

Environmental Protection Agency

§ 90.320

(d) The initial and periodic interference, system check, and calibration test procedures specified in §86.332-79 of this chapter may be used in lieu of the procedures specified in this section.

§90.319 NO_x converter check.

(a) The efficiency of the converter used for the conversion of NO₂ to NO is tested as given in paragraphs (a)(1) through (a)(8) of this section.

(1) Using the test setup as shown in Figure 1 in Appendix B of this subpart (see also §90.318 of this chapter) and the procedure described in paragraphs (a)(2) through (a)(8) of this section, test the efficiency of converters by means of an ozonator.

(2) Calibrate the HCLD or CLD in the most common operating range following the manufacturer's specifications using zero and span gas (the NO content of which must amount to about 80 percent of the operating range and the NO₂ concentration of the gas mixture less than five percent of the NO concentration). The NO_x analyzer must be in the NO mode so that the span gas does not pass through the converter. Record the indicated concentration.

(3) Calculate the efficiency of the NO_x converter as described in §90.318(b).

(4) Via a T-fitting, add oxygen continuously to the gas flow until the concentration indicated is about 20 percent less than the indicated calibration concentration given in paragraph (a)(2) of this section. Record the indicated concentration "c." The ozonator is kept deactivated throughout the process.

(5) Activate the ozonator to generate enough ozone to bring the NO concentration down to about 20 percent (minimum 10 percent) of the calibration concentration given in paragraph (a)(2) of this section. Record the indicated concentration "d."

NOTE: If, with the analyzer in the most common range, the NO_x converter can not

give a reduction from 80 percent to 20 percent, then use the highest range which will give the reduction.

(6) Switch the NO analyzer to the NO_x mode which means that the gas mixture (consisting of NO, NO₂, O₂ and N₂) now passes through the converter. Record the indicated concentration "a."

(7) Deactivate the ozonator. The mixture of gases described in paragraph (a)(6) of this section passes through the converter into the detector. Record the indicated concentration "b."

(8) Switched to NO mode with the ozonator deactivated, the flow of oxygen or purified synthetic air is also shut off. The NO_x reading of the analyzer may not deviate by more than ± five percent of the theoretical value of the figure given in paragraph (a)(2) of this section.

(b) The efficiency of the converter must be tested prior to each calibration of the NO_x analyzer.

(c) The efficiency of the converter may not be less than 90 percent.

§90.320 Carbon dioxide analyzer calibration.

(a) Prior to its initial use and monthly thereafter, or within one month prior to the certification test, calibrate the NDIR carbon dioxide analyzer as follows:

(1) Follow good engineering practices for instrument start-up and operation. Adjust the analyzer to optimize performance.

(2) Zero the carbon dioxide analyzer with either purified synthetic air or zero-grade nitrogen.

(3) Calibrate on each normally used operating range with carbon dioxide-in-N₂ calibration or span gases having nominal concentrations between 10 and 90 percent of that range. A minimum of six evenly spaced points covering at least 80 percent of the 10 to 90 range (64 percent) is required (see following table).

Example calibration points (%)	Acceptable for Calibration?
20, 30, 40, 50, 60, 70	No, range covered is 50 percent, not 64.
20, 30, 40, 50, 60, 70, 80, 90	Yes.
10, 25, 40, 55, 70, 85	Yes.
10, 30, 50, 70, 90	No, though equally spaced and entire range covered, a minimum of six points are needed.