations is required (e.g., oxide content, quantity of lime products, etc.). Therefore, whenever a quality-assured value of a required parameter is unavailable, a substitute data value for the missing parameter shall be used in the calculations as specified in paragraphs (a) or (b) of this section. You must document and keep records of the procedures used for all such estimates.

(a) For each missing value of the quantity of lime produced (by lime type), and quantity of calcined byproduct or waste sold, the substitute data value shall be the best available estimate based on all available process data or data used for accounting purposes.

(b) For missing values related to the CaO and MgO content, you must conduct a new composition test according to the standard methods in §98.194 (c)(1) or (c)(2).

§ 98.196 Data reporting requirements.

In addition to the information required by §98.3(c), each annual report must contain the information specified in paragraphs (a) or (b) of this section, as applicable.

(a) If a CEMS is used to measure CO₂ emissions, then you must report under this subpart the relevant information required by §98.36 and the information listed in paragraphs (a)(1) through (8) of this section.

(1) Method used to determine the quantity of lime that is produced and quantity of lime that is sold.

(2) Method used to determine the quantity of calcined lime byproduct or waste sold.

(3) Beginning and end of year inventories for each lime product that is produced, by type.