

We received a citizen's complaint about smoke from a vehicle with the license plate on this brochure's mailing label.

Colorado's Smoking Vehicle Hotline works to identify smoking vehicles and give owners information to help them *voluntarily* make repairs.

Eliminating excessive smoke is important, as motor vehicle emissions are a major source of air pollution in Colorado. They are significant contributors to ground level ozone, carbon monoxide, fine particulates, visibility, and other pollution problems. More specific information about air pollution is on the other side of this brochure.

Studies have shown that at least 10% of a vehicle's tailpipe emissions circulate back into the vehicle and wind up in the lungs of its passengers. **Smoking vehicles can be hazardous to your own health and the health of others in and near your vehicle.**

Although Colorado's air quality has improved, we continue our efforts to clean the air through lower emissions from vehicles and other sources.

Colorado State Law

Colorado law prohibits any visible smoke from all gasoline-powered vehicles and certain diesel-powered vehicles. Specific information for diesel-powered vehicles is on the other side of this brochure.

The Smoking Vehicle Hotline program is *voluntary*. If your gasoline-powered vehicle emits any visible smoke during your regularly-scheduled emissions inspection, however, it will fail and you will have to make the necessary repairs. This is one reason to have your vehicle inspected now - for FREE - before your next emissions inspection.

Water Vapor or Smoke

Not all emissions from motor vehicle tailpipes are necessarily dangerous. Water vapor (condensation), is white and disappears within a few seconds, but it is often mistaken for smoke. Once a vehicle warms up, that water vapor usually disappears.

True smoking vehicles emit white, black, or blue-gray smoke, even after warming up. The chart below shows some common causes for each color of smoke.

Where to Go for Help

The State of Colorado has several Emissions Technical Centers in the Denver Metro and North Front Range areas that are available to help. We encourage you to take advantage of the FREE diagnostic services that they offer. Emission Technical Centers are staffed with National Institute for Automotive Service Excellence (ASE) certified technicians who will evaluate any smoke coming from your vehicle.

Please contact the High Emitter Hotline (8:00 AM - 5:00 PM Monday - Friday) to schedule a FREE diagnostic appointment:

**Denver Metro Area
303-692-3434**

**North Front Range
888-861-2646**

Color of Smoke from Tailpipe	Cause(s)	Possible Problem(s)	Result(s)
Black Smoke	Rich air/fuel mixture, incomplete fuel combustion	Fuel injection system problem, carburetor problem, computer controlled air/fuel ratio problem, mixture adjustment, ignition timing adjustment, clogged air filter or emissions control system malfunction	Low fuel mileage, increased operating costs, and poor engine performance. Excessive over fueling may allow fuel to leak into the oil, causing premature engine wear and potentially dangerous conditions.
Blue/Gray Smoke	Oil burning in cylinders	Worn valve guides and/or seals, worn piston rings, PCV valve malfunction, oil leaks (head gasket etc.)	Rough idle, higher operating costs, and low power.
White Smoke (after engine warms up)	Coolant burning in cylinders, brake fluid or transmission fluid in exhaust	Head gasket leak, cracked head or block, master cylinder/power booster leak, transmission modular valve malfunction, leaking vacuum diaphragm/seal	Engine overheating that may cause engine failure. Should be repaired as soon as possible to prevent further damage.

If you have a Diesel-Powered Vehicle ...

Diesel vehicles burn their fuel differently, and require different emissions control technologies. Excessive smoke from a diesel vehicle is usually from over-fueling, which can also cause premature wear and shorter engine life.

Model year 2006 and older diesel vehicles may create some visible smoke. This smoke usually clears up within a few seconds, however, and sometimes turns into a slight haze. 2007 and newer diesel vehicles should emit little or no visible smoke.

Tampering with emissions control systems (e.g., by removing or defeating devices, altering the computer programming, etc.), often leads to excessive smoke. If you have a modified diesel vehicle that's smoking, then you should return it to stock condition and evaluate it with the proper factory pollution control devices installed.

Notes on Idling

Some diesel owners believe it is necessary to idle their vehicle longer than usual after starting it in cold weather. *This is a myth.*

Diesel vehicles use compression ignition to ignite fuel, using much more air (and less fuel) than a gasoline vehicle does when starting. Unless you are actually driving, most of that heat just goes out the tailpipe and does little to actually warm the engine. It is best to just start driving your vehicle to warm the passenger compartment.

Engine idling actually tends to *cool* an engine, producing higher levels of pollutants with no appreciable benefit to vehicle performance or heating. Idling (even a cold engine), beyond one minute does nothing for engine or cabin heating.

Some local governments in Colorado have even adopted rules that limit vehicle idling to reduce emissions and improve air quality.

Health Effects of Smoking Vehicles

As a vehicle's engine burns fuel, it sends toxic air pollutants through its tailpipe. Pollutants like those listed below are dangerous because of their health effects and frequent presence in our air:

Benzene (C₆H₆) can cause respiratory damage and increase your risk for cancer.

Carbon monoxide (CO) restricts your ability to move oxygen throughout your body. Even healthy people can be affected by it. Pregnant women, fetuses, and people with cardiovascular diseases can be harmed even more by CO pollution.

Hydrocarbons (HC) contain many toxins and carcinogens. They are a precursor to ground level ozone, which corrodes and damages lung tissue.

Nitrogen Oxides (NO_x) also lead to ground level ozone, which can reduce lung function, inflame lung tissue, and cause permanent lung damage.

Particulate Matter (PM) is so small that you can easily inhale it deep into your lungs. Terms like "PM₁₀" and "PM_{2.5}" refer to their size in micrometers, or fractions of the diameter of a single human hair. Particulates reduce your lungs' ability to function and will aggravate other respiratory problems that you may already have.

Concentrations of these pollutants in Colorado are usually highest in urban areas. The Denver Metropolitan area continues to exceed health-based standards for ground level ozone, and this is due mainly to motor vehicle emissions.

Excessive smoke usually means that a vehicle needs repairs. Maintaining your vehicle means better performance, higher mileage, saving money, fewer problems later on, and cleaner air for all of us.

Important Information concerning Your Vehicle and

Visible Smoke



COLORADO
Air Pollution Control Division
Department of Public Health & Environment

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