

Fluorinated Gas Production

Subpart L, Greenhouse Gas Reporting Program

Measure these parameters for each producer of fluorinated gases:



What Must Be Monitored?

All fluorinated gas production facilities:

- ☐ For processes that have at least one process vent with annual uncontrolled fluorinated greenhouse gas (GHG) emissions of one ton or more, conduct an initial scoping speciation to identify all fluorinated GHGs that may be generated.
- ☐ Account for GHG emissions that occur as a result of startups, shutdowns, and malfunctions, either recording fluorinated GHG emissions during these events, or documenting that these events do not result in significant fluorinated GHG emissions.
- ☐ Describe the analytical methods used in the site GHG Monitoring Plan, including a description of the analytical measurement equipment and procedures, quantitative estimates of the method's accuracy and precision for the analytes of interest at the concentrations of interest, as well as a description of how these accuracies and precisions were estimated, including the validation protocol used.

If using the Process-Vent-Specific Emission Factor (EF) Approach:

Conduct an emissions test to develop the process-vent-specific EF every 10 years, when a change to the operating scenario is calculated to result in a 15% or greater change in the EF, or when a continuous process vent with less than 10,000 metric tons of carbon dioxide equivalent (CO₂e) is later found to have emissions of 10,000 metric tons of CO₂e or greater.

- ☐ Conduct the emissions test based on representative performance of the process or operating scenario(s) of the process, as applicable. For continuous processes, sample the process vent for a minimum of 3 runs of 1 hour each. If the relative standard deviation of the EF based on the first 3 runs is greater than or equal to 15%, sample for an additional 3 runs.
- ☐ Both during the test and throughout each year, measure the process activity (e.g., mass rate of process feed or process production) using flow meters, weigh scales, or other measurement devices or instruments with an accuracy and precision of $\pm 1\%$ of full scale or better.
- ☐ If process vents from separate processes are manifolded together, sample emissions from each process in the ducts before the emissions are combined or sample in the common duct when only one process is operating. Alternatively, sample the combined emissions and use engineering calculations or engineering assessments to allocate the emissions to each process vent, provided the sum of calculated emissions across the process vents is within 20% of the total measured emissions.
- ☐ Produce an emissions test report that contains all information and data used to derive the process-vent-specific EF, as well as key process conditions during the test.

If using the Process-Vent-Specific Emission Calculation Factor Approach:

Conduct an emissions calculation for each operating scenario for each batch and continuous process vent every 10 years, or when a change to the operating scenario is expected to change the process-vent-specific emissions calculation factor.

- ☐ For continuous process vents, determine the emissions based on the process activity for representative

performance of the operating scenario; for batch process vents, determine emissions based on the process activity for each typical batch operating scenario.

- ☐ Throughout each year, measure the process activity (e.g., mass rate of process feed or process production) using flow meters, weigh scales, or other measurement devices or instruments with an accuracy and precision of $\pm 1\%$ of full scale or better.
- ☐ The emission calculation must be documented by identifying the process, the operating scenario, and the process vents. The documentation must contain the information and data used to calculate the process-vent-specific emission calculation factor.

If the facility conducts a site-specific leak detection method or monitoring approach for pieces of equipment:

- ☐ If you determine that EPA Method 21 is appropriate for monitoring leaks from your process, conduct screening value concentration measurements using Method 21.
- ☐ Conduct monitoring on at least 1/3 of equipment annually if emissions are estimated based on monitoring of individual pieces of equipment, ensuring this 1/3 is representative of equipment in the process.

OR

- ☐ Develop a site-specific leak monitoring approach.
- ☐ Validate the leak monitoring method and describe the method and the validation in the GHG Monitoring Plan.
- ☐ Conduct monitoring on at least 1/3 of equipment annually if emissions are estimated based on monitoring of individual pieces of equipment. Ensure this 1/3 is representative of equipment in the process.

If the facility destroys fluorinated GHGs:

Conduct an emissions test to determine the destruction efficiency (DE) every 10 years, or when a change to the destruction device is expected to affect the DE. If perfluoromethane (CF₄), sulfur hexafluoride (SF₆), or a saturated perfluorocarbon (PFC) other than CF₄ is vented to the destruction device in more than trace concentrations, develop a DE specifically for that compound or for a more difficult-to-destroy surrogate that is specified in the rule, in order to take credit for the emissions reduction.

- ☐ Sample the inlet and outlet of the destruction device for a minimum of 3 runs of 1 hour each to determine the DE.
- ☐ Conduct the test when operating at high loads reasonably expected to occur and when destroying the most-difficult-to-destroy fluorinated GHG (or a more difficult to destroy surrogate) that is fed into the device or that belongs to the group of fluorinated GHGs for which you wish to establish a DE.

Track emissions from destruction device malfunctions and measure previously produced fluorinated GHGs fed into destruction device:

- ☐ Malfunctions. Account for any temporary reductions in the DE that result from any malfunctions of the destruction device.
- ☐ Previously produced fluorinated GHGs. Measure the mass of each previously produced fluorinated GHG that is fed into the destruction device, using flow meters, weigh scales, or a combination of volumetric and density measurements with an accuracy and precision of $\pm 1\%$ of full scale or better.
- ☐ Measure the concentration of the previously produced fluorinated GHG being destroyed (if the measured mass includes more than trace concentrations of materials other than the fluorinated GHG being destroyed).



For More Information

For additional information and resources on Subpart L, please visit the [Subpart L 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.