

E20 fuel reduces carbon monoxide and hydrocarbon emissions in automobiles

March 29 2010

A new study by the Center for Integrated Manufacturing Studies at Rochester Institute of Technology indicates that the use of E20 fuel, which blends 20 percent ethanol with gasoline, reduces the tail pipe emissions of hydrocarbons and carbon monoxide, compared with traditional gasoline or E10 blends. In addition, the research team found no measurable impact to vehicle drivability or maintenance in conventional internal combustion engines.

The data illustrates the potential benefits of E20 as a tool in reducing overall [vehicle emissions](#) at a time when many states and the U.S. Department of Transportation are considering policies that would increase the ethanol percentage in standard [gasoline](#).

"Currently, numerous commercially available gasoline brands contain 10 percent ethanol," notes Brian Hilton, senior staff engineer at the center, a component of the RIT's Golisano Institute for Sustainability, and part of the research team. "There have been concerns raised that any increase in blend would negatively impact standard internal combustion engines, however our data shows that [vehicle](#) performance remained constant, while [carbon monoxide](#) and hydrocarbon emissions were decreased even over E10 blends."

The RIT team, which was also led by Brian Duddy, a senior program manager at the Center for Integrated Manufacturing Studies, worked with the County of Monroe, N.Y., to test the use of E20 in 10 older gasoline vehicles that were not designed for ethanol [fuel](#) mixtures. The

study utilized service vehicles used by the county, which logged over 100,000 miles on E20 fuel and were analyzed periodically both for emissions and overall wear and tear on the vehicle. The fleet showed an average emissions reduction for carbon monoxide of 23 percent as well as a 13 percent reduction for hydrocarbon emissions, compared to conventional gasoline, with no measurable stress on vehicle operation or mechanics.

The study results were published in the *Journal of Automobile Engineering* and are being used by the Environmental Protection Agency to promote the federal Renewable Fuel Standard program. This effort has mandated an increase in the volume of renewable fuel required to be blended into transportation fuel from 9 billion gallons in 2008 to 36 billion gallons by 2022. The RIT team is continuing to work with Monroe County to convert their entire conventional gasoline fleet to E20 and will provide additional analysis on the impact of ethanol on long-term vehicle durability.

Provided by Rochester Institute of Technology

Citation: E20 fuel reduces carbon monoxide and hydrocarbon emissions in automobiles (2010, March 29) retrieved 18 April 2024 from <https://phys.org/news/2010-03-e20-fuel-carbon-monoxide-hydrocarbon.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.