

CASAC AAMM Ambient Air Lead Monitoring Lead
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While generally supportive of using PM10 monitoring for lead, as opposed to TSP, this is particularly true if a tighter standard is chosen. The relative benefits of going to a PM10 monitor, and issues with TSP monitors, were well laid out by CASAC in their letters regarding the NAAQS lead standard, so they will not be repeated here, except to say that a tighter standard is less near-source oriented than our current one, suggesting a finer cut point. Further, the data do not suggest that there will be a significant difference between the two in most cases that, along with a tighter standard, would suggest that using PM10 would not be protective of public health and also provide more and more usable data, further helping to protect public health. My major concern is that the TSP monitoring is becoming significantly less extensive with time, and there are areas with major sources that are not monitored.

Options for Lead NAAQS Indicator: Monitoring Implications

1. Considering issues such as sampler performance, size cuts, operator maintenance, integration with other measurement systems, and usefulness as the measurement system for the indicator, please describe the advantages and disadvantages of sampling and analysis of Pb-TSP versus sampling and analysis of Pb-PM₁₀.

Primary advantages of PM10 monitors include that they are less subject to sampling variability (e.g., size cuts, etc.), the PM being measured is more relevant to area-wide exposures and that there is a broader coverage with the PM10 monitors.

2. Is it appropriate to monitor for Pb-PM₁₀ near Pb sources? And if so, under what conditions?

Yes. While TSP monitors will pick up higher levels on, or near the fence line of large sources that emit larger sized lead-containing particles, the samples collected will be highly variable, and it is not immediately evident how quickly the higher levels would drop due to deposition. The PM10 samples would be more consistent and relevant to exposures of the population. It is not apparent that one can get just as good of an estimate of area-wide lead deposition from PM10 monitors.

3. One indicator option suggests using scaling Pb-PM₁₀ monitoring data up to an equivalent Pb-TSP level in lieu of Pb-TSP monitoring data. Under what circumstances would it be appropriate to scale data (e.g., non-source oriented sites, low concentration sites) and when would it not be appropriate to scale data?

As noted above, along with a tighter standard, scaling is not needed. The data suggest that the TSP and PM10 levels tend to be quite close.

Draft Federal Reference Method (FRM) and Federal Equivalent Method (FEM) Criteria for Lead in PM10 (Pb-PM₁₀)

1. *Is it appropriate to use the low-volume PM_{10c} FRM sampler as the Pb-PM₁₀ FRM*

sampler?

Yes. This monitor is well tested and widely used. The various analysis methods for lead can directly use the substrates used in this sampler.

2. *What other PM₁₀ samplers should be considered as either FRM or FEM for the Pb-PM₁₀ FRM?*

3. *Is XRF an appropriate Pb-PM₁₀ FRM analysis method?*

While XRF can suffer from non-uniform loading, it is still a very effective approach, and is compatible with other metals analysis, and is thus very cost effective. It should be specified as either the FRM or FEM (and if the latter, ICPMS should be the FRM).

4. *What other analysis methods should be considered for FRM or FEM for the Pb-PM₁₀ FRM?*

As noted above, XRF, if not the FRM, should be FEM, along with AA.

5. *Have we selected appropriate precision, bias, and method detection limit requirements for FEM evaluation?.*

This depends, in part, on the form of the standard (the longer the averaging, the less precision is needed). The levels provided appear reasonable.

Lead NAAQS Ambient Air Monitoring Network: Network Design Options Under Consideration

1. What types of monitoring sites should be emphasized in the network design (e.g., source oriented monitors, population monitors, near roadway monitors)?

Much of the focus of the PM10 monitoring should be placed on source oriented monitoring, which includes near roadways.

2. We are considering proposing requirements for monitoring near sources exceeding an emissions threshold and discuss a number of options for determining this threshold in the white paper. What options should be considered in establishing an emissions threshold?

The analysis looks reasonable and well thought out. After a standard is set, one can back out what level of emissions will lead to likely non-attainment.

3. We are considering proposing requirements for non-source oriented monitoring in large urban areas to provide additional information on ambient air concentrations in urban areas. Considering other monitoring priorities and a potential requirement for Pb monitoring

near sources, what size of a non-source oriented Pb network is appropriate?

Use of the PM2.5 speciation network can provide much of the needed information as to identifying areas that have a significant potential to be in non-attainment of at PM10 lead standard. I would suggest keeping this aspect relatively small.

4. What factors should we base non-source oriented monitoring requirements on (e.g., population, design value) ?

I would let the design of the non-source/non-roadway aspects of the PM10 network be driven by results from the PM2.5 speciation network (and probably even the roadway-oriented aspects of the network).

5. We are considering proposing requirements for Pb monitoring near roadways and interstates. Is it appropriate to include separate monitoring requirements for near roadway monitoring, or should near roadway monitors be a part of the non-source oriented monitoring requirement?

6. Under what conditions would it be appropriate to waive the monitoring requirements for either source or non-source oriented monitors?

Lead NAAQS Ambient Air Monitoring Network: Sampling Frequency Options Under Consideration

1. What sampling frequency would be appropriate if the Pb NAAQS is based on a monthly average?

I would give areas the choice of one in three (or more frequent) and one in six.

2. Is it appropriate to relax the sampling frequency in areas of low Pb concentration? If so, at what percent of the Pb NAAQS?

If a one in three frequency is chosen, yes, if the monitor indicates Pb levels at 50% or less of the NAAQS. If a one in six is chosen, then no.

3. Is it appropriate to relax the sampling frequency in areas considerably higher than the NAAQS? If so, at what percent of the Pb NAAQS?

No.