

Test = HWFET with Warmup

Options = CVS Bag Dil Sec ShowToI Methane ModalMethane MethaneRF Sniff2

Test Init Start = 20 April 2021 11:26:38
 Posttest Completed At = 20 April 2021 12:20:47
 Hot Soak Start Time = 19 April 2021 16:10:00

Test Start = 20 April 2021 11:40:29
 Test Finish = 20 April 2021 12:06:14

Personnel Information::

Driver = REDACTED
 Requestor = REDACTED

Operator = REDACTED
 Supervisor = REDACTED

Vehicle Information:

VIN = REDACTED
 Vehicle Model = RAM 1500
 Engine Family = ECRXT03.05PV /
 Ignition Status = No
 Automatic = 1
 Sample Delay =

Cert Tracking ID = 3029-ECRXT03.05PV-862
 Model Year = 2014
 Eng. Disp. = 3.0L
 Transmission =
 Idle RPM =

Vehicle Conditions:

Soak Start Time: = APR 19, 2021 16:10

Ambient Limit Type = OTHER7

Test Specifications:

TO-Number = W0110
 TestNet Number = 3029

CVS BulkStream Flow : = 2) 350 scfm

Dynamometer:

Inertia = 6000 (lb) /
 Road Load B = 0.0313 /

Road Load A = 10.38 (lbs) /
 Road Load C = 0.03565 /

Fuel Information:

Fuel = DIE-DJ1621HW10 /
 NHV = 18083.00
 CWF = 0.8710
 HWF = 0.1290

Specific gravity = 0.8520
 Fuel R-Factor = 0.60
 OWF = 0.0000
 Fuel Calculation Type = Diesel/EPA Calcs

Phase Information:

Shift Tables
 Phase 1 N/A
 Phase 2 N/A

Response Factors:

Bag Methane = 1.05

Pre Test Remarks:

TEST #1 AS RECEIVED

Post Test Remarks:

Non-Critical Information:

Begin Odo = 107234
 Test end Odometer = 107254
 Engine performance = No Problem
 Transmission = No Problem

Idle RPM =
 Driveability = Good
 Brakes = No Problem
 Vehicle stalls = None

AD QUALITY ASSURANCE

INSPECTED BY: REDACTED

DATE: 4-21-21

COMMENTS: Okay

SUMMARY REPORT

Test = HWFET with Warmup Test Id = ONT52197 TestNet Number = 3029
 Options = CVS Bag Dil Sec ShowTol Methane ModalMethane MethaneRF Sniff2
 Test Init Start = 20 April 2021 11:26:38 Fuel Calculation Type = Diesel/EPA Calcs

Idle RPM = Driver = **REDACTED**

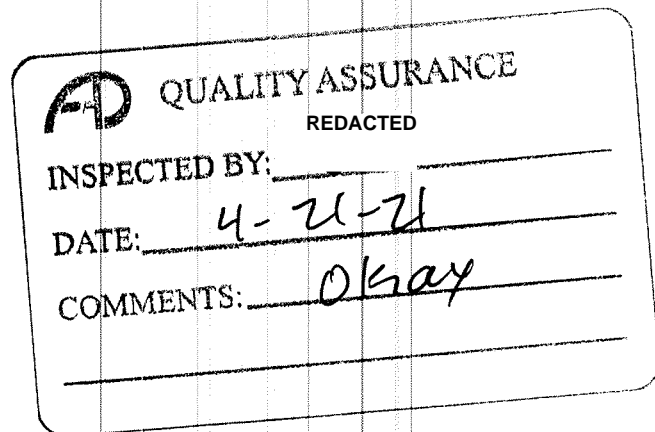
MASS calculated by DF method

Phase 1 Bag 2	THC (ppmC)	CO (ppm)	NOX (ppm)	CO2 (%)	CH4 (ppmC)	NM-HC (wRF)	FE (mpg)
Range	30.0	50.0	30.0	2.00	10.0		
Sample	11.874	0.947	0.174	1.3481	2.499		
Range	30.0	50.0	30.0	2.00	10.0		
Ambient	12.918	1.258	0.060	0.0653	2.589		
Net Conc.	0.257	0.000	0.120	1.2894	0.171	0.0780	
Modal Corr.	0.0027	0.0004	0.0001	9.3331	0.0007	0.0021	
Grams/ph.	0.0200	0.0004	0.0243	2760.7100	0.0140	0.0073	37.8274
Grams/mi	0.0019	0.0000	0.0024	269.3081	0.0014	0.0007	

----- Dyno Information -----

Inertia = 6000
 Inertia Units = 1b
 Dynamometer will be set manually = False
 Dyno Coefficient Units = 2
 Road Load A = 10.38
 Road Load B = 0.0313
 Road Load C = 0.03565
 Use Augmented Braking System? = False

MODE NO.	MODE TYPE	TEST TIME sec	MODE TIME sec	DIST mi	SAMPLE POINT	DILUTE CONCENTRATIONS					CVS VOLUME	MODAL GRAMS					F.E. mpg	D/V	
					THC ppmC	CO ppm	NOX ppm	CO2 %	CH4 ppmC	ft3	20	THC	CO	NOX	CO2	CH4	NMHC wRF		
[PHASE One MODAL SUMMARY]																			
ACCEL			2.343		DIL					1064.28		0.082	0.01	0.001	586.5	0.054	0.000	40.63	0.0
CRUISE			6.154		DIL					2316.70		0.167	0.01	0.007	1700.9	0.113	0.000	36.80	0.0
DECEL			1.755		DIL					750.36		0.051	0.00	0.001	464.7	0.037	0.000	38.41	0.0
TOTAL			10.251		DIL					4131.33		0.300	0.01	0.008	2752.1	0.203	0.000	37.89	0.0



CVS Bag report
 MASS calculated by DF method

Phase 1	Bag 2	THC (ppmC)	CO (ppm)	NOX (ppm)	CO2 (%)	CH4 (ppmC)	NM-HC (wRF)	FE (mpg)	Test Info	Times Info
Range		30.0	50.0	30.0	2.00	10.0			Baro(inHg) = 28.89	Phase Start = 11:53:29
Sample		11.874	0.947	0.174	1.3481	2.499			Temp(F) = 78.9	Phase Finish = 12:06:14
Range		30.0	50.0	30.0	2.00	10.0			Tdew(F) = 48.5	Analysis End = 12:11:16
Ambient		12.918	1.258	0.060	0.0653	2.589			Rhum(%) = 34.4	
Net Conc.		0.257	0.000	0.120	1.2894	0.171	0.0780		Ahum(gr/lb) = 52.2	Elapsed (sec) = 765.0
Modal Corr.		0.0027	0.0004	0.0001	9.3331	0.0007	0.0021		NOX Factor = 0.9033	Bag Fill (sec)= 765.0
Grams/ph.		0.0200	0.0004	0.0243	2760.7100	0.0140	0.0073	37.8274	Vmix(ft3 20 C) = 4117.90	Bag Anl (sec) = 302.5
Grams/mi		0.0019	0.0000	0.0024	269.3081	0.0014	0.0007		Dilu. Factor = 9.9306	Drv Err (sec) = 0.0
									Dist(mi) = 10.2511	

Legend
 * denotes Unstable Reading
 (wRF) denotes with Response Factor
 (woRF) denotes without Response Factor

DATA VALIDATION

PARAMETER DESCRIPTION	VALUE OF PARAMETER	LIMIT OF PARAMETER
Temperature	VALID	68 - 86 (degF)
Barometer	VALID	26.99 - 33.0001 (inHg)
Dew Point	VALID	-20 - 200 (degF)
Absolute Humidity	VALID	0 - 150 (gr/lb)
Pretest Soak Time	VALID	12 - 36 (hr)
Phase Length	VALID	2 (%)
Distance	VALID	2 (%)
Test Hold Conditions	VALID	60 (sec)
Leak Check	VALID	1
Bag Analysis Time	VALID	1200 (sec)
Bag Fill Time	VALID	5 (sec)
Ambient Bag Readings	DETAILS BELOW	THC -0.55 - 10 (ppm) CO -0.55 - 15 (ppm) NOX -0.55 - 2 (ppm) CO2 350 - 850 (ppm) CH4 -0.55 - 10 (ppm)
Sample Bag Readings	VALID	THC -0.55 (ppm) CO -0.55 (ppm) NOX -0.55 (ppm) CO2 350 (ppm) CH4 -0.55 (ppm)
Bag Read Sequence	VALID	Stabilization Time (T2) 10 (sec) Integration Time (T3) 3 (sec) Stability Time Out (T4) 30 (sec)
Bag Zero/Span Sequence	VALID	Stability Chk Tolerance 2 (%) Pre-Bag Z/S Offset 25 (%) Pre-Bag Zero Drift 1 (%) Post-Bag Z/S Drift 2 (%) Stabilization Time (T2) 10 (sec) Integration Time (T3) 3 (sec) Stability Time Out (T4) 30 (sec) Stability Chk Tolerance 2 (%)
Analyzer Overscale	VALID	10 (sec)
Venturi Inlet Temperature	VALID	32 - 300 (degF)

Ambient Bag Readings

Limits:	THC (ppm)	CO (ppm)	NOX (ppm)	CO2 (ppm)	CH4 (ppm)
Lower	-0.55	-0.55	-0.55	350.00	-0.55
Upper	10.00	15.00	2.00	850.00	10.00

Phase	THC (ppm)	CO (ppm)	NOX (ppm)	CO2 (ppm)	CH4 (ppm)
2	12.92*	1.26	0.06	652.96	2.59

1 violation.

OK ambient limit approved by customer, no regulation for limit.

REDACTED

Sample 2 Zero/Span Concentrations (Offset Limit = 25.0% ReZero Limit = 1.0%)														
Samp	Gas	Range	Fullscale	Zero	Offset	Std Dev	Spec	Span	Offset	Std Dev	Rezero	Drift	Std Dev	Status
BAG	LCO	(1)	50.0ppm	0.255	0.51	0.02176	47.235	47.273	0.08	0.03920	0.010	0.02	0.02668	PASS
BAG	CO2	(2)	2.00%	0.0015	0.08	0.01069	1.8733	1.8733	0.00	0.04700	0.0006	0.03	0.00961	PASS
BAG	THC	(2)	30.0ppm	0.169	0.56	0.00742	27.975	27.951	-0.08	0.03588	-0.029	-0.10	0.01324	PASS
BAG	NOX	(2)	30.0ppm	0.603	2.01	0.17377	28.153	28.017	-0.45	0.29201	-0.012	-0.04	0.19954	PASS
BAG	CH4	(1)	10.0ppm	0.198	1.98	0.06671	9.219	9.230	0.11	0.05673	-0.008	-0.08	0.48148	PASS

Sample 2 Post Bag Check (Drift Limit = 2.0%)														
Samp	Gas	Range	Fullscale	Zero	Drift	Std Dev	Spec	Span	Drift	Std Dev	Status			
BAG	LCO	(1)	50.0ppm	0.063	0.13	0.04151	47.235	47.217	-0.04	0.02990	PASS			
BAG	CO2	(2)	2.00%	0.0011	0.05	0.00537	1.8733	1.8743	0.05	0.04469	PASS			
BAG	THC	(2)	30.0ppm	-0.008	-0.03	0.00794	27.975	28.031	0.19	0.00703	PASS			
BAG	NOX	(2)	30.0ppm	0.005	0.02	0.33056	28.153	28.569	1.38	0.26160	PASS			
BAG	CH4	(1)	10.0ppm	-0.008	-0.08	0.06273	9.219	9.217	-0.02	0.05117	PASS			

Ambient 2 Zero/Span Concentrations (Offset Limit = 25.0% ReZero Limit = 1.0%)														
Samp	Gas	Range	Fullscale	Zero	Offset	Std Dev	Spec	Span	Offset	Std Dev	Rezero	Drift	Std Dev	Status
BAG	LCO	(1)	50.0ppm	0.315	0.63	0.06352	47.235	47.269	0.07	0.03784	-0.008	-0.02	0.03717	PASS
BAG	CO2	(2)	2.00%	0.0027	0.13	0.00460	1.8733	1.8769	0.18	0.05478	0.0004	0.02	0.00847	PASS
BAG	THC	(2)	30.0ppm	0.142	0.47	0.00663	27.975	27.866	-0.36	0.01954	-0.019	-0.06	0.01297	PASS
BAG	NOX	(2)	30.0ppm	0.538	1.79	0.21849	28.153	28.162	0.03	0.22462	-0.005	-0.02	0.15326	PASS
BAG	CH4	(1)	10.0ppm	0.199	1.99	0.04347	9.219	9.232	0.12	0.06783	-0.006	-0.06	0.09648	PASS

Ambient 2 Post Bag Check (Drift Limit = 2.0%)														
Samp	Gas	Range	Fullscale	Zero	Drift	Std Dev	Spec	Span	Drift	Std Dev	Status			
BAG	LCO	(1)	50.0ppm	-0.027	-0.05	0.05031	47.235	47.199	-0.07	0.03351	PASS			
BAG	CO2	(2)	2.00%	0.0005	0.02	0.01281	1.8733	1.8781	0.24	0.04874	PASS			
BAG	THC	(2)	30.0ppm	-0.015	-0.05	0.01194	27.975	27.933	-0.14	0.01250	PASS			
BAG	NOX	(2)	30.0ppm	0.048	0.16	0.38283	28.153	28.188	0.11	0.19236	PASS			
BAG	CH4	(1)	10.0ppm	0.003	0.03	0.08362	9.219	9.211	-0.09	0.08537	PASS			