



# Regulatory Announcement

Informal document No. GRPE-47-13  
(47th GRPE, 12-16 January 2004, □  
agenda item 10.)

## EPA Finalizes Emission Standards for New Highway Motorcycles

*The U.S. Environmental Protection Agency (EPA) is adopting more stringent emission standards for new highway motorcycles. Under the current standards, which are over 20 years old, today's motorcycles produce more harmful emissions per mile than a car or even a large sport utility vehicle (SUV). These new standards will reduce the combined hydrocarbon and nitrogen oxide emissions in the exhaust by 50 percent as well as the harmful health effects of mobile source air toxics.*

### Final Rule Highlights

EPA has been working to reduce emissions from motor vehicles for over thirty years, including emissions standards for highway motorcycles that we adopted in 1978. In this final rule, EPA is adopting new emission standards for exhaust and evaporative emissions from highway motorcycles. The standards are based on comparable requirements adopted in California. The final rule extends the California requirements nationwide two years after they initially take effect in California. In addition to updating exhaust emission standards for currently regulated motorcycles, the new emission standards will include previously unregulated motorcycles with engines of less than 50 cubic centimeters displacement (scooters and mopeds). We are also adopting new evaporative emission standards to control the loss of gasoline (described as "permeation") through the walls of fuel hoses and fuel tanks. The permeation standards apply to all classes of highway motorcycles.

## Background

This final rule follows EPA's Notice of Proposed Rulemaking (NPRM) published on August 14, 2002 (67 FR 53050) and supplemented by a notice dated October 30, 2002 (67 FR 66097). We received comments on the NPRM from a wide variety of stakeholders, including the motorcycle manufacturing industry, motorcycle user groups, various governmental bodies, environmental groups, and the general public. In the August 2002 NPRM, we also proposed new evaporative emission controls for spark-ignition marine vessels. Spark-ignition marine vessels will be the subject of a separate final action.

Federal regulations currently define a motorcycle as "any motor vehicle with a headlight, taillight, and stoplight and having: two wheels, or three wheels and a curb mass less than or equal to 793 kilograms (1749 pounds)" (see 40 CFR 86.402-98). Note that any motorcycle or motorcycle-like vehicle that falls outside that definition would be considered a nonroad vehicle and be subject to different requirements.

## Emission Limits

The following table shows the new exhaust standards for highway motorcycles, including scooters and mopeds.

**Highway Motorcycle Exhaust Emission Standards**

Class	Engine Size (cc)	Implementation Date	HC (g/km)	HC+NOx (g/km)	CO (g/km)
Class I	less than 170	2006	1.0	—	12.0
Class II	170-279	2006	1.0	—	12.0
Class III	280 and above	2006	—	1.4	12.0
		2010	—	0.8	12.0

We expect these standards to be met through an increased use of technologies already demonstrated as being effective on 4-stroke motorcycle engines, such as secondary air injection, electronic fuel injection systems, and catalytic converters. The standards are not expected to result in the universal use of catalytic converters.

## **Health and Environmental Benefits**

Nationwide, highway motorcycles are significant contributors to mobile-source air pollution and produce more harmful emissions per mile than a car or even a large SUV. Motorcycles currently account for 0.6 percent of mobile-source hydrocarbon (HC) emissions, 0.1 percent of mobile-source oxides of nitrogen (NO<sub>x</sub>) emissions, and less than 0.1 percent of mobile-source particulate matter (PM) emissions. The highway motorcycle standards will reduce the combined emissions of HC and NO<sub>x</sub> in the exhaust by 50 percent. Without these further regulations, highway motorcycles would account for 2.2 percent of mobile source HC and 0.3 percent of mobile source NO<sub>x</sub> by 2020.

These standards will help reduce the public's exposure to these emissions and help avoid a range of adverse health effects associated with ambient ozone and PM levels, especially in terms of respiratory impairment and related illnesses. In addition, the standards will help reduce acute exposure to air toxics and PM for persons who operate or who work with or are otherwise active in close proximity to these sources. They will also help address other environmental problems associated with these sources, such as visibility impairment in our national parks and other wilderness areas.

It has been 20 years since EPA revised the motorcycle standards. In that time, there have been many vehicle emission control technology advances. Since EPA has recently adopted emission standards for off-road motorcycles as the result of a court order, this is an appropriate time to update the highway motorcycle requirements.

The current federal motorcycle standard for hydrocarbon emissions is about 90 times higher than the hydrocarbon standard for today's passenger cars. Although many of today's motorcycles will meet the current California standards, the current California hydrocarbon standard is still 18 to 24 times greater than the current federal passenger car limits, depending on the displacement of the motorcycle engine.

Beginning in 2004, all passenger cars, light trucks, and SUVs will be required to meet even more stringent standards. When these standards become effective, new SUVs will be meeting hydrocarbon standards about 95 percent cleaner than today's typical motorcycle.

## **Costs**

We project average costs of \$30 per highway motorcycle to meet the 2006 standards and \$45 to meet the 2010 standards. This increased cost is partially offset by a discounted fuel savings of about \$6.50 per motorcycle due to keeping more gasoline in the fuel tank.

## **For More Information**

You can access documents on this rulemaking on EPA's Office of Transportation and Air Quality Web site at:

[www.epa.gov/otaq/roadbike.htm](http://www.epa.gov/otaq/roadbike.htm)

For further information, please contact the Assessment and Standards Division at:

U.S. Environmental Protection Agency  
Office of Transportation and Air Quality  
2000 Traverwood Drive  
Ann Arbor, MI 48105  
E-mail: [ASDInfo@epa.gov](mailto:ASDInfo@epa.gov)  
Voicemail: (734) 214-4636