

characteristics may indeed be different; however, 5 to 8 mg/dscm is a low PM concentration regardless of the size, shape, or constituency of the particles.

EPA addressed its concerns in the Portland Cement rule by (1) increasing the emission limit to a range of 7 to 14 mg/dscm, and (2) no longer requiring PM CEMS to demonstrate compliance with the emission limit. If the real problem were, as EPA now claims, (i.e., 1-hr test runs “led to inherent measurement uncertainty”), we initially wondered why EPA did not simply increase the run times as the Agency is proposing to do in the MATS rule? Further research reveals that EPA did examine the effect of longer run times in 2012 Portland Cement rule. However, EPA recognized then that longer run times would not solve the problem created by a very limited data range for the correlation testing associated with a very low emission limit.¹⁰ The Agency correctly concluded that reference method measurement uncertainty coupled with a limited data range would make establishing a meaningful PM CEMS correlation curve next to impossible.

As noted earlier, PS-11 specifies the correlation requirements that are applicable to PM CEMS. To satisfy PS-11, the PM CEMS correlation must meet the following statistical criteria:

- The correlation coefficient shall be > 0.85 .
- The confidence interval (95%) half range at the median PM CEMS response value must be within 10% of the PM emission limit value.¹¹
- The tolerance interval half range at the median PM CEMS response value must have 95% confidence that 75% of all possible values are within 25% of the PM emission limit value.

These PS-11 statistical considerations coupled with the low proposed emission limit clearly played a role in EPA’s final decision to forego PM CEMS in the Portland Cement rulemaking. In the final Cement rule, EPA states¹²

A particular challenge in applying PM CEMS to source emissions monitoring is in measuring the very low PM concentrations associated with a low applicable emissions limit for PM precisely enough to meet the PS 11 correlation requirements. In addition to measurement uncertainty inherent in PM CEMS data, the measurement uncertainty associated with the reference test method (e.g., Method 5) is a significant contributor to successful development of a PM CEMS correlation regardless of the type of PM CEMS used.

¹⁰ 77 Fed. Reg. 42,368, 42374 (July 18, 2023).

¹¹ PS-11 states that the points at which the confidence interval and tolerance interval half ranges are evaluated are a function of the form of the regression equation. For linear and logarithmic correlations, the half intervals are evaluated at the mean PM CEMS response.

¹² 77 Fed. Reg. at 42,374.