# Aluminum Production

**Subpart F, Greenhouse Gas Reporting Program**

**Measure these parameters annually unless otherwise noted:**

## What Must Be Monitored?

**Perfluoromethane ($CF_4$) emissions from each prebake and Søderberg cell:**

*If estimating $CF_4$ emissions from anode effect duration:*

- ☐ Anode effect minutes per cell-day (AE-Mins/cell-day) (monthly).
- ☐ Anode effect frequency (AE/cell-day).
- ☐ Aluminum (Al) production (metric tons) (monthly).
- ☐ Anode effect duration (minutes).

*If estimating $CF_4$ emissions from overvoltage:*

- ☐ Al production (metric tons) (monthly).
- ☐ Potline overvoltage (millivolts/cell day (mV/cell-day)).
- ☐ Anode effect overvoltage factor (kilograms (kg) $CF_4$/metric tons Al)/(mV/cell-day).
- ☐ Current efficiency (%).

**If NOT using a continuous emission monitoring system (CEMS):**

*Process $CO_2$ emissions from anode consumption during electrolysis for prebake cells:*

- ☐ Net annual prebaked anode consumption per metric tons Al (metric tons carbon (C)/metric tons Al).
- ☐ Al production (metric tons).
- ☐ Sulfur (S) content in baked anode (% weight).
- ☐ Ash content in baked anode (% weight).

*Process $CO_2$ emissions from anode consumption during electrolysis for Søderberg cells:*

- ☐ Paste consumption (metric tons/metric tons Al).
- ☐ Al production (metric tons).
- ☐ Emissions of cyclohexane ($C_6H_{12}$) soluble matter (kg/metric tons Al).
- ☐ Binder content of paste (% weight).
- ☐ S content of pitch (% weight).
- ☐ Ash content of pitch (% weight).
- ☐ Hydrogen ($H_2$) content of pitch (% weight).
- ☐ S content in calcined coke (% weight).
- ☐ Ash content in calcined coke (% weight).

☐ C in skimmed dust from Søderberg cells (metric tons C/metric tons Al).

**If using a CEMS:**

*Process $CO_2$ emissions from anode consumption during electrolysis for prebake cells:*

☐ Net annual prebaked anode consumption per metric ton Al (metric tons C/metric tons Al).

☐ $CO_2$ emissions, as calculated by operating and maintaining a CEMS according to the Tier 4 Calculation Methodology in 40 CFR 98.33(a)(4).

☐ Al production (metric tons).

*Process $CO_2$ emissions from anode consumption during electrolysis for Søderberg cells:*

☐ Paste consumption (metric tons/metric tons Al).

☐ Al production (metric tons).

☐ $CO_2$ emissions, as calculated by operating and maintaining a CEMS according to the Tier 4 Calculation Methodology in 40 CFR 98.33(a)(4).

**$CO_2$ emissions from anode baking of prebake cells – pitch volatiles consumption:**

☐ Initial weight of green anodes (metric tons).

☐ Annual $H_2$ content in green anodes (metric tons).

☐ Annual baked anode production (metric tons).

☐ Annual waste tar collected (metric tons).

**$CO_2$ emissions from anode baking of prebake cells – bake furnace packing material:**

☐ Annual packing coke consumption (metric tons/metric tons baked anode).

☐ Annual baked anode production (metric tons).

☐ S content in packing coke (% weight).

☐ Ash content in packing coke (% weight).

**Other:**

☐ Smelter-specific slope coefficients (or overvoltage emission factors (EFs)), if applicable.

*Note: Sources may use either smelter-specific values from annual measurements of parameters needed to complete the equations in 40 CFR 98.63 (e.g., S, ash, and $H_2$ contents, and C in skimmed dust from Søderberg cells) or the default values shown in Table F-2 of Subpart F.*

# For More Information

For additional information and resources on Subpart F, please visit the Subpart F webpage.

*This monitoring checklist 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.*