

Environmental Protection Agency

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when zero or span checks of the analyzer are made.

(i) *Option.* A non-heated flame ionization detector (FID) that measures hydrocarbon emissions on a dry basis is permitted for petroleum fuels other than diesel and biodiesel; Provided, that equivalency is demonstrated to the Administrator prior to testing. With the exception of temperatures, all specifications contained in Subpart B of this part apply to the optional system.

(ii) The analyzer shall be fitted with a constant temperature oven housing the detector and sample-handling components. It shall maintain temperature with 3.6 °F (2 °C) of the set point. The detector, oven, and sample-handling components within the oven shall be suitable for continuous operation at temperatures to 395 °F (200 °C).

(iii) Fuel and burner air shall conform to the specifications in §92.112(e).

(iv) The percent of oxygen interference must be less than 3 percent, as specified in §92.119(3).

(v) *Premixed burner air.* (A) For diesel and biodiesel fueled engines, premixing a small amount of air with the HFID fuel prior to combustion within the HFID burner is not recommended as a means of improving oxygen interference (%O₂I). However, this procedure may be used if the engine manufacturer demonstrates on each basic combustion system (i.e., four-cycle direct injection, two-cycle direct injection, four-cycle indirect injection, etc.) that an HFID using this procedure produces comparable results to an HFID not using this procedure. These data must be submitted to the Administrator for his/her approval prior to testing.

(B) For engines operating on fuels other than diesel or biodiesel, premixing burner air with the HFID fuel is not allowed.

(2) *Methane analyzer.* The analytical system for methane consists of a gas chromatograph (GC) combined with a flame ionization detector (FID).

(3) *Alcohols and Aldehydes.* The sampling and analysis procedures for alcohols and aldehydes, where applicable, shall be approved by the Administrator prior to the start of testing. Procedures consistent with the general requirements of 40 CFR Part 86 for sam-

pling and analysis of alcohols and aldehydes emitted by on-highway alcohol-fueled engines, and consistent with good engineering practice are allowed.

(4) Other methods of measuring organics that are shown to yield equivalent results can be used upon approval of the Administrator prior to the start of testing.

(d) *Oxides of nitrogen analyzer specifications.* (1) Oxides of nitrogen are to be measured with a chemiluminescence (CL) analyzer.

(i) The NO_x sample must be heated per §92.114 up to the NO₂ to NO converter.

(ii) For high vacuum CL analyzers with heated capillary modules, supplying a heated sample to the capillary module is sufficient.

(iii) The NO₂ to NO converter efficiency shall be at least 90 percent.

(iv) The CO₂ quench interference must be less than 3.0 percent as measured in §92.121(a).

§92.110 Weighing chamber and microbalance.

(a) *Ambient conditions*—(1) *Temperature.* The temperature of the chamber (or room) in which the particulate filters are conditioned and weighed shall be maintained at a measured temperature between 19 °C and 25 °C during all filter conditioning and weighing.

(2) *Humidity.* The relative humidity of the chamber (or room) in which the particulate filters are conditioned and weighed shall be 45±8 percent during all filter conditioning and weighing. The dew point shall be 6.4 to 12.4 °C.

(b) *Weighing balance specifications.* The microbalance used to determine the weights of all filters shall have a precision (standard deviation) of no more than 20 micrograms and readability down to 10 micrograms or lower.

(c) *Reference filters.* The chamber (or room) environment shall be free of any ambient contaminants (such as dust) that would settle on the particulate filters during their stabilization. It is required that at least two unused reference filters remain in the weighing room at all times in covered (to reduce dust contamination) but unsealed (to permit humidity exchange) petri dishes.

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(1) These reference filters shall be placed in the same general area as the sample filters. These reference filters shall be weighed within 4 hours of, but preferably at the same time as, the sample filter weighings.

(2) If the average weight of the reference filters changes between sample filter weighings by ± 5.0 percent (± 7.5 if the filters are weighed in pairs) or more of the target nominal filter loading (the recommended nominal loading is 0.5 milligrams per 1075 square millimeters of stain area), then all sample filters in the process of stabilization shall be discarded and the emissions tests repeated.

(3) If the average weight of the reference filters decreases between sample filter weighings by more than 1.0 percent but less than 5.0 percent of the nominal filter loading then the manufacturer or remanufacturer has the option of either repeating the emissions test or adding the average amount of weight loss to the net weight of the sample.

(4) If the average weight of the reference filters increases between sample filter weighing by more than 1.0 percent but less than 5.0 percent of the nominal filter loading, then the manufacturer or remanufacturer has the option of either repeating the emissions test or accepting the measured sample filter weight values.

(5) If the average weight of the reference filters changes between sample filter weighings by not more than ± 1.0 percent, then the measured sample filter weights shall be used.

(6) The reference filters shall be changed at least once a month, but never between clean and used weighings of a given sample filter. More than one set of reference filters may be used. The reference filters shall be the same size and material as the sample filters.

§92.111 Smoke measurement system.

(a) *Schematic drawing.* Figure B111-1 of this section is a schematic drawing of the optical system of the light extinction meter, as follows: