

What's in that Smoke?

What comes out of smoke stacks and exhaust pipes into the air we breathe? Some of the smoke is simply water vapor, which condenses into a whitish cloud before evaporating. Depending on the fuel and how it is burned, the smoke may also contain gases or particles that can be damaging to our health.

The following provides an overview of different sources and the principal pollutants smoke from these sources may contain. See also the factsheets linked below for additional information.

Exhaust smoke: Most visible tailpipe emissions consist of diesel soot, which includes fine particles that can travel deep into the lungs and cause respiratory symptoms or lung damage. Exhaust smoke with a bluish or blackish color may indicate the vehicle has a mechanical problem and is over polluting.



Gasoline emits ethanol, benzene, toluene, xylene and toxic air pollutants (TAPs) such as formaldehyde, acetaldehyde, 1,3-butadiene, diesel particulate matter, acrolein, cadmium, chromium, and lead. [Factsheet ARD-4: A Closer Look at Gasoline](#)

Diesel engines emit unburned hydrocarbons, carbon monoxide, NO_x, sulfur oxides, PM, black carbon, VOCs and carbon dioxide. [Factsheet ARD-44: Diesel Vehicles and Equipment](#)

Lawn and garden equipment emit carbon monoxide, hydrocarbons, VOCs, NO_x. [Factsheet ARD-22: Lawn and Garden Equipment](#)

Open burning: Camp fires, brush burning, and wildfires are types of wood burning and vary in the amount of pollution released. Burning of trash is strictly illegal, and doing so can release a wide variety of toxins.

Open burning of **residential trash** emits particulate matter, acid gas, heavy metals, carbon monoxide, dioxins, hexchlorobenzene, formaldehyde and hydrogen chloride. [Factsheet ARD-33: Residential Trash](#)



Residential heating: Residential heating by oil or gas tends to burn much cleaner than wood stoves, and EPA-certified wood stoves tend to burn much cleaner than older wood stoves. Using dry, seasoned wood and proper burning practices reduces pollution from wood stoves.

Wood stoves emit particulate matter, NO_x, sulfur oxides, carbon monoxide, VOCs, dioxins, and furans. [Factsheet ARD-36: Wood Stoves](#)



See "Industrial Sources" below for pollutants emitted from oil or natural gas.

Industrial sources: Most businesses in New Hampshire combust natural gas or oil. Some may use coal or wood. The larger smoke stacks are built tall to help disperse the pollution before it reaches the ground. Under certain conditions, businesses may be required to obtain a permit and install controls to reduce their emissions.

Natural gas emits carbon dioxide, carbon monoxide, and nitrogen oxides.

Oil emits carbon dioxide, carbon monoxide, sulfur dioxide, nitrogen oxides, mercury, arsenic, and benzene.

Coal emits carbon dioxide, carbon monoxide, sulfur dioxide, nitrogen oxides, mercury, arsenic, and benzene.

Municipal solid waste incinerators emit sulfur dioxide, hydrogen chloride, Particulate Matter (PM), carbon monoxide, NO_x, cadmium, lead, mercury, dioxins, and furans. [Factsheet ARD-20: Municipal Solid Waste Incinerators](#)



Fuel Type:	Gasoline	Diesel	Outdoor Wood Burning	Wood Heating	Natural Gas	Oil	Coal	Commercial Incineration of Trash
Examples:	Automobiles, Lawnmowers, Snowmobiles	Trucks	Burning of yard debris	Wood stoves, power plants	Home heating, power plants	Home heating, power plants	Power plants	Industry
Pollutant								
Carbon Dioxide	X	X	X	X	X	X	X	X
Carbon Monoxide	X	X	X	X	X	X	X	X
Sulfur Dioxide	X	X				X	X	X
Nitrogen Oxides	X	X	X	X	X	X	X	X
Particles	X	X	X	X		X	X	X
Volatile Organic Compounds	X	X	X	X		X	X	X
Carcinogens	X	X	X	X		X	X	X
Acetaldehyde	X	X				X	X	
Acids	X	X	X			X	X	X
Arsenic		X	X			X	X	
Benzene	X	X				X	X	
Beryllium		X				X	X	
Bis[2-ethylhexyl] phthalate		X						
1,3-butadiene		X	X					
Byrenes	X	X				X	X	
Cadmium		X	X			X	X	X
Chromium		X				X	X	
Cobalt								
Dioxins/ Furans		X	X	X		X	X	X

