

# Aluminum Production Monitoring Checklist

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## Subpart F, Greenhouse Gas Reporting Program

### *What Must Be Monitored?*

**Measure these parameters annually (unless otherwise noted)...**

#### **Perfluoromethane (CF<sub>4</sub>) Emissions from Each Prebake and Søderberg Cell**

##### **If estimating CF<sub>4</sub> Emissions from anode effect duration:**

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- |   |  |
|---|--|
| <input type="checkbox"/> Anode effect minutes per cell-day (monthly) (AE-Mins/cell-day) | <input type="checkbox"/> Aluminum production (monthly) (metric tons) |
| <input type="checkbox"/> Anode effect frequency (AE/cell-day)                           | <input type="checkbox"/> Anode effect duration (minutes)             |

##### **If estimating CF<sub>4</sub> Emissions from overvoltage:**

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|--|--|
| <input type="checkbox"/> Aluminum production (monthly) (metric tons) | <input type="checkbox"/> Anode effect overvoltage factor (kg CF <sub>4</sub> /metric ton Al)/(mV/cell day) |
| <input type="checkbox"/> Potline overvoltage (mV/cell day)           | <input type="checkbox"/> Current efficiency (%)  |

#### **Process CO<sub>2</sub> Emissions from Anode Consumption During Electrolysis for Prebake Cells, If Not Using a CEMS:**

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- |   |   |
|---|---|
| <input type="checkbox"/> Net annual prebaked anode consumption per metric ton Al (metric tons C/metric tons Al) | <input type="checkbox"/> Sulfur content in baked anode (percent weight) |
| <input type="checkbox"/> Aluminum production (metric tons)  | <input type="checkbox"/> Ash content in baked anode (percent weight)    |

#### **Process CO<sub>2</sub> Emissions from Anode Consumption During Electrolysis for Prebake Cells, If Using a CEMS:**

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- |   |   |
|---|---|
| <input type="checkbox"/> Net annual prebaked anode consumption per metric ton Al (metric tons C/metric tons Al) | <input type="checkbox"/> CO <sub>2</sub> emissions, as calculated by operating and maintaining a CEMS according to the Tier 4 methodology in 98.33(a) (4) |
| <input type="checkbox"/> Aluminum production (metric tons)  |   |

**Process CO<sub>2</sub> Emissions from Anode Consumption During Electrolysis for Søderberg Cells, If Not Using a CEMS:**

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- |   |   |
|---|---|
| <input type="checkbox"/> Paste consumption (metric ton/metric ton Al)               | <input type="checkbox"/> Ash content of pitch (percent weight)                                    |
| <input type="checkbox"/> Aluminum production (metric tons)                          | <input type="checkbox"/> Hydrogen content of pitch (percent weight)                               |
| <input type="checkbox"/> Emissions of cyclohexane soluble matter (kg/metric ton Al) | <input type="checkbox"/> Sulfur content in calcined coke (percent weight)                         |
| <input type="checkbox"/> Binder content of paste (percent weight)                   | <input type="checkbox"/> Ash content in calcined coke (percent weight)                            |
| <input type="checkbox"/> Sulfur content of pitch (percent weight)                   | <input type="checkbox"/> Carbon in skimmed dust from Søderberg cells (metric ton C/metric ton Al) |

**Process CO<sub>2</sub> Emissions from Anode Consumption During Electrolysis for Søderberg Cells, If Using a CEMS:**

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- |   |  |
|---|--|
| <input type="checkbox"/> Paste consumption (metric ton/metric ton Al)   | <input type="checkbox"/> Aluminum production (metric tons) |
| <input type="checkbox"/> CO <sub>2</sub> emissions, as calculated by operating and maintaining a CEMS according to the Tier 4 methodology in 98.33(a) (4) |  |

**CO<sub>2</sub> Emissions from Anode Baking of Prebake Cells – Pitch Volatiles Consumption:**

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- |  |  |
|--|--|
| <input type="checkbox"/> Initial weight of green anodes (metric tons)          | <input type="checkbox"/> Annual baked anode production (metric tons) |
| <input type="checkbox"/> Annual hydrogen content in green anodes (metric tons) | <input type="checkbox"/> Annual waste tar collected (metric tons)    |

**CO<sub>2</sub> Emissions from Anode Baking of Prebake Cells – Bake Furnace Packing Material:**

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- |   |  |
|---|--|
| <input type="checkbox"/> Annual packing coke consumption (metric tons/metric ton baked anode) | <input type="checkbox"/> Sulfur content in packing coke (percent weight) |
| <input type="checkbox"/> Annual baked anode production (metric tons)                          | <input type="checkbox"/> Ash content in packing coke (percent weight)    |

**Other:**

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

**Note: Sources may use either smelter-specific values from annual measurements of parameters needed to complete the equations in §98.63 (e.g., sulfur, ash, and hydrogen contents, and carbon in skimmed dust from Søderberg cells) or the default values shown in Table F-2 of subpart F.**

See also the information sheet for Aluminum Production (EPA-430-F-09-029R) at:  
<https://www.epa.gov/ghgreporting/subpart-f-information-sheet>.

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