40 C.F.R. § 98.173

Calculating GHG emissions.

You must calculate and report the annual process CO_2 emissions from each taconite indurating furnace, basic oxygen furnace, non-recovery coke oven battery, sinter process, EAF, decarburization vessel, and direct reduction furnace using the procedures in either paragraph (a) or (b) of this section. Calculate and report the annual process CO_2 emissions from the coke pushing process according to paragraph (c) of this section.

> (a) Calculate and report under this subpart the process CO_2 emissions by operating and maintaining CEMS according to the Tier 4 Calculation Methodology in § 98.33(a)(4) and all associated requirements for Tier 4 in subpart C of this part (General Stationary Fuel Combustion Sources).

> (b) Calculate and report under this subpart the process CO_2 emissions using the procedure in paragraph (b)(1) or (b)(2) of this section.

(1) *Carbon mass balance method.* Calculate the annual mass emissions of CO_2 for the process as specified in paragraphs (b)(1)(i) through (b)(1)(vii) of this section. The calculations are based on the annual mass of inputs and outputs to the process and an annual analysis of the respective weight fraction of carbon as determined according to the procedures in § 98.174(b). If you have a process input or output other than CO_2 in the exhaust gas that contains carbon that is not included in Equations Q–1 through Q–7 of this section, you must account for the carbon and mass rate of that process input or output in your calculations according to the procedures in § 98.174(b)(5).

(i) For taconite indurating furnaces, estimate CO_2 emissions using Equation Q–1 of this section.

$$CO_2 = \frac{44}{12} * \left[(F_s)*(C_{sf}) + (F_g)*(C_{gf}) * \frac{MW}{MVC} *0.001 + (F_l)*(C_{lf})*0.001 + (O)*(C_o) - (P)*(C_p) - (R)*(C_R) \right] \quad (Eq. Q\text{-}1)$$

Where:

CO_2 = Annual CO_2 mass emissions from the taconite indurating furnace (metric tons). 44/12 = Ratio of molecular weights, CO_2 to carbon. (F_s) = Annual mass of the solid fuel used (metric tons). (C_{sf}) = Carbon content of the solid fuel, from the fuel analysis (expressed as a decimal fraction). (F_g) = Annual volume of the gaseous fuel used (scf). (C_{gf}) = Average carbon content of the gaseous fuel, from the fuel analysis results (kg C per kg of fuel). MW = Molecular weight of the gaseous fuel (kg/kg-mole). MVC = Molar volume conversion factor (849.5 scf per kg-mole at standard conditions). 0.001 = Conversion factor from kg to metric tons. (F_l) = Annual volume of the liquid fuel used (gallons). (C_{lf}) = Carbon content of the liquid fuel, from the fuel analysis results (kg C per gallon of fuel). (O) = Annual mass of greenball (taconite) pellets fed to the furnace (metric tons). (C_o) = Carbon content of the greenball (taconite) pellets, from the carbon analysis results (expressed as a decimal fraction). (P) = Annual

mass of fired pellets produced by the furnace (metric tons). (C_p) = Carbon content of the fired pellets, from the carbon analysis results (expressed as a decimal fraction). (R) = Annual mass of air pollution control residue collected (metric tons). (C_R) = Carbon content of the air pollution control residue, from the carbon analysis results (expressed as a decimal fraction).