

Low NOx – Low NOx is typically defined as any value of NOx that is under 500 ppm. The most common values are between 9 and 300 ppm. It is most imperative to measure **True NOx** (NO+NO₂) when dealing with these low values to reduce the error since a few ppm error accounts for a significant amount of the Total NOx.

True NOx – True NOx is a method of measuring the value of NOx emissions without using any factors or presumptions. The concentrations of NO and NO₂ are measured separately with high accuracy sensors and the values are then added together to find the True “Total” NOx value. It is especially important to measure True NOx when dealing with low NOx emissions to reduce error.

True NOx vs. NOx

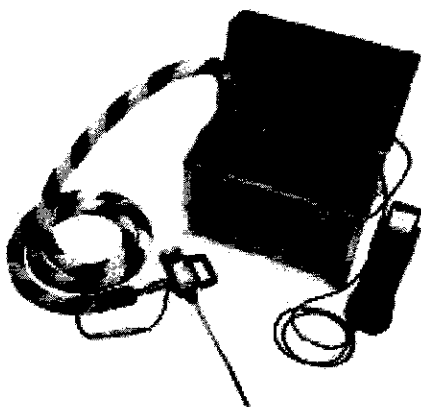
$$\text{NO} + \text{NO}_2 \text{ (Measured) } = \text{NOx} \quad \text{NO} + \text{NO}_2 \text{ (Calculated) } = \text{NOx}$$

Measuring True NOx – There are specific instruments that quantify the level of NO and NO₂ in a sample. Before being able to measure NOx, it is important to locate a sample that is representative of the emissions being released into the atmosphere. Therefore, it is important to take the sample from the right location and to be sure that there are no gas leaks.

Problems With Measuring NO₂ – It is very important that when taking NO₂ measurements all precautions are taken to ensure that the integrity of the data is kept. This can be achieved by making sure that condensation does not build up, as NO₂ is very water-soluble. If there is condensation, as much as 50% of the NO₂ can dissolve out of the gas phase into the condensate, affecting the readings greatly.

Best Method for Measuring NO₂

Given the solubility of the NO₂ gas, it is imperative that the integrity of the gas sample is maintained and all the water is eliminated under a controlled environment minimizing any contact with the sample gas; this can be achieved by using a sampling system that includes the following components:



- Heated Probe
- Heated Sample Line
- Chiller