

## § 86.316-79

than 2 percent of full-scale chart deflection on the lowest range used. The analyzer span is defined as the difference between the span-response and the zero-response. The span-response is defined as the mean response including noise to a span gas during a 30-second time interval.

(Secs. 206, 301(a), Clean Air Act as amended (42 U.S.C. 7525, 7601(a)))

[42 FR 45154, Sept. 8, 1977, as amended at 44 FR 16917, Mar. 20, 1979]

### § 86.316-79 Carbon monoxide and carbon dioxide analyzer specifications.

(a) Carbon monoxide and carbon dioxide measurements are to be made with nondispersive infrared (NDIR) analyzers.

(b) The use of linearizing circuits is permitted.

(c) The minimum water rejection ratio (maximum CO<sub>2</sub> interference) as measured by § 86.321 shall be:

(1) For CO analyzers, 1000:1.

(2) For CO<sub>2</sub> analyzers, 100:1.

(d) The minimum CO<sub>2</sub> rejection ratio (maximum CO<sub>2</sub> interference) as measured by § 86.322 for CO analyzers shall be 5000:1.

(e) *Zero suppression.* Various techniques of zero suppression may be used to increase readability, but only with prior approval by the Administrator.

### § 86.317-79 Hydrocarbon analyzer specifications.

(a) Hydrocarbon measurements are to be made with a heated flame ionization detector (HFID) analyzer.

(b) *Option.* A non-heated flame ionization detector (FID) that measures hydrocarbon emissions on a dry basis is permitted for gasoline-fueled testing; *Provided,* That equivalency is demonstrated to the Administrator. With the exception of temperatures, all specifications contained in subpart D apply to the optional system.

(c) The analyzer shall be fitted with a constant temperature oven housing the detector and sample-handling components. It shall maintain temperature within 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 200 °C.

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(d) Fuel and burner air shall conform to the specifications in § 86.308.

(e) The percent of oxygen interference must be less than 3 percent, as specified in § 86.331(d)(7).

(f) Premixed burner air:

(1) For Diesel 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 (%O<sub>2</sub> I). However, this procedure may be used if the engine manufacturer demonstrates on each basic combustion system (i.e., 4 cycle DI, 2 cycle DI, 4 cycle precup, 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 approval prior to testing.

(2) For gasoline-fueled engines, premixing burner air with the HFID fuel is not allowed.

### § 86.318-79 Oxides of nitrogen analyzer specifications.

(a) Oxides of nitrogen are to be measured with a chemiluminescence analyzer.

(1) The NO<sub>x</sub> sample must be heated per § 86.309(a) and § 86.310(a) up to the NO<sub>2</sub> to NO converter.

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

(3) The NO<sub>2</sub> to NO converter efficiency shall be at least 90 percent.

(4) The quench interference must be less than 3.0 percent as measured in § 86.327.

(b) *Option.* The oxides of nitrogen may be measured with an NDIR analyzer system that meets the following specifications:

(1) The system shall include an NO<sub>2</sub> to NO converter, a water trap, and an NDIR analyzer in that order.

(2) The NO<sub>2</sub> to NO converter shall obtain a sample directly from the heated sample line.

(3) The water trap shall meet the specifications in § 86.311(e).

(4) The NO NDIR analyzer shall be calibrated per § 86.330.

(5) The minimum water rejection ratio (maximum water interference)