

Environmental Protection Agency

§ 1065.290

(c) *NO₂-to-NO converter.* If your NDUV analyzer measures only NO, place upstream of the NDUV analyzer an internal or external NO₂-to-NO converter that meets the verification in §1065.378. Configure the converter with a bypass to facilitate this verification.

(d) *Humidity effects.* You must maintain NDUV temperature to prevent aqueous condensation, unless you use one of the following configurations:

(1) Connect an NDUV downstream of any dryer or chiller that is downstream of an NO₂-to-NO converter that meets the verification in §1065.378.

(2) Connect an NDUV downstream of any dryer or thermal chiller that meets the verification in §1065.376.

O₂ MEASUREMENTS

§ 1065.280 Paramagnetic and magnetopneumatic O₂ detection analyzers.

(a) *Application.* You may use a paramagnetic detection (PMD) or magnetopneumatic detection (MPD) analyzer to measure O₂ concentration in raw or diluted exhaust for batch or continuous sampling. You may use O₂ measurements with intake air or fuel flow measurements to calculate exhaust flow rate according to §1065.650.

(b) *Component requirements.* We recommend that you use a PMD/MPD analyzer that meets the specifications in Table 1 of §1065.205. Note that it must meet the linearity verification in §1065.307. You may use a PMD/MPD that has compensation algorithms that are functions of other gaseous measurements and the engine's known or assumed fuel properties. The target value for any compensation algorithm is 0.0% (that is, no bias high and no bias low), regardless of the uncompensated signal's bias.

EFFECTIVE DATE NOTE: At 73 FR 37300, June 30, 2008, §1065.280 was revised, effective July 7, 2008. For the convenience of the user, the revised text is set forth as follows:

§ 1065.280 Paramagnetic and magnetopneumatic O₂ detection analyzers.

(a) *Application.* You may use a paramagnetic detection (PMD) or magnetopneumatic detection (MPD) analyzer to measure O₂ concentration in raw or diluted exhaust for batch or continuous sampling. You may use O₂ measurements with

intake air or fuel flow measurements to calculate exhaust flow rate according to §1065.650.

(b) *Component requirements.* We recommend that you use a PMD or MPD analyzer that meets the specifications in Table 1 of §1065.205. Note that it must meet the linearity verification in §1065.307. You may use a PMD or MPD that has compensation algorithms that are functions of other gaseous measurements and the engine's known or assumed fuel properties. The target value for any compensation algorithm is 0.0% (that is, no bias high and no bias low), regardless of the uncompensated signal's bias.

AIR-TO-FUEL RATIO MEASUREMENTS

§ 1065.284 Zirconia (ZrO₂) analyzer.

(a) *Application.* You may use a zirconia (ZrO₂) analyzer to measure air-to-fuel ratio in raw exhaust for continuous sampling. You may use O₂ measurements with intake air or fuel flow measurements to calculate exhaust flow rate according to §1065.650.

(b) *Component requirements.* We recommend that you use a ZrO₂ analyzer that meets the specifications in Table 1 of §1065.205. Note that your ZrO₂-based system must meet the linearity verification in §1065.307. You may use a Zirconia analyzer that has compensation algorithms that are functions of other gaseous measurements and the engine's known or assumed fuel properties. The target value for any compensation algorithm is 0.0% (that is, no bias high and no bias low), regardless of the uncompensated signal's bias.

PM MEASUREMENTS

§ 1065.290 PM gravimetric balance.

(a) *Application.* Use a balance to weigh net PM on a sample medium for laboratory testing.

(b) *Component requirements.* We recommend that you use a balance that meets the specifications in Table 1 of §1065.205. Note that your balance-based system must meet the linearity verification in §1065.307. If the balance uses internal calibration weights for routine spanning and linearity verifications, the calibration weights must meet the specifications in §1065.790. While you may also use an inertial balance to measure PM, as described in §1065.295, use a reference procedure based on a gravimetric balance