

MOBILE6

A Revised Model for Estimation of Highway Vehicle Emissions

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Background

- **MOBILE5 originally released in 1992.**
- **MOBILE5 last updated in 1997.**



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Changes for MOBILE6

- **Emissions, fleet and activity data**
- **Structural changes**
- **Input and output formats**



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Basic Exhaust Emissions

- **Update in-use deterioration estimate**
- **New emission standards**
- **Effects on in-use program benefits**



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Off-Cycle Effects

- Air conditioning effects
- Non-FTP driving behavior
- Effects of the Supplemental FTP rule



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Effects of Fuel Composition

- Updated effects of oxygenated fuels on CO emissions
- Explicit effects of sulfur on exhaust emissions



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Effects of Driving Behavior

- **Facility-based speed corrections**
- **New in-use driving cycles**
- **Separate estimates for freeway ramps**



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Real-Time Diurnal Emissions

- **Old one-hour diurnal data not used**
- **New data collected in real time (24 hours)**
- **Multiple day measurements**
- **Hourly measurements**



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Hot Soak Emissions

- **Old laboratory measurements still used**
- **New data for fuel RVP less than 9 psi**
- **New data based on “real world” conditions**
- **Evaluation of hot soak time distributions**



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Heavy Duty Emissions

- **New emission standards**
- **New conversion factors**
- **Light heavy-duty engine start effects**



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Fleet Characterization

- **New national average mileage accumulation estimates**
- **New national average registration (age) distributions**
- **New national vehicle class counts**



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Vehicle Activity

- **New trip length estimates**
- **Engine start soak time distributions**
- **Diurnal soak time distributions**
- **Trip start and trip ends**
- **VMT by time of day (temporal)**



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Engine Start and Running

- **Effect of engine start in grams per start**
- **Hot running emissions in grams per mile**
- **Composite emissions using activity data**



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Expanded Vehicle Classes

- **Four light-duty truck subcategories**
- **Heavy-duty truck subcategories**
- **Same eight MOBILE5 composite categories**



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Compressed Natural Gas Vehicles

- **Data from the Natural Gas Vehicle Coalition**
- **Assumes non-exhaust emissions are zero**
- **Default number of vehicles is zero**



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Hourly Emission Factors

- **All emissions calculated hourly**
- **Composite daily output as in MOBILE5**
- **Detailed hourly output available**



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Labeled Input

- **Eliminates the need for “control” flags**
- **Reduces the amount of required input**
- **Expanded use of user-supplied comments**
- **Less dependent on record order**



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External Data Files

- **Registration and mileage accumulation**
- **In-use program descriptions**
- **Local activity data**



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Modified Output Formats

- **Eliminate most existing options**
- **Descriptive (120 column) output**
- **Electronic (database) output**



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Stakeholder and Peer Review

- **Extensive documentation**
- **Expanded formal peer review**
- **Stakeholder review**
- **MOBILE Workshops**
- **EPA list server**



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EPA Website

<http://www.epa.gov/oms/m6.htm>



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