



Announcement/ Update

EPA Staff Paper on Gasoline Sulfur Issues

The Staff Paper on Gasoline Sulfur Issues presents EPA's current understanding of the impact of gasoline sulfur on emissions from current and future motor vehicles. Based on the data and information obtained to date, EPA staff believe that some level of gasoline sulfur control is appropriate.

Background

The Staff Paper includes a discussion of the latest information on sulfur impacts on vehicle emission controls and summarizes various approaches to controlling sulfur levels in gasoline. It contains an exploration of what gasoline producers and automobile manufacturers can do to reduce sulfur's impact on vehicle emissions.

EPA recently published a draft Tier 2 Study of the air quality need for and the feasibility and cost-effectiveness of emissions reductions from light-duty vehicles and light-duty trucks beyond those required by the existing Tier 1 emission standards. EPA plans to follow this study with a proposal for this next level of emission standards, Tier 2 standards, by the end of 1998.

Impacts of Gasoline Sulfur on Emission Control Systems

Sulfur in gasoline inhibits the performance of catalytic converters, which are used on all current gasoline-fueled vehicles to reduce

hydrocarbons (HC), carbon monoxide (CO) and oxides of nitrogen (NOx). Although future improvements in catalyst and engine designs may reduce the impact of sulfur, it is unlikely that the impact of sulfur can be completely eliminated. As tighter emission standards require catalysts to be more efficient, the impact of sulfur will become more dramatic.

Recent tests conducted by auto manufacturers and oil companies demonstrate a significant emissions impact from gasoline sulfur, especially on NOx emissions. No vehicle tested was completely insensitive to sulfur, although some were more sensitive than others. The testing shows that current vehicles designed for lower emissions are much more sensitive to sulfur than earlier vehicles. Advanced vehicle designs, aimed at lower emissions and higher fuel efficiency, may depend on low sulfur levels.

Reducing the Sulfur Content of Commercial Gasoline

A number of refinery options are available to reduce the level of sulfur in gasoline. Significant sulfur reduction would likely require investment in new refinery equipment and increases in operating costs. Refinery modeling estimates from a variety of sources indicate that to reduce gasoline from today's average levels of more than 300 parts per million (ppm) to levels similar to California's low sulfur gasoline (regulated to an average of about 40 ppm) could cost 5 to 8 cents per gallon of gasoline with current technology; promising new technologies could reduce this to 2 cents per gallon.

Steps Toward a Solution

Near term solutions are to redesign vehicles to be more tolerant of sulfur, to reduce the sulfur level of commercial gasoline, or both. Several interested parties, including domestic and import vehicle manufacturers, manufacturers of emission controls, environmental groups, and states support a nationwide gasoline sulfur level capped at 80 ppm and averaging 40 ppm or less. Oil industry representatives support a more limited, summertime-only program that would control sulfur to an average of 150 ppm in 22 eastern states and certain other ozone nonattainment areas.

The Staff Paper presents a recommendation that EPA propose gasoline sulfur standards to be implemented at the same time as the implementation of the planned proposed Tier 2 vehicle emission standards for passenger cars and light trucks.

Issues to Be Addressed in Future Rulemaking Action

A number of issues must be addressed before gasoline sulfur control could be implemented, including the issues of vehicle emission sensitivity to sulfur, and options and costs for the refinery control of sulfur. Additional issues are the air quality and health benefits of gasoline sulfur control, the question of regional versus national programs, and the potential for reversing the sulfur effect on catalytic converters if the vehicle is exposed to higher-sulfur fuel.

The Staff Paper is intended to encourage further dialog and research on outstanding issues. In addition, EPA will hold a public workshop to discuss gasoline sulfur issues on May 12, 1998, from 10:00 a.m. to 5:00 p.m. at Quality Hotel, 1200 N. Courthouse Road, Arlington, Virginia 22201 (telephone: (703) 524-4000).

For More Information

A copy of the report *EPA Staff Paper on Gasoline Sulfur Issues* is available electronically from the EPA Internet server at:

<http://www.epa.gov/OMSWWW/tr2home.htm>

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