

High Performance NO_x Sensor



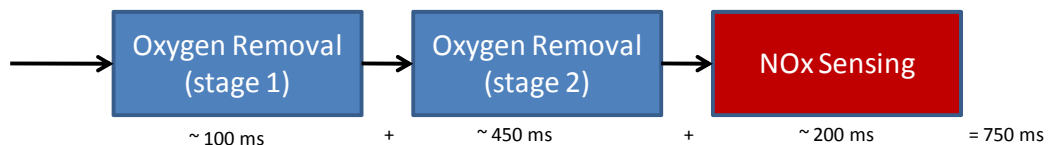
New environmental regulations require a sharp decline in nitrogen oxides (NO_x) emissions from diesel vehicles. NO_x control strategies, including selective catalytic reduction (SCR) and lean NO_x traps (LNT), require sensors to monitor their effectiveness. The NexTech sensor offers several important advantages compared to currently available NO_x sensors:

- **Simplicity and Low Cost**
- **Fast Response Time**
- **Dual NO_x and Ammonia sensing**
- **Sulfur Tolerance**

Simple, Low Cost Approach

The NexTech sensor detects NO_x through a catalytic effect. In the presence of NO_x, the identified materials demonstrate improved activity for the reduction of oxygen. This new method for detecting NO_x emissions in the oxygen-containing environment of a lean burn engine exhaust is far simpler than competing approaches. Unlike conventional NO_x sensors, this sensor does not require multiple stages of oxygen pumping, nor does it require an air reference electrode; both of which complicates device design and slows response time.

Leading NO_x Sensor



NexTech NO_x Sensor

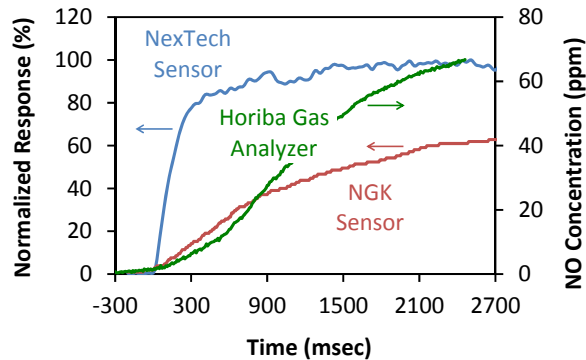


* NO_x is sensed by catalyzed reduction of oxygen

NTM Sensors

We sense a Green future™

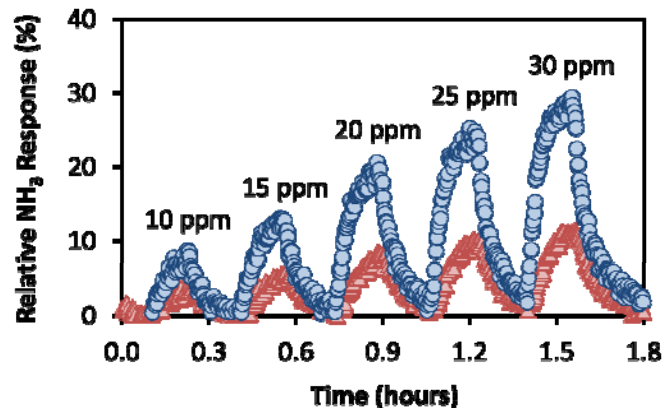
FAST Response Time



In contrast to NO_x sensor on the market, NexTech's sensor does not require oxygen pumping in order to detect NO_x. This absence of pre-sensing gas conditioning and the nature of the sensing mechanism give the NexTech approach a significant advantage in terms of response time, a critical need for diesel emission reduction technologies.

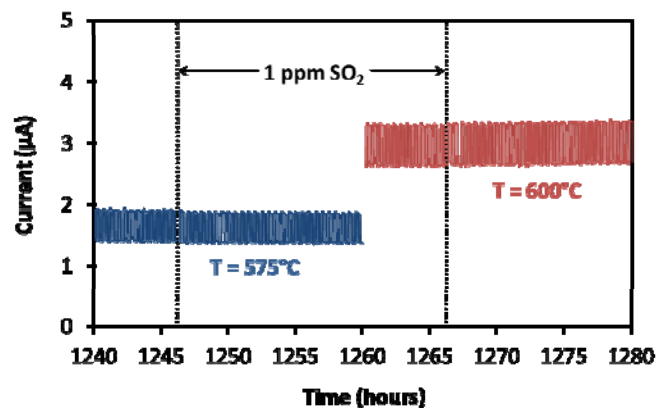
Dual NO_x and Ammonia Sensing

In selective catalytic reduction (SCR) systems, ammonia (NH₃) is used to reduce NO_x in the exhaust stream. Because of resulting ammonia slip, ammonia emissions are becoming increasingly regulated, driving the need for ammonia sensors. The graph to the right shows the capability of NexTech's technology to control the ammonia sensitivity (relative to NO_x). Leveraging this property, control algorithms can be developed to simultaneously quantify both NO_x and NH₃ in a single sensor.



Sulfur Tolerant

NexTech has formulated its NO_x sensor for long term reliability and durability in the harsh diesel exhaust environment. In particular, tolerance to continuous exposure to sulfur, a common exhaust poison has been demonstrated. The figure to the right demonstrates the negligible impact that sulfur has on the sensor response, at concentrations exceeding that of current diesel fuels.



About NTM Sensors and NexTech Materials Ltd.



NexTech Materials was founded in 1994, with a vision to be the premium global supplier of manufactured products to targeted environmental and energy markets. NTM Sensors, a division of NexTech Materials, has been developing ceramic-based gas sensors for over seven years. In addition to the NO_x sensor, NTM Sensors has recently commercialized hydrogen safety sensors.