



Auto/Oil E10+ Test Program for Highway "Non-FFV" Vehicles

Item #	Title	Project #	Status
1	Fuel Storage and Handling	CRC AVFL-15	While AVFL-15 is funded the follow-on program is not
<p>The industries understand system components for E10 and also for E85, but it is unclear at what level of ethanol content above 10% that E10-rated parts fail. The objective of AVFL-15 is to determine the durability of wetted fuel components/systems. Fuel storage and handling is studied in component/systems durability testing. Resource constraints limited the scope of AVFL-15, preventing a definitive program, hence additional testing is required.</p>			
2	Base Engine Durability	CRC CM-136-09	This expensive program awaits outside funding – bids in review
<p>The industry knows what is required to upgrade engine components for E85. Some automakers have done internal testing and have found sensitivity to at intermediate ethanol blend levels for non-FFV vehicles. The proposed testing for base engine durability (base refers to the actual machinery as opposed to the sensors, controls and the like) is embodied in CRC RFP No. CM-136-09 which will be ready for contracting in mid-2009.</p>			
3	On-Board Diagnostics (OBD) Evaluation	CRC E-90	The first phase of E-90, site selection, is funded by CRC
<p>The automakers have a good understanding of the theoretical effects of ethanol on OBD. The issue is how OBD systems actually work in a fleet of aged production vehicles. The proposed testing for OBD is defined in CRC Project No. E-90.</p>			
4	Tailpipe Emissions for SULEV Vehicles and at Cold Ambient Temperatures	CRC E-92	Project plan prepared May 2009
<p>Starting with the 2010 model year automakers have to meet Non-Methane Hydrocarbon (NMHC) emissions at a 20F start temperature. The enrichment due to oxygen in ethanol and the low volatility of the ethanol portion of the fuel blend at low temperature gives concerns that existing and planned vehicles designed for federal and California emissions test fuels will not meet their required emissions standards when operated on mid-level ethanol blends. Since this program does not envision aging the vehicles it should not be unusually expensive.</p>			
5	Catalyst Durability and Degradation	CRC E-87	The course and fate of this program is currently unclear
<p>The issue of accelerated catalyst aging with intermediate ethanol blends was well-documented in the Orbital research study conducted in Australia. DOE found that 44% of vehicles they tested had the same control architecture as those that had problems with E20 in Australia and their data, when combined with CRC E-87-1 data, indicates that 35-45% of the US fleet will have this sensitive control architecture. Durability testing to identify this phenomenon was planned for CRC program E-87-2. E87-1 was funded by CRC and the report is pending. E-87-2 was funded by DOE with minor funding from CRC.</p>			
6	Evaporative Emissions Durability	CRC E-91	This expensive program awaits outside funding – bids in review
<p>As reported in previous intermediate ethanol blend research coordination meetings, CRC has conducted research projects under E-65 and E-77 on the effects of ethanol on evaporative emissions. However, these tests have all looked at the effects of short exposures. This project has been defined in CRC RFP No. E-91 which will be ready for contracting in mid 2009.</p>			
7	Emissions Inventory and Air Quality Modeling	A-67 / A-73/others	A-67 is underway and A-73 is planned for a start in 2009
<p>The CRC Atmospheric Impacts Committee is leading this effort in coordination with others. A program to evaluate ethanol blends requires speciated emissions data from new and aged vehicles. A-67 (Estimating Ozone from Fuel Reformulation) and A-73 (Emissions Modeling and Air Quality Modeling) are the CRC programs that will address this subject. These efforts rely on obtaining emissions data from the other CRC programs above.</p>			
8	Vehicle Driveability	CM-138	Some studies completed, others in process
<p>CRC conducts vehicle driveability studies in field test programs to evaluate vehicle performance as a function of fuel quality under a variety of driving conditions. Recent E10+ studies have included hot fuel handling in desert conditions and cold start and warm up testing at cool ambient conditions. Additional studies are planned for summer, winter, and high altitude testing of conventional and E10+ fuel blends.</p>			