

**Exhaust Protection  
in the Firehouse and On-Scene!**



**NO SMOKE**

**W WARD**  
FILTER SYSTEMS  
[warddiesel.com](http://warddiesel.com)

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## WARD FILTER SYSTEMS

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The need for diesel exhaust protection is vital for the health and safety of the men and women in your departments. When you have some time, please review these materials regarding the NO SMOKE Family of Filter Systems.

NO SMOKE is an apparatus-mounted, direct source capture system that works automatically to remove diesel exhaust from your station and on-scene. Because it is apparatus-mounted, NO SMOKE allows for any configuration of vehicle parking and gives you the ability to move vehicles to different stations as circumstances require. There are no building modifications necessary and no hanging hoses to get in your way.

NO SMOKE automatically provides complete protection from harmful diesel exhaust whenever you exit and re-enter the station, making NO SMOKE the most effective and user-friendly system on the market.

With thousands of installations currently operating, NO SMOKE has proven its capability and reliability to fire and rescue personnel throughout the world. We hope that you will be next to join the growing list of fire departments that have decided to protect their personnel with NO SMOKE!

Best Regards,

Tony Farrell  
Regional Sales Manager  
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NO SMOKE

# The Facts

## 6.1 Cancer in humans

There is *sufficient evidence* in humans for the carcinogenicity of diesel engine exhaust. Diesel engine exhaust causes cancer of the lung. A positive association has been observed between exposure to diesel engine exhaust and cancer of the urinary bladder.

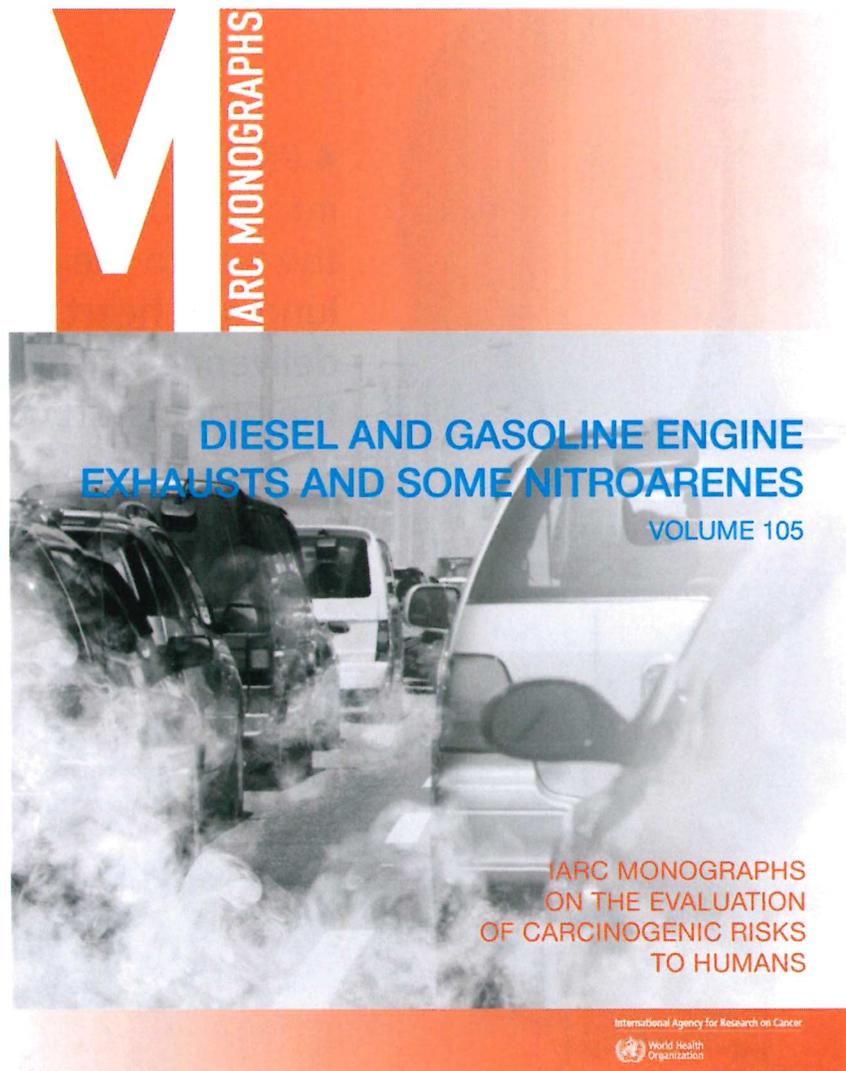
There is *inadequate evidence* in humans for the carcinogenicity of gasoline engine exhaust.



World Health  
Organization

## 6.3 Overall evaluation

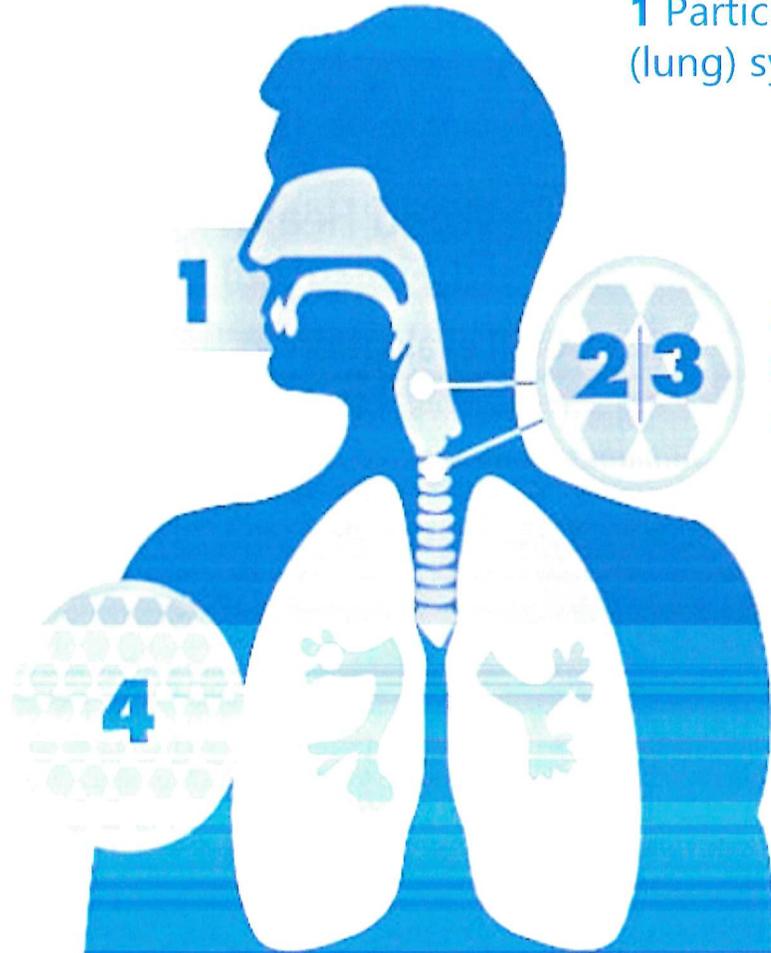
Diesel engine exhaust is *carcinogenic to humans* (Group 1).



World Health Organization  
IARC (2014) Volume 105

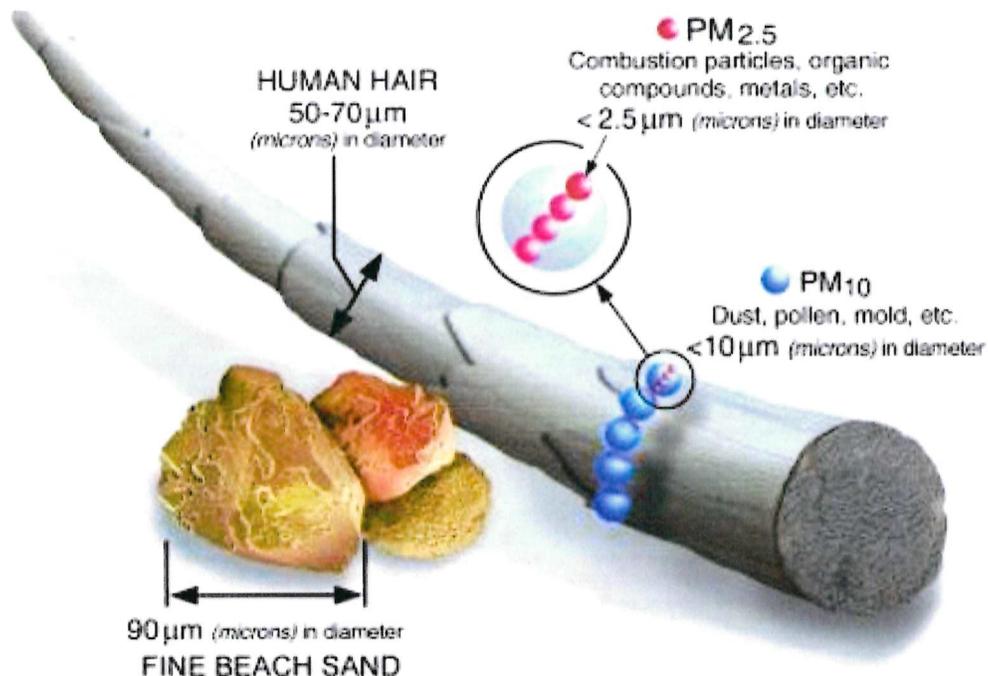
# The Facts

1 Particulate matter enters our respiratory (lung) system through the nose and throat.



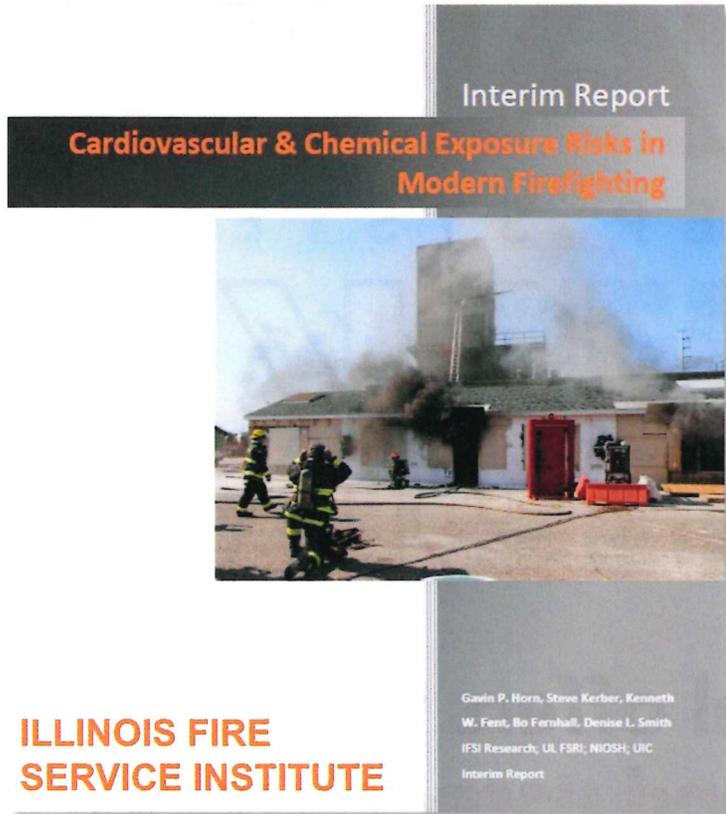
2 & 3 The larger particulate matter ( $PM_{10}$ ) is eliminated through coughing, sneezing and swallowing.

4  $PM_{2.5}$  can penetrate deep into the lungs. It can travel all the way to the alveoli, causing lung and heart problems, and delivering harmful chemicals to the blood system.



**The surface area of your respiratory system is 80x that of the skin!**

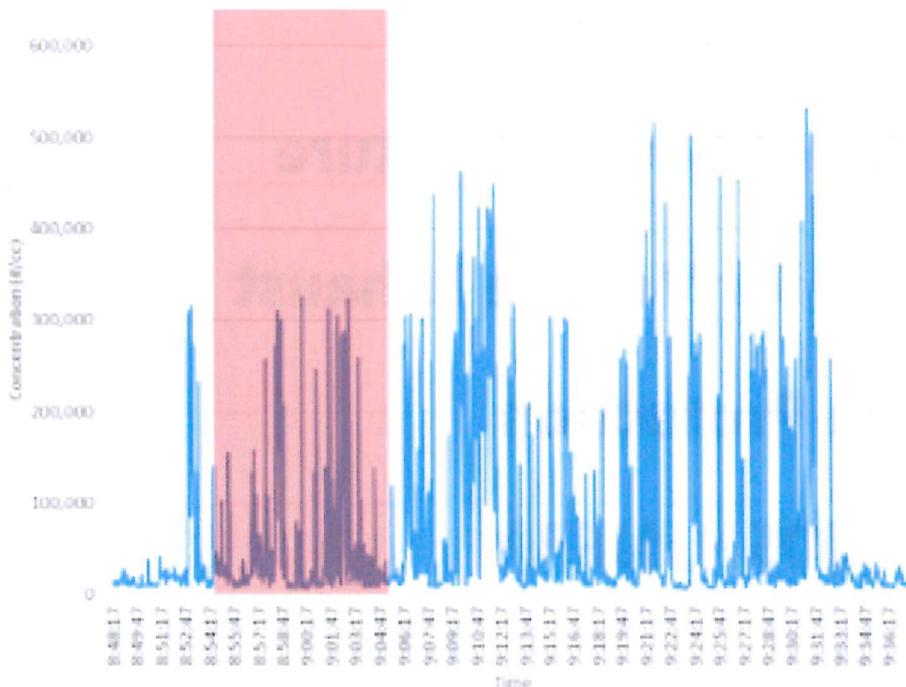
# The Facts



“Several studies have been conducted to assess firefighters’ exposure to combustion byproducts. These studies have identified numerous carcinogenic compounds in the fire atmosphere...”

Firefighters can also be exposed to diesel exhaust, a known human carcinogen, at the fire ground or fire station.”

**NO SMOKE** is apparatus-mounted. Exhaust protection travels with the apparatus. It is the only product on the market today providing protection both INSIDE and OUTSIDE the fire station.



## VI.II Chemical Exposures

“To minimize inhalation of contaminants during a fire response: Fire personnel should remain upwind of diesel exhaust emitted from the apparatus.”

Figure 14. VOCs Particle number concentration (for particles 0.01 to > 1 µm) measured at the fire ground (downwind of diesel exhaust) on 6/27/2015.



**NO SMOKE**

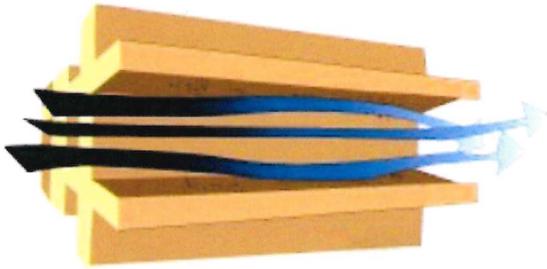
**Ward Diesel offers the  
most effective and user-friendly  
exhaust protection systems on the market!**

- Apparatus Mounted**
- 100% Direct Source Capture**
- The SCBA for Vehicle Exhaust**
- On-Scene Protection**
- OSHA, NIOSH, NFPA**
- Automatic**

# NO SMOKE 2

## For 2007, 2010 & Newer Vehicles

**NO SMOKE 2** models the original **NO SMOKE** system, but is specially designed to meet the needs of *engines built in 2007 and beyond* that emit higher levels of harmful gases.



Channel walls coated with precious metals transform harmful exhaust gases into clean air.

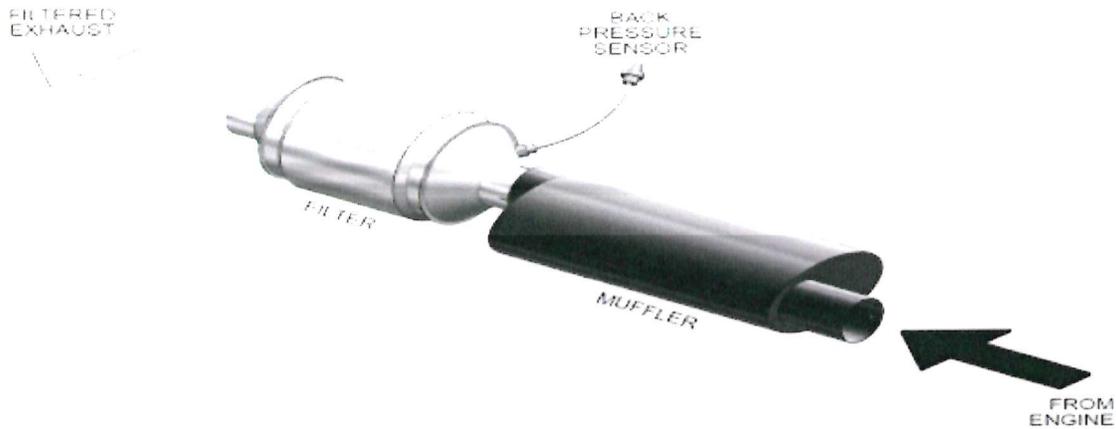
**NO SMOKE 2** features a high-performance substrate with a proprietary wash coat that removes harmful gases from diesel exhaust.

While exhaust flows down the channels of the substrate, the gases interact with a precious metal coating on the cell walls, turning dangerous exhaust gases into harmless carbon dioxide and water vapor.

# NO SMOKE 2

## Safety Feature

- Consist of Filter and Back Pressure Sensor
- Full Time Operation



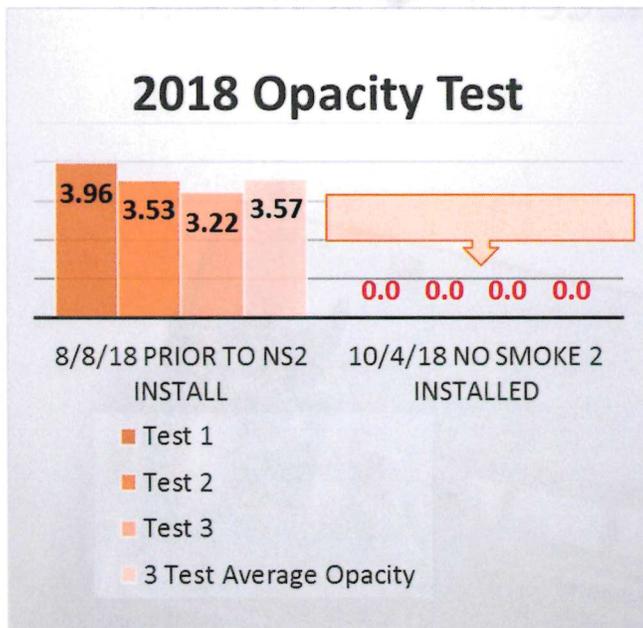
- Back Pressure Sensor (*pictured above*)
- At ***1.5psi*** a red light indicator will appear on the dash letting you know there is a problem with the flow through system and needs to be diagnosed.

# NO SMOKE



## Opacity Testing

**2017 Cummins L9, Fire Emergency 450 HP**  
**Testing Performed 8/8/18 and 10/4/18**



*Section 2180ET, EEQ., Title 13 California Code of Regulations*  
*Independent Test*  
*SAE J1667 Opacity Test Report*  
*Mfg: Red Mountain, Mdl: Smoke Check 1667, S/N: 14017992*

**8/8/18 Testing  
 PRIOR to NO SMOKE 2 Installation**

**10/4/18 Testing  
 WITH NO SMOKE 2 Installed**

### What Does an Opacity Test Measure?

Smoke opacity instruments measure optical properties of diesel smoke, providing an indirect way of measuring of diesel particulate emissions.

### Why perform an Opacity Test?

Opacity Tests are often used to evaluate smoke emissions in locations outside the laboratory, such as in maintenance shops or in the field. In fact, the smoke opacity measurement is the only relatively low-cost and widely available method to measure a PM-related emission parameter in the field. For this reason, opacity limits are used in most inspection and maintenance (I&M) or periodic technical inspection (PTI) programs for diesel engines. Smoke opacity limits may be also included as auxiliary limits in new engine emission standards.

# NO SMOKE Systems

- Can be installed on **ALL** diesel vehicles, including ambulances and pick-ups.
- Can be be reinstalled on replacement vehicles.



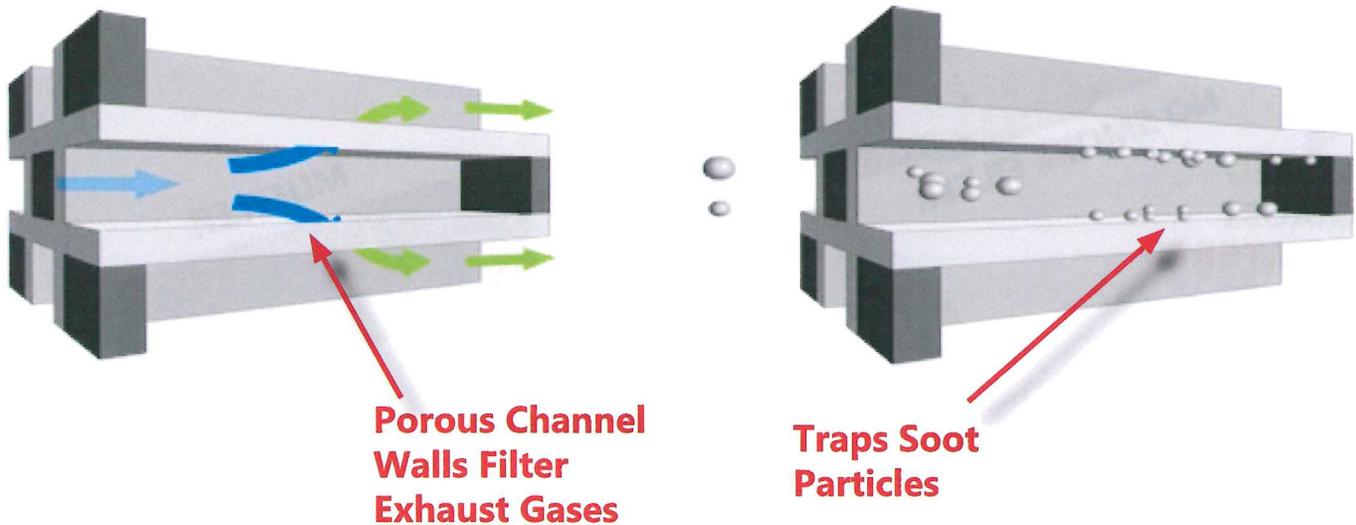
Our products will

**NOT VOID ENGINE WARRANTIES!**

# NO SMOKE

## For 2006 & Earlier Model Engines

**NO SMOKE** is an *apparatus-mounted, direct source capture* exhaust removal system that works automatically to protect you from the dangers of breathing diesel exhaust. The system captures the harmful particulate and gases that you shouldn't be exposed to.

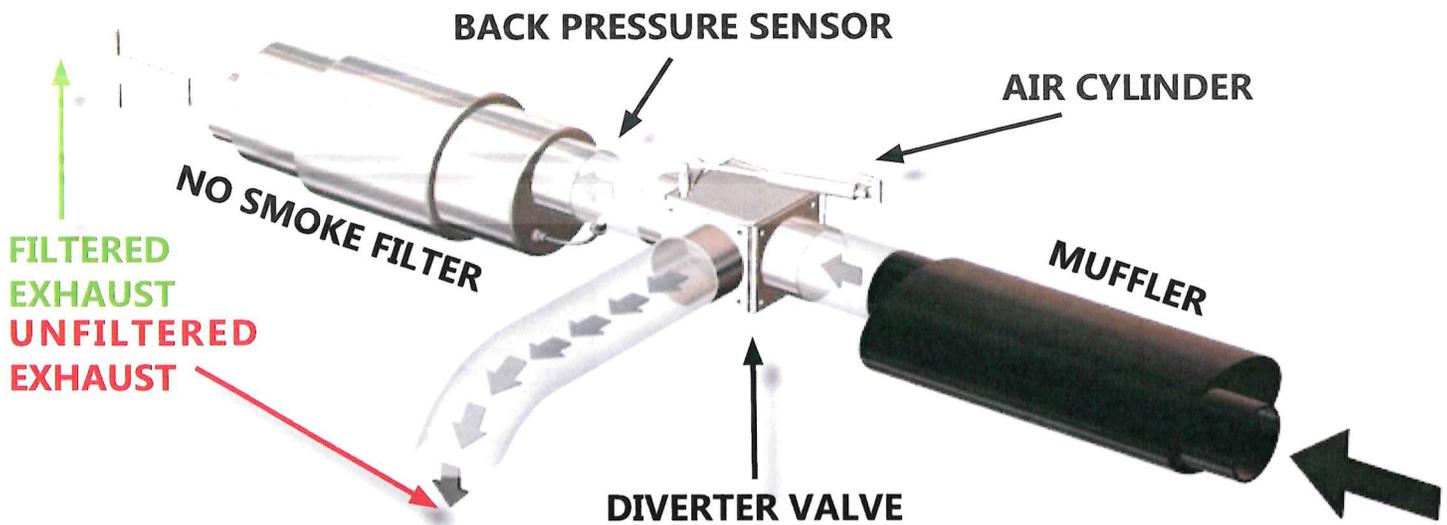


**NO SMOKE** features a Corning DuraTrap™ CO diesel particulate filter that removes particulate matter (soot) from diesel exhaust. The filter consists of thousands of individual channels. Exhaust gas filters through the channel walls while soot particles are trapped in the channels.

# NO SMOKE

## Safety Feature

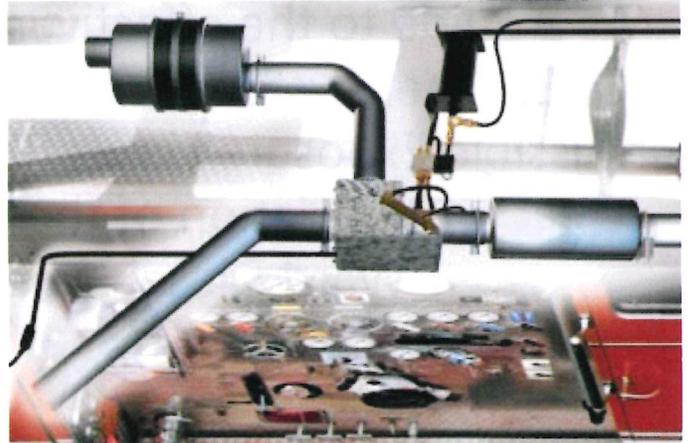
- Back Pressure Sensor *(Pictured Below)*
- At **1.5psi** a red light indicator will appear on the dash letting you know it is time to change the filter.



- If the system reaches **1.8psi** for **3-4 seconds**, the system will automatically turn itself off and revert the engine back to standard exhaust. This will prevent any buildup of back pressure, preventing any loss of horsepower or performance.

# NO SMOKE

**System consists of a filter, a diverter unit, and an electronic control module.**



## **When you start the engine:**

- Electronic control module engages the diverter unit, directing vehicle exhaust into the filter — not into the station.
- The system has a timer to filter exhaust for a preset period, allowing time to leave the station before it automatically switches out of filter mode and back to straight exhaust.

## **When you return to the station:**

- The system automatically engages when you put the engine in reverse to back in. It continues to clean exhaust until the engine stops.
- If you have drive-through stations, a push button will be mounted to the dash so you can activate the system upon entry.

## **On Scene:**

- Manual override keeps system in filter mode while engine idles, so no one at the scene has to breathe deadly exhaust.

# NO SMOKE & NO SMOKE2

## Emissions Reductions



As a guide to the effectiveness of the NO SMOKE and NO SMOKE2 Filter Systems, the following table compares the OSHA Permissible Exposure Limits (PEL) with results achieved after the installation of the Direct Source Capture Ward Diesel Exhaust Removal System.

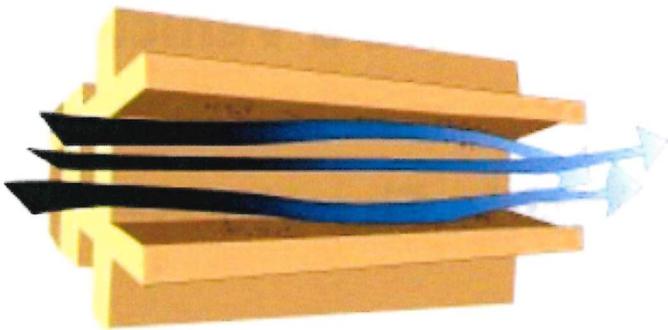
	Permissible Exposure Limits (OSHA) (PEL)	Emissions after Installation of "NO SMOKE"	Emissions after Installation of "NO SMOKE2"
<b>Carbon Monoxide</b> *Average Over an 8-hour work shift *200 PPM Ceiling (5-min sample)	<b>35 PPM</b>	<b>8.0 PPM</b>	<b>0 to 19 PPM</b>
<b>Sulfur Dioxide</b>	<b>5 PPM</b>	<b>Less than 0.1 PPM</b>	<b>Less than 0.1 PPM</b>
<b>Poly Aromatic Hydro-Carbons</b>	<b>1 PPM</b>	<b>0.1 PPM</b>	<b>Less than 0.05 PPM</b>
<b>Total Particulate</b>	<b>1 PPM</b>	<b>0.13 PPM</b>	<b>Less than 0.05 PPM</b>
<b>Nitric Oxide</b>	<b>25 PPM</b>	<b>2.5 PPM</b>	<b>3 PPM</b>
<b>Nitrogen Dioxide</b>	<b>5 PPM</b>	<b>0.14 PPM</b>	<b>2 PPM</b>

*Note: Please see full Third Party and Customer Test Reports for specific supporting information.*

# NO SMOKE GAS

## NO SMOKE Gas - For Gasoline Engines

**NO SMOKE Gas** models the **NO SMOKE 2** system, but is specially designed to meet the needs of **Gasoline Engines** that emit higher levels of harmful gases.



*Channel Walls Coated with Precious Metals Transform Harmful Exhaust Gases into Clean Air*

**NO SMOKE Gas** in the oxidation process, the catalyst transforms pollutants into harmless gases through oxidizing (or burning), by combining them with free oxygen in the exhaust. Carbon monoxide and hydrocarbons are oxidized into carbon dioxide and water vapor.

Unlike oxidation, reduction is a process of removing oxygen from compounds, in this case from nitrogen. Nitrogen oxides (NO<sub>x</sub>) formed in the combustion process, are reduced to nitrogen and carbon dioxide (CO<sub>2</sub>) through reduction, which is promoted by the catalyst.

# On Board & Automatic



**NO SMOKE SYSTEMS** mount directly to your vehicles. There's nothing to connect or disconnect – the system starts and stops automatically.

- NO Hoses to Attach Behind a Vehicle**
- NO Safety Hazard Inside Fire House**
- NO Fans**
- NO Building Modifications**
- FULLY AUTOMATIC**

**NO SMOKE**  
takes the hassle out of exhaust removal!

# On-Scene Protection

**You can filter exhaust while  
your engine idles:**

- On the scene**
- At an ER entrance**
- At community events**

**When you need  
clean air,  
**SO SMOKE**  
is there!**



# Low-to-No Maintenance

The advanced design of the  
**NO SMOKE 2**  
should require  
**no maintenance or cleaning!**

The original  
**NO SMOKE**  
has an indicator light that comes on  
when it's time to order a new filter.



*You can change the filter in less than  
30 minutes using basic tools.*



**NO SMOKE**

**Tony Farrell**  
**Regional Sales Manager**

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