

Q&A Regarding the RFP for CRC Project E-117 “Combustion and Emissions Characteristics of a Medium Duty Vehicle Operating on a Hydrogenated Vegetable Oil Renewable Diesel”

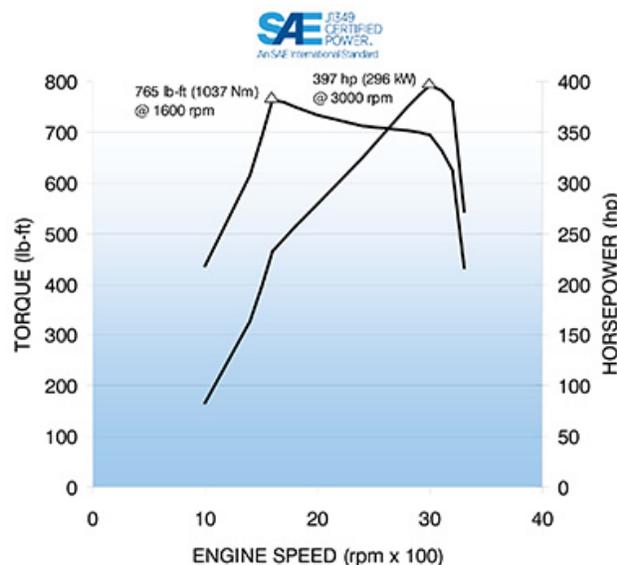
Date: August 30, 2016

1. What is the vehicle to be tested?

a. GVW

9500 lbs

b. Engine (power)



c. What emissions equipment (LNT, DPF, etc...)?

SCR, DPF, DOC

d. Will there be OEM support?

Yes

2. Will it be tested at curb or GVW or somewhere between?

Will be tested at GVW.

3. Are we to measure engine out and tailpipe emissions?

a. If they are both to be tested, will they be measured in parallel?

The study is to measure only engine out emissions.

b. The RFP doesn't mention tailpipe emissions but does mention using a CVS.

Only engine out emissions will be collected during the study. A CVS would be needed for the emissions measurements during the LA-92 cycle.

c. Will the engine out require removal of the catalysts?

The study does not require the removal of the catalysts.

Q&A Regarding the RFP for CRC Project E-117 “Combustion and Emissions Characteristics of a Medium Duty Vehicle Operating on a Hydrogenated Vegetable Oil Renewable Diesel”

Date: August 30, 2016

4. Do you want 1 cylinder or all cylinders for combustion analysis?

The study would require all cylinders for testing.

5. Do you want cylinder pressures only during steady state points or during LA92 as well?

Only during the steady state testing.

6. What is the expected start and end date?

The start date will begin once the contractor is selected and contract negotiations have been completed. There isn't a suggested end date as we ask the contractor to estimate the time needed to perform the required work.

7. Can the Coordinating Research Council provide any additional information on the medium duty vehicle to be provided, e.g. what FHWA class (3, 4, 5, or 6) or GVWR, wheelbase, track width, manufacturer, model, model year, approximate rated power, after-treatment technology etc.?

Engine:	6.6L Duramax LML, 90 degree V8 diesel
Assembly Location:	DMAX assembly plant in Moraine, Ohio
Years Produced:	2011 - current
VIN Code:	8 (8th digit of VIN)
Displacement:	403 cubic inches, 6.6 liters
Head/Block Material:	Aluminum cylinder heads, cast iron engine block
Compression Ratio:	16.0 : 1
Firing Order:	1-2-7-8-4-5-6-3
Bore:	4.06" (103 mm)
Stroke:	3.90" (99 mm)
Aspiration:	Turbocharged & intercooled - Garrett variable vane (VVT), variable geometry turbocharger (VGT) with air-to-air intercooler
Injection:	Direct injection, 2000 bar (~30,000 psi) Bosch high pressure common rail w/ CP4 injection pump and piezo injectors
Valvetrain:	OHV (overhead valve), 4 valves per cylinder, mechanical roller lifters

Q&A Regarding the RFP for CRC Project E-117 “Combustion and Emissions Characteristics of a Medium Duty Vehicle Operating on a Hydrogenated Vegetable Oil Renewable Diesel”

Date: August 30, 2016

Oil Capacity:10 quarts w/ filter (9.5 liters)

Fuel Compatibility:Ultra low sulfur diesel (ULSD) or max B20 biodiesel blend

Max Shift RPM:3,000 rpm

Peak Horsepower:397 hp @ 3,000 rpm

8. Is the catalyst sulfur purge cycle the same as what is described in the CRC document “E-94-1 Attachment B sulfur purge.docx” for spark-ignited engines?

Yes, it is the same procedure.

9. Are all the cylinders of the engine to be instrumented with pressure transducers simultaneously?

Yes, all of the cylinders should be instrumented with pressure transducers.

10. Are only engine out (before the aftertreatment system) gaseous and particulate emissions to be measured, or tailpipe as well? If both are to be measured does CRC have a preference on measurement technique for engine out gaseous and PM emissions, e.g. could a FTIR, soot sensor, etc. be used?

The study will only measure engine out emissions. We do not have a preference on the measurement techniques. FTIR and the soot sensor could be used for gaseous and PM measurements, but that is up to the particular contractor.

11. Would CRC be interested in a proposal for engine dynamometer testing to reduce test-to-test variability?

We would prefer the engine be tested with the vehicle on a chassis dynamometer to help better determine how the fuel performs in an engine and powertrain system.

12. Does CRC have any preference of what type of PN measurement protocol is being used? Does it have to conform with UN/EU’s PMP methodology and quantify only solid particle numbers or can it include total (i.e. solid and volatile) particles?

We do not have a preference on the type of PN measurement protocol. It would be preferred to conform with the PMP methodology, but if the contractor doesn’t have the equipment then the total PN value would be acceptable as well.