

Project Information Form

Project Title	Evaluating the Viability of Dimethyl Carbonate as an Alternative Fuel for the Transportation Sector
University	University of California, Riverside
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Funding Source(s) and Amounts Provided (by each agency or organization)	US DOT - \$38,000
Total Project Cost	\$38,000
Agency ID or Contract Number	UCR-DOT-205 DTRT13-G-UTC29
Start and End Dates	July 1, 2015 through June 30, 2016
Brief Description of Research Project	<p>Some of the most important questions in the development of sustainable transportation are to identify fuels that will reduce emissions, provide diversification from fossil fuels, reduce greenhouse gas emissions, be produced from renewable sources, and that can be produced in a sustainable manner. An alternative diesel fuel that could be used for particulate matter (PM) reductions and be produced from renewable sources could represent a key advance for the transportation sector in terms of sustainability, diversification for the marketplace for the alternative fuels, emissions reductions, and reductions in greenhouse gases. Dimethyl carbonate (DMC) is a potentially new fuel that could represent an important advance in the diesel fuel area. DMC can be produced from renewable sources such as grass, manure, or trees. Preliminary tests at the University of California at Riverside have also indicated PM reductions of about 76% at only a 20% blend with diesel fuel, which is about double or triple the reductions typically found for biodiesel at a comparable blend level, and comparable to the reductions found for diesel particulate filters (DPFs). Although these preliminary results indicate the promise of</p>



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	<p>DMC as a PM mass reduction strategy, it is important to more completely characterize the emissions and viability of DMC before it can be more widely used in the fuel market or for in-field demonstrations.</p> <p>The objective of this study was to conduct a preliminary evaluation of the viability of DMC as a transportation fuel for fleet and wider applications. This included a literature review to address questions related to air emissions, impact on vehicle system durability and parts, and any potential storage issues. This study also included some additional emissions testing to evaluate any emissions of toxic species, and to look at some optimization of blend level in terms of a full range of emissions components.</p>
Describe Implementation of Research Outcomes (or why not implemented) (Attach Any Photos)	
Impacts/Benefits of Implementation (actual, not anticipated)	
Web Links Reports Project website	https://ncst.ucdavis.edu/project/evaluating-the-viability-of-dimethyl-carbonate-as-an-alternative-fuel-for-the-transportation-sector/