

Example:

$M_{NO_x} = 46.0055 \text{ g/mol}$
 $x_{bknd} = 0.05 \text{ } \mu\text{mol/mol} = 0.05 \cdot 10^{-6} \text{ mol/mol}$
 $\dot{n}_{dexh} = 23280.5 \text{ mol/s}$
 $x_{dil/exh} = 0.843 \text{ mol/mol}$
 $\dot{m}_{bkndNO_{xdexh}} = 46.0055 \cdot 0.05 \cdot 10^{-6} \cdot 23280.5$
 $\dot{m}_{bkndNO_{xdexh}} = 0.0536 \text{ g/hr}$
 $\dot{m}_{bkndNO_x} = 0.843 \cdot 0.0536$
 $\dot{m}_{bkndNO_x} = 0.0452 \text{ g/hr}$
 [76 FR 57465, Sept. 15, 2011]

§ 1065.670 NO_x intake-air humidity and temperature corrections.

See the standard-setting part to determine if you may correct NO_x emissions for the effects of intake-air humidity or temperature. Use the NO_x intake-air humidity and temperature corrections specified in the standard-setting part instead of the NO_x intake-air humidity correction specified in this part 1065. If the standard-setting part does not prohibit correcting NO_x emissions for intake-air humidity according to this part 1065, correct NO_x concentrations for intake-air humidity as described in this section. See §1065.650(c)(1) for the proper sequence for applying the NO_x intake-air humidity and temperature corrections. You may use a time-weighted mean combustion air humidity to calculate this

correction if your combustion air humidity remains within a tolerance of ±0.0025 mol/mol of the mean value over the test interval. For intake-air humidity correction, use one of the following approaches:

See the standard-setting part to determine if you may correct NO_x emissions for the effects of intake-air humidity or temperature. Use the NO_x intake-air humidity and temperature corrections specified in the standard-setting part instead of the NO_x intake-air humidity correction specified in this part 1065. If the standard-setting part does not prohibit correcting NO_x emissions for intake-air humidity according to this part 1065, first apply any NO_x corrections for background emissions and water removal from the exhaust sample, then correct NO_x concentrations for intake-air humidity. You may use a time-weighted mean combustion air humidity to calculate this correction if your combustion air humidity remains within a tolerance of ±0.0025 mol/mol of the mean value over the test interval. For intake-air humidity correction, use one of the following approaches:

(a) For compression-ignition engines, correct for intake-air humidity using the following equation:

$$x_{NO_{xcor}} = x_{NO_{xuncor}} \cdot (9.953 \cdot x_{H_2O} + 0.832) \quad \text{Eq. 1065.670-1}$$

Example:

$x_{NO_{xuncor}} = 700.5 \text{ } \mu\text{mol/mol}$
 $x_{H_2O} = 0.022 \text{ mol/mol}$
 $x_{NO_{xcor}} = 700.5 \cdot (9.953 \cdot 0.022 + 0.832)$

$x_{NO_{xcor}} = 736.2 \text{ } \mu\text{mol/mol}$

(b) For spark-ignition engines, correct for intake-air humidity using the following equation:

$$x_{NO_{xcor}} = x_{NO_{xuncor}} \cdot (18.840 \cdot x_{H_2O} + 0.68094) \quad \text{Eq. 1065.670-2}$$

Example:

$x_{NO_{xuncor}} = 154.7 \text{ } \mu\text{mol/mol}$
 $x_{H_2O} = 0.022 \text{ mol/mol}$
 $x_{NO_{xcor}} = 154.7 \cdot (18.840 \cdot 0.022 + 0.68094)$
 $x_{NO_{xcor}} = 169.5 \text{ } \mu\text{mol/mol}$

(c) Develop your own correction, based on good engineering judgment.

[75 FR 23056, Apr. 30, 2010, as amended at 76 FR 57466, Sept. 15, 2011]