

The Canadian Environmental Protection Act, 1999 - Fuel Quality and Vehicle and Engine Emissions

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, particularly from on-road vehicles, 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 various classes of on-road vehicles, and these are aligned with corresponding U.S. federal requirements. The Regulations introduce progressively tighter emission standards for the lighter classes of light-duty vehicles (passenger cars and small light-trucks or sport utility vehicles) between 2004 and 2007, and for the heavier classes (vans, pick-up trucks, sport utility vehicles) from 2004

to 2009. By 2009, all light-duty vehicles will be subject to the same stringent set of emission standards. Similarly, heavy-duty vehicles (buses and trucks) and the heavy-duty engines that power them are subject to stringent emissions standards that are being progressively tightened in the 2007 through 2010 model years. The Regulations also establish emission standards for on-road motorcycles. In addition to controlling smog-forming emissions, the Regulations will also reduce emissions of several air pollutants that have been listed as "toxic substances" in Schedule 1 of CEPA 1999.

For gasoline, regulations under CEPA 1999 set limits on the amount of lead, benzene, and sulphur. As well, there are limits in effect for the sulphur content of on-road diesel fuel.

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.

These regulated standards for off-road engines are aligned with U.S. rules.

The *Sulphur in Diesel Fuel Regulations* introduce new sulphur limits for off-road, rail and marine diesel fuels starting in June 2007, with final limits completely in effect by 2012. The regulated limits are aligned with U.S. requirements.

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

New regulations have been proposed to establish standards to limit smog-forming emissions from outboard marine engines, personal watercraft and off-road recreational vehicles (i.e., snowmobiles, ATVs and off-road motorcycles) effective January 1, 2008. Environment Canada also plans to: amend existing regulations to establish tighter emission standards for off-road diesel engines; introduce new emission standards for off-road large spark-ignition engines (i.e., rated over 19 kW) that are typically used in vehicles such as forklifts and ice resurfacers; and amend existing regulations to establish

new requirements for emission-related diagnostic systems for on-road heavy-duty engines.

Environment Canada published the *Notice of intent to develop a federal regulation requiring renewable fuels* (NOI) in Part I of the *Canada Gazette* on December 30th, 2006. The NOI sets out the Government's plans to implement a federal renewable fuels regulation requiring producers and importers to have 5% renewable content based on their gasoline pool by 2010. There is an additional requirement for 2% renewable content in diesel fuel and heating oil by 2012, conditional upon successful demonstration of biodiesel use under the range of Canadian conditions.

Further information

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