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16. Abstract

This study was designed to examine how using tires that are at the current extremes of rolling resistance affects fuel consumption by light-duty vehicles in the U.S. The analysis was based on rolling-resistance measurements for 49 tire models that were obtained under uniform test conditions by Consumers Union (the publisher of *Consumer Reports*). These tires represent a cross-section of the currently available T-, H-, and V-speed-rated tires for light-duty vehicles on the U.S. market. All 49 tire models were size (P)215/60R16, and they were evaluated as specified in the SAE Recommended Practice J1269. The obtained rolling resistance values were then normalized to 1,033.9 lb and 37.9 psi—the same load and inflation pressure as in the previous study in this series. The analysis was performed for each speed-rated subset of tires and for the combined set of all tires. The data are presented for following locations in the distribution of rolling resistance: minimum, 25th percentile, 50th percentile (median), 75th percentile, and maximum.

Rolling resistance (RRf) for the combined set of all examined tires ranged from 8.1 lb to 12.1 lb, with a median of 9.9 lb. Given that the current average on-road fuel economy of light-duty vehicles is 21.6 mpg (assumed to be obtained at RRf of 9.9 lb—the median of our tire sample), the obtained rolling resistance extremes translate into a maximum fuel economy of 22.2 mpg (at RRf = 8.1 lb) and a minimum fuel economy of 20.9 mpg (at RRf = 12.1 lb). The obtained rolling resistance extremes yield a minimum and maximum annual fuel consumption of 511 gal and 543 gal, respectively. 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.

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