

**Emissions Summary**  
**Arglass Yamamura, LLC**  
**Valdosta, Georgia**

$$\text{CO}_2\text{e Emissions} = \text{CO}_2 \text{ Emissions} + 25 (\text{CH}_4 \text{ Emissions}) + 298 (\text{N}_2\text{O Emissions})$$

<i>Greenhouse Gas - Glass Production: 40 CFR Part 98 Subpart N</i>					
Carbonate-Based Raw Material	Carbonate-Based Raw Material-Mineral	Material Consumed (pounds per year)	CO <sub>2</sub> Emission Factor (metric tons CO <sub>2</sub> /metric tons carbonate-based raw material) <sup>1</sup>	CO <sub>2</sub> (Metric tons) <sub>2</sub>	CO <sub>2</sub> (tons)
Limestone	CaCO <sub>3</sub>	54,503,012	0.440	10,875.9	11,988.6
Dolomite	CaMg(CO <sub>3</sub> ) <sub>2</sub>	19,607,791	0.477	4,241.7	4,675.7
Soda Ash	Na <sub>2</sub> CO <sub>3</sub>	51,511,993	0.415	9,695.0	10,686.9
Barium Carbonate	BaCO <sub>3</sub>	0	0.223	N/A	N/A
Potassium Carbonate	K <sub>2</sub> CO <sub>3</sub>	0	0.318	N/A	N/A
Lithium Carbonate	Li <sub>2</sub> CO <sub>3</sub>	0	0.596	N/A	N/A
Strontium Carbonate	SrCO <sub>3</sub>	0	0.298	N/A	N/A
<b>Total =</b>				24,812.6	27,351.1

1. Default emission factors from 40 CFR Subpart N, Table N-1, CO<sub>2</sub> Emission Factors for Carbonate-Based Raw Materials.
2. Process emissions calculated based on Equation N-1 of 40 CFR 98 Subpart N.
3. Total process CO<sub>2</sub> emissions from continuous glass melting furnaces at the facility were calculated based on Equation N-2 of 40 CFR 98 Subpart N.

**Subpart N Inputs - MF<sub>i</sub> and F<sub>i</sub>**

Carbonate-Based Raw Material	Carbonate-Based Raw Material-Mineral	MF <sub>i</sub> <sup>1</sup>		F <sub>i</sub> <sup>2</sup>	
		Value	Basis	Value	Basis
Limestone	CaCO <sub>3</sub>	1.0	Default	1.0	Default
Dolomite	CaMg(CO <sub>3</sub> ) <sub>2</sub>	1.0	Default	1.0	Default
Soda Ash	Na <sub>2</sub> CO <sub>3</sub>	1.0	Default	1.0	Default
Barium Carbonate	BaCO <sub>3</sub>	N/A	N/A	N/A	N/A
Potassium Carbonate	K <sub>2</sub> CO <sub>3</sub>	N/A	N/A	N/A	N/A
Lithium Carbonate	Li <sub>2</sub> CO <sub>3</sub>	N/A	N/A	N/A	N/A
Strontium Carbonate	SrCO <sub>3</sub>	N/A	N/A	N/A	N/A

1. As per 40 CFR 98.144(b), you must measure carbonate-based mineral mass fractions at least annually to verify the mass fraction data provided by the supplier of the raw material; such measurements shall be based on sampling and chemical analysis using ASTM D3682-01 (Reapproved 2006) Standard Test Method for Major and Minor Elements in Combustion Residues from Coal Utilization Processes (incorporated by reference, see §98.7) or ASTM D6349-09 Standard Test Method for Determination of Major and Minor Elements in Coal, Coke, and Solid Residues from Combustion of Coal and Coke by Inductively Coupled Plasma – Atomic Emission Spectrometry (incorporated by reference, see §98.7). Alternatively, a default value of 1.0 can be used for the mass fraction (MF<sub>i</sub>) of carbonate-based mineral i in Equation N-1 of Subpart N (40 CFR 98.143(c)).
  2. As per 40 CFR 98.144(d), you must determine on an annual basis the calcination fraction for each carbonate consumed based on sampling and chemical analysis.
- Note: PM10 and PM2.5 = filterable + condensable