

Low-resistance tires improve fuel economy

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Switching to tires with low rolling resistance may save gas and money, says a University of Michigan researcher.

"One parameter on which tires differ is their rolling resistance—the force resisting the motion when an object rolls," said Michael Sivak, research professor at the U-M Transportation Research Institute. "Tires with low rolling resistance roll easier and, therefore, get better mileage than tires with high rolling resistance."

The U.S. Transportation Research Board estimates that a 10 percent increase in tire rolling resistance will result in about a 1-2 percent decrease in the fuel economy of light-duty vehicles.

Updating research from 2014, Sivak examined the rolling-resistance measurements for 49 new same-sized tire models obtained from Consumers Union at the same load and inflation pressure to calculate the fuel consumed annually by an average driver. He then calculated differences in fuel used (and money spent) between tires at the extremes of rolling resistance.

The tires represented a cross-section of the currently available T-, H- and V-speed-rated tires for light-duty vehicles on the U.S. market (maximum speeds for each of these types of speed-rated tires are 118 mph, 130 mph and 149 mph, respectively).

Rolling resistance (RRf) for the combined set of all tires examined ranged from 8.1 lbs. to 12.1 lbs., with a median of 10.28 lbs. For the

average vehicle currently on the road, the rolling resistance extremes translate into a maximum fuel economy of 22.2 mpg (RRf at 8.1 lbs.) and a minimum of 20.9 mpg (RRf of 12.1 lbs.), with an average of 21.6 mpg (RRf at 9.9 lbs.).

"Consequently, the obtained rolling resistance extremes yield a minimum and maximum annual fuel consumption of 511 gallons and 543 gallons, respectively," Sivak said. "At the average 2015 price of regular gasoline, the obtained fuel-consumption extremes result in a \$78 difference in the annual cost of gasoline per light-duty vehicle."

For the combined set of all tires, the added fuel consumed with tires at the current maximum rolling resistance represents a 6.3 percent increase compared to the fuel consumed with [tires](#) at the current minimum rolling resistance.

Provided by University of Michigan

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