

EPA Proposes Tier 3 Tailpipe and Evaporative Emission and Vehicle Fuel Standards

The U.S. Environmental Protection Agency (EPA) is issuing a proposed rule designed to reduce air pollution from passenger cars and trucks. Starting in 2017, Tier 3 would set new vehicle emissions standards and lower the sulfur content of gasoline, considering the vehicle and its fuel as an integrated system. The proposed vehicle standards would reduce both tailpipe and evaporative emissions from passenger cars, light-duty trucks, medium-duty passenger vehicles, and some heavy-duty vehicles. The proposed gasoline sulfur standard would make emission control systems more effective for both existing and new vehicles, and would enable more stringent vehicle emissions standards since removing sulfur allows the vehicle's catalyst to work more efficiently. The proposed Tier 3 standards are closely coordinated with California's LEV III standards as well as with EPA's and California's programs for greenhouse gas (GHG) emissions from light-duty vehicles. EPA is proposing the Tier 3 standards to address public health issues that exist currently and are projected to continue in the future as requested in a May 21, 2010 Presidential memorandum.

The Tier 3 program continues the successful transition that began with EPA's Tier 2 program, finalized in 2000, in which EPA treated vehicles and fuels as a system to reduce both gasoline sulfur and vehicle emissions. While there were claims at the time that the program would cause fuel prices to increase far in excess of EPA's estimates and would result in closures and fuel supply shortages, the Tier 2 program was a success and resulted in gasoline sulfur reductions of up to 90 percent and enabled the use of new emission control technologies in cars and trucks with no serious negative impacts on the refining industry. EPA's Clean Diesel Program similarly utilized a systems approach to reducing sulfur emissions from diesel fuels and enabling cleaner diesel technologies with the Highway Diesel Rule (finalized in 2001) and the Nonroad Diesel Rule (finalized in 2004) again with no

serious negative impacts. Now that the U.S. refining industry routinely produces lower sulfur fuel products, new market opportunities for international fuel exports have opened up.

Proposed Tailpipe Emissions Standards

EPA is proposing new tailpipe standards for the sum of non-methane organic gases (NMOG) and nitrogen oxides (NOX), presented as NMOG+NOX, and for particular matter (PM) that would apply to all light-duty vehicles and some heavy-duty vehicles. Compared to current standards, the proposed NMOG and NOX tailpipe standards for light-duty vehicles represent approximately an 80% reduction from today's fleet average and a 70% reduction in per-vehicle PM standards. Proposed heavy-duty tailpipe standards represent about a 60% reduction in both fleet average NMOG+NOX and per-vehicle PM standards. EPA is also proposing to extend the regulatory useful life period during which the standards apply from 120,000 miles to 150,000 miles.

The proposed tailpipe standards include different phase-in schedules that vary by vehicle class, but generally phase in between model years 2017 and 2025. In addition to the gradual phase-in schedules, several other proposed provisions would further ease manufacturers' paths to compliance with the stringent new standards. Depending on the standards and the vehicle class, these flexibility provisions include credits for early compliance and the ability to offset some higher-emitting vehicles with extra-clean models. EPA is proposing more lead time for small businesses and small volume manufacturers as well as a hardship provision that would allow for additional time to comply if a manufacturer cannot meet requirements after a good faith effort and would face severe economic hardship without the additional lead time.

NMOG+NOX Standards: The proposed standards for NMOG+NOX are fleet-average standards, meaning that a manufacturer calculates the weighted average emissions of the vehicles it produces in each model year and compares that average to the applicable standard for that model year. The standards differ by vehicle class and test cycle. Key elements include:

- NMOG+NOX Standards for Light-Duty Vehicles and Light-Duty Trucks (vehicles below 8,500 pounds (lbs) Gross Vehicle Weight Rating (GVWR)), and Medium-Duty Passenger Vehicles (8,500 to 10,000 lbs GVWR) :
 - As measured on the Federal Test Procedure (FTP), the proposed standards decline from today's fleet average of 160 milligrams per mile (mg/mi) to 30 mg/mi by 2025.
 - As measured on the Supplemental Federal Test Procedure (SFTP), the proposed standards decline from today's fleet average of about 100 mg/mi to 50 mg/mi by 2025.
- NMOG+NOX Standards for Heavy-Duty Pick-ups and Vans; Class 2b (8,501-10,000 lbs GVWR) and Class 3(10,001-14,000GVWR)):

- As measured on the FTP, the proposed fleet average standards decline from a fleet average of 278 mg/mi to 178 mg/mi for Class 2b vehicles and 451 mg/mi to 247 mg/mi for Class 3 vehicles by 2022.
- Additional standards for emissions measured over a heavy-duty SFTP are being proposed for the first time and vary by vehicle class and power-to-weight ratio.

PM Standards: The proposed PM standards are expressed on a per-vehicle basis, meaning the standards would apply to each vehicle separately (i.e., not as a fleet average). EPA is proposing PM standards that would differ by vehicle class and test cycle. Key elements include:

- **PM Standards for Light-Duty Vehicles, Light-Duty Trucks, and Medium-Duty Passenger Vehicles:**
 - As measured on the FTP, the proposed standard is 3 mg/mi for all vehicles and for all model years, as compared to today's standard of 10 mg/mi.
 - As measured on the US06, a high-speed, fast-acceleration component of the SFTP, the proposed standard is 10 mg/mi for lighter vehicles and 20 mg/mi for heavier vehicles.
- **PM Standards for Heavy-Duty Pick-ups and Vans; Class 2b and 3:**
 - As measured on the FTP, the proposed PM standards are 8 mg/mi for Class 2b vehicles and 10 mg/mi for Class 3 vehicles.
 - EPA is also proposing PM standards for emissions measured over the SFTP with standards levels and duty cycles varying by vehicle class and power-to-weight ratio.

Proposed Evaporative Emission Standards

EPA is proposing more stringent standards designed to eliminate fuel vapor-related evaporative emissions and improve durability. The proposed evaporative emissions program represents about a 50 percent reduction from current standards and applies to all light-duty and onroad gasoline-powered heavy-duty vehicles. As with the tailpipe standards, the evaporative emissions standards includes phase-in flexibilities, credit and allowance programs, and more lead time for small businesses and small volume manufacturers as well as a hardship provision. EPA is also proposing to extend the regulatory useful life period during which the standards apply from 120,000 miles to 150,000 miles. Key elements of the program include:

- **Evaporative Emissions Standards:** Proposed standards over 2-day and 3-day evaporative emission tests vary by vehicle categories and range from 0.300 g/test to 0.500 for light-duty vehicles and medium duty passenger vehicles, with 0.600 g/test for onroad gasoline-powered heavy-duty vehicles.
- **Bleed Test Requirements:** EPA is proposing a new testing requirement referred to as the bleed emission test. The bleed emissions test standard for light-duty and medium-duty

passenger vehicles is 0.020 g/test without averaging. The standard for onroad gasoline-powered heavy-duty vehicles is 0.030 g/test without averaging.

- **Leak Test and Emission Standard:** EPA is proposing to add a new emission standard and test procedure that would require that the cumulative equivalent diameter of any orifices or “leaks” not exceed 0.02 inches anywhere in the fuel/evaporative system for light-duty vehicles, medium-duty passenger vehicles, and some gasoline-powered heavy-duty vehicles.
- **Onboard Diagnostic System (OBD) Requirements:** EPA is proposing to adopt and incorporate by reference the California Air Resources Board’s (CARB) current OBD regulations, effective for MY 2017, that would cover all vehicles except those in the heavier fraction of the heavy-duty vehicle class.

Proposed Fuel Standards

EPA is proposing gasoline sulfur reductions that are critical to enabling manufacturers to comply across the fleet with the stringent proposed vehicle standards. The proposed gasoline sulfur standards would also achieve significant immediate benefits by reducing emissions from existing vehicles. EPA is proposing that federal gasoline contain no more than 10 parts per million (ppm) of sulfur on an annual average basis by January 1, 2017. In addition, EPA is proposing to either maintain the current 80-ppm refinery gate and 95-ppm downstream caps or lower them to 50 and 65 ppm, respectively. The proposed Tier 3 gasoline sulfur standards are similar to levels already being achieved in California, Europe, Japan, South Korea, and several other countries.

For the gasoline sulfur standards, EPA is proposing an averaging, banking, and trading (ABT) program that would allow refiners and importers to spread out their investments through an early credit program and rely on ongoing nationwide averaging to meet the 10-ppm sulfur standard. EPA is also proposing a three-year delay for small refiners and small volume refineries processing 75,000 barrels of crude oil per day or less.

Proposed Changes to Emissions Test Fuel

EPA is proposing to update the federal emissions test fuel to better match today’s in-use gasoline and also to be forward-looking with respect to future ethanol and sulfur content. The new test fuel specifications would apply to new vehicle certification, assembly line, and in-use testing. EPA is proposing to transition to the new test fuel during the first few years that the Tier 3 tailpipe and evaporative standards are phasing in. Key changes include moving to a test fuel containing 15 percent ethanol by volume (seeking comment on 10 percent ethanol by volume), lowering octane, and lowering the existing sulfur specification to be consistent with proposed Tier 3 requirements. EPA is also proposing test fuel specifications for E85 for the first time.

Public Participation Opportunities

You should consult the Federal Register notice for this proposal for more information about how to submit comments, when the comment period will close, and about where and when public hearings will be held. A copy of the Federal Register notice can be found on our website listed below.

EPA welcomes your comments on this proposed rule. Further information on the public comment period may be found on EPA's website (see For More Information below). All comments should be identified by Docket ID No. EPA-HQ-OAR-2011-0135 and submitted by one of the following methods:

Internet: www.regulations.gov

E-mail: A-and-R-Docket@epa.gov

Mail:

Environmental Protection Agency
Air and Radiation Docket and Information Center (6102T)
1200 Pennsylvania Avenue NW
Washington, DC 20460

Hand Delivery:

EPA West building
EPA Docket Center (Room 3340)

1301 Constitution Avenue NW
Washington, DC

For More Information

You can access the rule and related documents on EPA's Office of Transportation and Air Quality (OTAQ) Web site at:

www.epa.gov/otaq/tier3.htm

For more information on this rule, please contact the U.S. Environmental Protection Agency, Office of Transportation and Air Quality at:

E-mail: otaq@epa.gov