

Regulatory Announcement

Control of Hazardous Air Pollutants from Mobile Sources

The U.S. Environmental Protection Agency (EPA) is issuing a proposed rule to reduce hazardous air pollutants from mobile sources. Hazardous air pollutants, also known as air toxics, include benzene and other hydrocarbons such as 1,3-butadiene, formaldehyde, acetaldehyde, acrolein, and naphthalene. Air toxics emitted by motor vehicles and other moving sources (called "mobile source air toxics," or MSATs) contribute significantly to the nationwide risk from breathing outdoor air toxics. The proposed standards would significantly lower emissions of benzene and the other air toxics in three ways: (1) by lowering benzene content in gasoline; (2) by reducing exhaust emissions from passenger vehicles operated at cold temperatures (under 75 degrees F); and (3) by reducing emissions that evaporate from, and permeate through, portable gasoline containers (gas cans).

Background

Section 202(1) of the Clean Air Act requires EPA to set standards to control hazardous air pollutants from motor vehicles, motor vehicle fuels, or both. EPA published a final rule under this authority in March 2001 that established toxics emissions performance standards for gasoline refiners and committed to additional rulemaking to evaluate the need for and feasibility of additional controls. This proposal fulfills that commitment from the 2001 rule.

In addition, EPA is proposing emission standards for gas cans under the consumer products authority of the Clean Air Act (section 183(e)).

Reason to Reduce Mobile Source Air Toxics

MSATs are known or suspected to cause cancer or other serious health or environmental effects. Benzene is of particular concern because it is a known carcinogen and most of the nation's benzene emissions come from mobile sources. People who live or work near major roads, or spend a large amount of time in vehicles, are likely to have higher exposures and higher risks. People living in homes with attached garages are also likely to be exposed to benzene levels that are higher than average.

Many MSATs are part of a larger category of mobile source emissions known as volatile organic compounds (VOC), which contribute to the formation of ozone and possibly particulate matter (PM). Ozone and PM can contribute to serious public health problems, including premature mortality, aggravation of respiratory and cardiovascular diseases, damage to lung tissues and structures, altered respiratory defense mechanisms, and chronic bronchitis.

Fuel Program

EPA is proposing that, beginning in 2011, refiners would meet an annual average gasoline benzene content standard of 0.62 percent by volume on all their gasoline, both reformulated and conventional, nationwide. The national benzene content of gasoline today is about 0.97 percent. (Gasoline sold in California would not be covered because California has already implemented more stringent standards similar to those EPA is proposing.)

EPA is proposing a nationwide averaging, banking, and trading program as part of the average standard. The Agency is expecting gasoline in all areas of the country would have lower benzene levels than they do now, and there would be less geographic variability in gasoline benzene levels. EPA is proposing special compliance flexibility for approved small refiners or any refiner facing extreme unforeseen circumstances.

Vehicle Program

EPA is proposing new standards to reduce non-methane hydrocarbon (NMHC) exhaust emissions from new gasoline-fueled passenger vehicles. NMHCs include many mobile source air toxics, such as benzene. Recent research indicates that the current test procedures often do not result in robust control of NMHCs at colder temperatures below 75 degrees. Therefore, we are proposing a cold temperature test where passen-

ger vehicles would be subject to an NMHC exhaust emissions standard. As shown in Table 1, each manufacturer's vehicles would be subject to a sales-weighted fleet average NMHC level of 0.3 grams/mile for lighter vehicles weighing 6,000 pounds (lbs) or less. Vehicles above 6,000 lbs (which include trucks up to 8,500 lbs and passenger vehicles up to 10,000 lbs) would be subject to a sales-weighted fleet average NMHC level of 0.5 grams/mile. The standard would phase in between 2010 and 2013 for the lighter vehicles, and between 2012 and 2015 for the heavier vehicles. A credit program and other provisions would provide flexibility to manufacturers, especially during the phase-in periods.

Table 1 – Proposed Cold Temperature NMHC Standard and Phase-In Schedule

Vehicle Weight Class (GVWR) ^A	NMHC Emission Level (grams/mile)	Phase-In Schedule ^B (percent)					
		2010	2011	2012	2013	2014	2015
6000 lbs or less	0.3	25	50	75	100		
6001 to 8500 lbs, plus passenger vehicles up to 10,000 lbs	0.5			25	50	75	100

^A Gross Vehicle Weight Rating

^B Percent of each manufacturer's fleet, by model year, that must comply with the standard.

Along with the vehicle exhaust standards, we are also proposing more stringent evaporative emission standards for new passenger vehicles. The proposed standards are equivalent to California's standards and would codify the approach that manufacturers are already taking for 50-state evaporative systems. We are proposing to implement the evaporative emission standards in 2009 for lighter vehicles and in 2010 for the heavier vehicles.

Gas Can Program

EPA is proposing standards that would limit hydrocarbon emissions that evaporate from or permeate through gas cans. Gas cans (portable gasoline containers) are consumer products used to refuel a wide variety of gasoline-powered equipment, including lawn and garden equipment, recreational equipment, and passenger vehicles that have run out of gas. Starting with containers manufactured in 2009, the standard would limit evaporation and permeation emissions from these containers to 0.3 grams of hydrocarbons per gallon per day. We are also proposing test procedures and a certification and compliance program in order to ensure that gas cans would meet the emission standard over a range of in-use conditions.

EPA has worked closely with major gas can manufacturers and it is expected that the new cans will be built with a simple and inexpensive inner coating and other minor modifications to comply with the proposed standards.

Program Benefits

The proposed fuel benzene standard and hydrocarbon standards for vehicles and gas cans would together reduce total emissions of mobile source air toxics by 350,000 tons in 2030, including 65,000 tons of benzene. As a result of this proposal, in 2030, passenger vehicles would emit 45 percent less benzene, gas cans would emit 78 percent less benzene, and the gasoline would have 37 percent less benzene overall.

In addition, the hydrocarbon reductions from the vehicle and gas can standards would reduce volatile organic compound (VOC) emissions (which are precursors to ozone and can be precursors to PM_{2.5}) by over 1 million tons in 2030. The proposed vehicle standards would reduce direct PM_{2.5} emissions by 20,000 tons in 2030 and may also reduce secondary formation of PM_{2.5}. Once the regulation is fully implemented, these PM reductions will result in 1,000 premature deaths avoided annually.

We estimate that most of the benefits of this proposal would come from the reduced direct PM_{2.5} emissions from the vehicle standards, estimated to be about \$6 billion in 2030. Some additional benefits would come from reductions in mobile source air toxics and VOCs, although we have not been able to monetize these benefits.

Estimated Costs per Program

The additional cost of producing gasoline to comply with the new benzene standard is expected to average \$0.0013 per gallon. This per-gallon cost would result from an industry-wide investment in capital equipment of \$500 million to reduce gasoline benzene levels, or an average of \$5 million in capital investment in each refinery that adds such equipment.

We estimate that the annual net social costs of this proposal would be about \$200 million in 2030 (expressed in 2003 dollars). These net social costs include the value of fuel savings from the proposed gas can standards, which would be worth \$82 million in 2030.

We estimate that the additional cost to manufacturers would be less than \$1 per vehicle. The costs would be associated with vehicle research and development and recalibration, as well as facilities upgrades to handle additional development testing under cold conditions. We are not anticipating additional costs for the proposed vehicle evaporative emissions standard since manufacturers will likely continue to produce 50-state evaporative systems that meet California's standards.

The average additional cost of producing gas cans that comply with the new standards would be less than \$2 per can. The reduced evaporation from gas cans would result in fuel savings over the life of the can that would more than offset the increased cost for the gas can.

Public Participation Opportunities

We welcome your comments on this proposed rule. For instructions on submitting written comments, please see the *Federal Register* notice, which is available from the EPA Air Docket by calling 202-566-1742; please refer to Docket No. EPA-HQ-OAR-2005-0036. In addition, you can access the proposed rule and related documents on EPA's Office of Transportation and Air Quality (OTAQ) Web site at: <http://www.epa.gov/otaq/toxics.htm>

For More Information

For more information on this proposed rule, please contact Kathryn Sargeant, Director, Health Effects, Benefits, and Toxics Center, at:

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