§ 1065.670 NO\textsubscript{X} intake-air humidity and temperature corrections.

See the standard-setting part to determine if you may correct NO\textsubscript{X} emissions for the effects of intake-air humidity or temperature. Use the NO\textsubscript{X} intake-air humidity and temperature corrections specified in the standard-setting part instead of the NO\textsubscript{X} intake-air humidity correction specified in this part 1065. If the standard-setting part does not prohibit correcting NO\textsubscript{X} emissions for intake-air humidity according to this part 1065, first apply any NO\textsubscript{X} corrections for background emissions and water removal from the exhaust sample, then correct NO\textsubscript{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:

\[
\text{\textcolor{black}{x_{\text{NO}x_{\text{cor}}}}} = \text{\textcolor{black}{x_{\text{NO}x_{\text{uncor}}}}} \cdot \left(9.953 \cdot \text{\textcolor{black}{x_{H2O}}} + 0.832\right)
\]

Example:
\[
\text{\textcolor{black}{x_{\text{NO}x_{\text{uncor}}}}} = 700.5 \mu\text{mol/mol} \\
\text{\textcolor{black}{x_{H2O}}} = 0.022 \text{ mol/mol} \\
\text{\textcolor{black}{x_{\text{NO}x_{\text{cor}}}}} = 700.5 \cdot (9.953 \cdot 0.022 + 0.832)
\]

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

\[
\text{\textcolor{black}{x_{\text{NO}x_{\text{cor}}}}} = \text{\textcolor{black}{x_{\text{NO}x_{\text{uncor}}}}} \cdot \left(18.840 \cdot \text{\textcolor{black}{x_{H2O}}} + 0.68094\right)
\]

Example:
\[
\text{\textcolor{black}{x_{\text{NO}x_{\text{uncor}}}}} = 154.7 \mu\text{mol/mol} \\
\text{\textcolor{black}{x_{H2O}}} = 0.022 \text{ mol/mol} \\
\text{\textcolor{black}{x_{\text{NO}x_{\text{cor}}}}} = 154.7 \cdot (18.840 \cdot 0.022 + 0.68094)
\]

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