How does the *Canadian Environmental Protection Act, 1999* control the quality of fuels and vehicle and engine emissions?

Part 7, divisions 4 and 5 of the *Canadian Environmental Protection Act, 1999* (CEPA 1999) enable the establishment of regulations to control the quality of fuels as well as the emission performance of a wide range of on-road and off-road vehicles and engines

Why control fuel quality and vehicle and engine emissions?

Air pollution is a serious problem that has major adverse impacts on the health of Canadians and our environment. Despite significant improvements over the years, vehicle and engine emissions continue to be an important source of key smog-forming air pollutants, including nitrogen oxides, hydrocarbons, particulate matter and carbon monoxide.

Vehicle and engine emissions can be controlled through the combination of improvements to fuel quality and the implementation of stringent emission standards for vehicles and engines. In addition, the environmental performance of vehicles and engines using more sophisticated emission control devices depends on vehicle-fuel compatibility, which requires that both be treated as an integrated system. For example, the sulphur levels in gasoline and diesel fuel contribute directly to tailpipe emissions of sulphur-based pollutants, such as sulphur dioxide and sulphate particles. The sulphur content of these fuels can also indirectly increase emissions of other smog-forming pollutants by impairing the effective operation of sophisticated exhaust emission control devices.

What existing regulated standards are in place for on-road vehicles and their fuels under CEPA 1999?

The *On-Road Vehicle and Engine Emission Regulations* establish standards for the allowable levels of smog-forming emissions from the various classes of on-road vehicles, which are aligned with corresponding United States federal emission standards. The Regulations apply to vehicles whose main assembly is completed in Canada on or after January 1, 2004, to engines whose manufacture is completed in Canada on or after January 1, 2004 and to vehicles and engines that are imported into Canada on or after January 1, 2004. The Regulations set emission standards for light-duty vehicles (passenger cars and small light-trucks, sport utility vehicles), medium-duty passenger vehicles (vans, pick-up trucks, sport utility vehicles), heavy-duty vehicles (buses and trucks) and their engines, and motorcycles. In addition to controlling smog-forming emissions, the Regulations also reduce emissions of several air pollutants that have been listed as “toxic substances” in Schedule 1 of CEPA 1999.

Fuels regulations set limits for certain components in fuels that are produced, imported or sold in Canada, for on-road or off-road use. The *Gasoline Regulations* limit the concentration of lead and phosphorus and the *Sulphur in Gasoline Regulations* limit the amount of sulphur in gasoline. The *Sulphur in Diesel Fuel Regulations* set maximum limits for sulphur in diesel fuel for use in on-road vehicles.

Are there regulated emission standards for off-road engines and their fuels under CEPA 1999?

The *Off-Road Small Spark-Ignition Engine Emission Regulations* establish standards for the allowable levels of smog-forming emissions for 2005 and later model-year small spark-ignition engines rated up to 19 kW (25 hp). Small spark-ignition engines are typically gasoline fuelled and found in lawn and garden machines (hedge trimmers, brush cutters, lawnmowers, garden tractors, snowblowers, etc.), in light-duty industrial machines (generator sets, welders, pressure washers, etc.), and in light-duty logging machines (chainsaws, log splitters, shredders, etc.).

The *Off-Road Compression-Ignition Engine Emission Regulations* introduce smog-forming emission standards for 2006 and later model-year diesel engines used in a variety of off-road applications, including agriculture, mining, construction, and forestry equipment.

The *Marine Spark-Ignition Engine, Vessel and Off-Road Recreational Vehicle Emission Regulations* introduce standards for the allowable levels of smog-forming emissions for 2012 and later model year spark-ignited marine engines (outboard, personal watercraft, inboard engines) and off-road recreational vehicles (snowmobiles, ATVs, UVs, off-road motorcycles), and 2015 and later model year vessels powered by spark-ignited marine engines.

These regulated standards for off-road engines are aligned with those of the United States.

The *Sulphur in Diesel Fuel Regulations* set maximum limits for sulphur in diesel fuel that is produced, imported or sold for use in Canada for most off-road uses. Sulphur limits apply to diesel fuel for use in off-road diesel engines, rail (locomotive), vessels, and stationary engines.

Gasoline regulations, as described in the above section, have limits on certain components in all gasoline produced, imported and sold in Canada.

What are the future plans for fuel quality and vehicle and engine emission regulations under CEPA 1999?

Further information on regulatory proposals that Environment Canada expects to bring forward over the next two years can be found in the Forward Regulatory Plan.

Further information

Internet:

Air > Pollution Sources > Transportation

Air > Pollution Sources > Energy Production > Fossil Fuels

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