

## What is PM-Coarse?

PM-Coarse is a term used by the US-EPA, just like  $PM_{10}$  and  $PM_{2.5}$ . PM-Coarse is defined to be the difference between  $PM_{10}$  and  $PM_{2.5}$ . It is sometimes written as  $PM_{10-2.5}$ . Although at one time EPA was considering making PM-Coarse a “criteria pollutant” in the same category as ozone carbon monoxide,  $PM_{10}$  or  $PM_{2.5}$ , it has not yet done this. However, EPA did develop a reference method for PM-Coarse, which is defined in Appendix O of 40 CFR Part 50. A link to the full description of the method is given below:

<http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=abf77aee52751d0fd4235075a041fab3&rgn=div9&view=text&node=40:2.0.1.1.1.0.1.18.16&idno=40>

The following excerpt is reprinted from Appendix O:

For this reference method,  $PM_{10-2.5}$  concentrations shall be measured as the arithmetic difference between separate but concurrent, collocated measurements of  $PM_{10}$  and  $PM_{2.5}$ , where the  $PM_{10}$  measurements are obtained with a specially approved sampler, identified as a “ $PM_{10c}$  sampler,” that meets more *demanding performance requirements than conventional  $PM_{10}$  samplers described in appendix J of this part* (emphasis added). Measurements obtained with a  $PM_{10c}$  sampler are identified as “ $PM_{10c}$  measurements” to distinguish them from conventional  $PM_{10}$  measurements obtained with conventional  $PM_{10}$  samplers. Thus,  $PM_{10-2.5} = PM_{10c} - PM_{2.5}$ .

Because of these more stringent performance requirements placed on the  $PM_{10}$  sampler portion of the PM-Coarse measurement system, one cannot make a valid PM-Coarse measurement using a standard reference method  $PM_{10}$  sampler. Instead, a special  $PM_{10}$  sampler, which is denoted as  $PM_{10c}$ , must be used.

*Met One Instruments has received US-EPA designation on paired BAM-1020 monitors as an equivalent method for  $PM_{10-2.5}$  and it is the only equivalent method for  $PM_{10-2.5}$  on continuous monitors.* However, just as one cannot use a standard  $PM_{10}$  reference method in a PM-coarse measurement, one also cannot bring together a BAM-1020  $PM_{10}$  equivalent method with a BAM-1020  $PM_{2.5}$  equivalent method and expect to have a US-EPA designated PM-Coarse equivalent method. Instead, one must use specially configured BAM-1020 monitors, one monitoring  $PM_{10}$ , the other monitoring  $PM_{2.5}$  and interconnected and operating with specialized software to have a PM-Coarse method.

The paired BAM-1020 US-EPA designation is shown below:

***Met One Instruments BAM-1020  $PM_{10-2.5}$  Measurement System  
Automated Equivalent Method: EQPM-0709-185***

“Met One Instruments BAM-1020  $PM_{10-2.5}$  Measurement System,” consisting of 2 BAM-1020 monitors, the first of which ( $PM_{2.5}$  measurement) is configured

as a PM<sub>2.5</sub> FEM (EQPM-0308-170). The second BAM-1020 monitor (PM<sub>10</sub> measurement) is configurable as a PM<sub>2.5</sub> FEM (EQPM-0308-170), but set to monitor PM<sub>10</sub>. The BAM-1020 monitors are collocated to within 1-4 meters of one another. The BAM-1020 performing the PM<sub>2.5</sub> measurement is equipped with Met One Instruments, Inc. P/N BX-Coarse interface board and accessories; the units are interconnected to provide concurrent sampling and to report PM<sub>10</sub>-2.5 concentrations directly to the user. Both units are operated in accordance with BAM-1020 PM-Coarse Addendum Rev. 5-5 or later and the BAM-1020 Operations Manual Rev. D or later.”

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It is possible to reconfigure 2 existing, independent BAM-1020 monitors both of which are capable of being operated as PM<sub>2.5</sub> FEMs, as a single PM-Coarse system. Additional hardware and software is needed however. Please contact the factory for further details. In addition, it is possible to run the 2 BAM-1020 monitors that make up the PM-Coarse system independently as a PM<sub>10</sub> FEM and a PM<sub>2.5</sub> FEM. Or, by adding a VSCC (P/N BX-808), it is possible to create 2 independent PM<sub>2.5</sub> FEMs.