

What is the Purpose of this Program?

This testing program is being undertaken by the Vermont Department of Environmental Conservation (DEC) in cooperation with the Vermont Department of Motor Vehicles (DMV).

The intent of this program is to identify heavy duty diesel vehicles with excessive smoke emissions. High smoke levels are an indicator of poor vehicle maintenance and contribute to air pollution.

Diesel smoke impairs visibility and contains compounds which can cause cancer and other health effects. Because diesel smoke is so visible, it is a major source of public concern.

The Vermont DEC is conducting this program in response to growing awareness of the health and welfare effects of diesel exhaust.

How You May be Affected

You may be requested to have your vehicle tested. Smoke opacity tests will be performed in conjunction with the normal on-road safety inspections and some inspections will be conducted at fleet garages.

Depending on your vehicle's test results, you may also be asked to perform the service or repairs needed to reduce excessive smoke emissions.

How is the Test Done?

The exhaust smoke is checked using a snap-acceleration test procedure, which simulates on-the-road acceleration.

After a vehicle is selected for testing, the wheels are chocked for safety. Brakes are disengaged for the testing. The inspector records the necessary vehicle information such as engine make and model, vehicle weight rating, VIN number, age, stack size, etc.

The inspector places the probe from a smoke sensing meter in the vehicle's exhaust pipe. With the vehicle in neutral, the driver is instructed to rapidly depress the accelerator and hold at the maximum governed speed for a few seconds, then return to idle.

The meter measures the opacity of the smoke emitted while the driver repeats the snap acceleration test a number of times.

This should all take no more than 10 minutes.

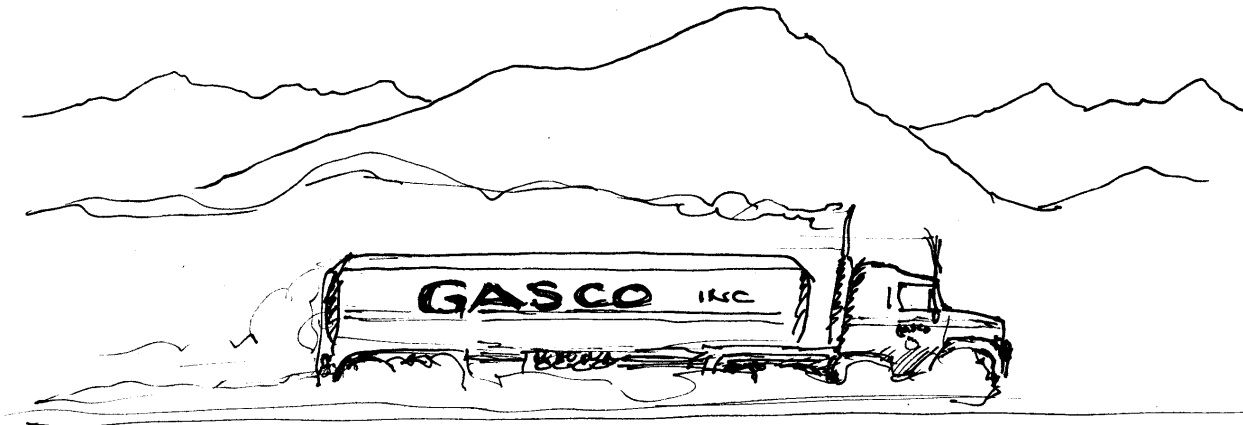
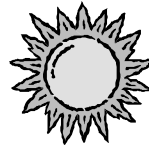
Common Causes of Exhaust Smoke

Poorly maintained or malfunctioning engines emit excessive smoke. The best way to reduce smoke emissions is to properly maintain your engine. Common maintenance problems are:

- Clogged or worn fuel filters
- Misadjusted injection timing
- Restricted air filters
- Poor fuel quality
- Defective turbocharger or blower
- Oil level too high in crankcase

And engine tampering is a major cause of high diesel engine smoke levels. Devices commonly tampered with include:

- Smoke puff limiters
- Fuel pump calibration
- Fuel injection timing



Clean emissions mean your engine is burning fuel efficiently, and that translates into savings for you. Diesel smoke is a major source of public complaints, so a clean engine is good for your business image.

Possible Remedies for Excess Smoke

Improper air fuel ratio:

- √ Adjust air-fuel ratio control
- √ Adjust or replace throttle delay
- √ Adjust or replace puff limiter

Problems with fuel injection or fuel injection timing:

- √ Adjust governor
- √ Adjust fuel rack
- √ Adjust injector timing
- √ Repair or replace metering pump
- √ Clean or replace injectors or nozzles

Problems with the engine air intake:

- √ Clean or replace air filter
- √ Adjust, repair or replace turbocharger

A vehicle that is smoking too much is using more fuel than it should. This will increase carbon buildup in the engine cylinders and manifold which may result in more frequent overhauls.

Keep your engine tuned to factory specifications. A good preventative maintenance program at the proper intervals will save you money in fuel and corrective maintenance costs.

Do not tamper with your engine, it is illegal and not only causes pollution but wastes fuel and shortens engine life.

Your Smoke Opacity Test Results

Date of Testing: _____

License Plate #: _____

Test Results: _____

The exhaust smoke level is measured in terms of a percentage (%) opacity. As the amount of particulate matter in the exhaust increases, the opacity of the exhaust also increases. A clear exhaust has 0% opacity and a black exhaust that blocks out all light has 100% opacity.

Current maximum smoke opacity limits are:

1990 & older engines: 55% opacity

1991 & newer engines: 40% opacity

Thank you for your cooperation and helping do your part to clean up the air.

For more information call the Air Pollution Control Division at (802) 241-3840

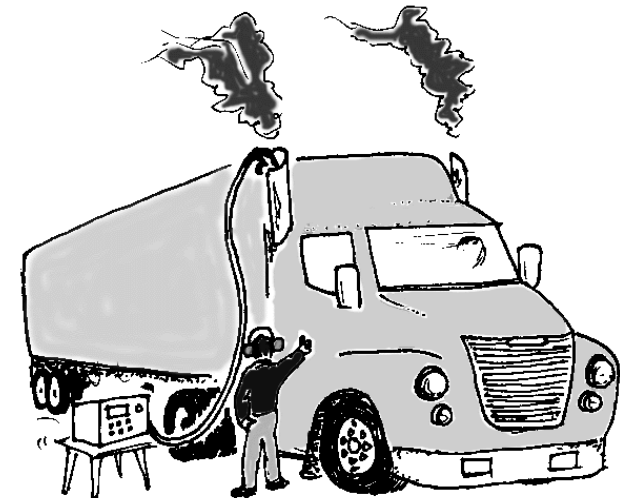
State of Vermont Agency of Natural Resources
Department of Environmental Conservation
Air Pollution Control Division
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Visit our website at:
www.anr.state.vt.us/dec/air



Air Pollution Control In Vermont

Vermont's Roadside Diesel Testing Program



Good Maintenance, Clean Air