EPA Gasoline Particulate testing

D. Good
3/8/2007

No	Mfr	Vehicle ID	Model Year	Carline	Engine	Test Group	Em Std (Bin)	Odometer (miles)	EPA Test Date	Test Type	Test Fuel	Pass Fail	NMOG (g/mi)	CO (g/mi)	NOx (g/mi)	PM (mg/mi)	PM Comp*
									EPA Testing								
1	VW/Audi	7385-DAQ/00	2007	Audi S8	5.2-liter V-10 GDI	7ADXV05.2385	Bin 5	5048	1/19/2007	FTP	Indolene	P	0.0549	0.48	0.326	5.2	
									1/19/2007	Hwy	Indolene	NA	0.0042	0.53	0.019	1.2	
									1/19/2007	US06	Indolene	P	0.0607	1.48	0.072	9.2	6.3
2	BMW	TL88008/00	2007	Mini Cooper S	1.6L Turbo GDI	7BMXV01.6LE2	Bin5		1/31/2007	FTP	Indolene	P	0.0260	0.25	0.016	5.3	
									1/31/2007	US06	Indolene	P	0.0240	1.34	0.004	9.3	6.4
3	Toyota	08-UFH2/02	2008	Lexus LS600hL	5.0L V8 GDI	8TYXV05.0CC4	Bin 3/PZEV		2/27/2007	FTP	Indolene	P	0.0076	0.18	0.002	3.6	
				(Hybrid)					2/27/2007	Hwy	Indolene		0.0000	0.00	0.014	0.9	
									3/7/2007	US06	Indolene	P	0.0140	0.30	0.021	4.5	3.9
4	GM	68DN4082		Cadillac CTS/STS	3.6L V6 GDI	8GMXV03.6053	Bin5		3/1/2007	FTP	Indolene	P	0.0334	0.66	0.039	5.2	
									3/1/2007	Hwy	Indolene		0.0210	0.33	0.003	1.1	
									3/1/2007	US06	Indolene	P	0.1110	7.46	0.023	10.3	6.7

Diesel Vehicles (for comparison)

No	Mfr	Vehicle ID	Model Year	Carline	Engine	Test Group	Em Std (Bin)	Odometer (miles)	EPA Test Date	Test Type	Test Fuel	Pass Fail	NMOG (g/mi)	CO (g/mi)	NOx (g/mi)	PM (mg/mi)	PM Comp*
									EPA Testing								
									EPA Testing								
	Mercedes	W211DE30-Z7033/00	2007	E320 BluTec	3.0L V-6 w/trap, etc	7MBXV03.0BN8	Bin 8	4892	12/13/2006	FTP	ULSDiesel	P				1.2	
									12/15/2006	FTP	ULSDiesel	P				0.9	
									12/13/2006	Hwy	ULSDiesel	NA				0.6	
									12/20/2006	Hwy	ULSDiesel	NA				0.5	
	Mercedes	V251DE30-Z7047/00	2007	R320 CDI	3.0L V-6 w/trap, etc	7MBXv03.0B10	Bin 10	4315	10/12/2006	FTP	ULSDiesel	P				2.0	
									10/12/2006	Hwy	ULSDiesel	NA				0.6	
	Chrysler	L7WKT1442	2007	Grand Cherokee	3.0L V-6 w/trap, etc	7CRXT03.0PRW	Bin 10	4051	10/4/2006	FTP	ULSDiesel	P				2.6	
									10/6/2006	FTP	ULSDiesel	P				1.5	
									10/4/2006	Hwy	ULSDiesel	NA				1.0	

* Notes: Composite calculated without SC03 test (.72 xFTP+ .28xUS06)

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Mfr Testing			PM Std		Data and calculations to determine appropriate outlier criteria for screening out data from Probes, A, B, C																Manual std dev (σ) calculations (using N-1)			
Mfr	PM	PM	50K/120K		Probe A	Probe B	Probe C	Ave	One	Two	Test	Probe A	Probe B	Probe C	Probe A	Probe A	Probe B	Probe B	Probe C	Probe C	Probe A	Probe B	Probe C	DJG Calc'd
Test Date	(mg/mi)	Comp*	(mg/mi)	Comments	PM	PM	PM	PM	Std Dev	Std Dev	Type	$\lvert x_i\text{-ave}\rvert$	$\lvert x_i\text{-ave}\rvert$	$\lvert x_i\text{-ave}\rvert$	> 1σ ?	> 2σ ?	> 1σ ?	> 2σ ?	> 1σ ?	> 2σ ?	$(x_i\text{-ave})^2$	$(x_i\text{-ave})^2$	$(x_i\text{-ave})^2$	σ
Fall, 2006	2.3		10	Mfrs PM test performed on same vehicle	4.27	6.00	5.40	5.22	0.87	1.75	FTP	0.95	0.77	0.17	Yes-Outlier	No	No	No	No	No	0.896922644	0.598580742	0.030060624	0.873373921
			NA		0.98	1.22	1.31	1.17	0.18	0.35	Hwy	0.20	0.05	0.14	Yes-Outlier	No	No	No	No	No	0.038416	0.002809	0.020449	0.17560467
Fall, 2006	25.0	8.7	70 Comp		9.77	8.89	8.80	9.16	0.54	1.07	US06	0.62	0.26	0.35	Yes-Outlier	No	No	No	No	No	0.380689	0.070225	0.123904	0.5361054
No mfr PM data until afer EPA tes			10	Filter C not used- filter temp to high (60-66deg C)	5.33	5.21	7.87	6.14	1.50	3.00	FTP	0.80	0.93	1.73	No	No	No	No	Yes-Outlier	No	0.645826534	0.863660444	3.003173468	1.502108592
			70 Comp	Filter C not used- filter temp to high (60deg C)	8.91	9.66	9.68	9.42	0.44	0.89	US06	0.51	0.25	0.27	Yes-Outlier	No	No	No	No	No	0.261461778	0.060352111	0.070578778	0.442940553
No mfr PM data until afer EPA tes			10		2.68	4.27	3.51	3.49	0.79	1.58	FTP	0.80	0.78	0.02	Yes-Outlier	No	No	No	No	No	0.645874753	0.60702278	0.000602539	0.791675461
			NA		1.36	0.45	0.79	0.87	0.46	0.92	Hwy	0.49	0.42	0.07	Yes-Outlier	No	No	No	No	No	0.241408444	0.174445444	0.005426778	0.458955699
			70 Comp		4.86	4.38	4.37	4.54	0.28	0.56		0.32	0.16	0.16	Yes-Outlier	No	No	No	No	No	0.103255111	0.024544444	0.027115111	0.278311576
2/15/07	2.6		10		5.69	5.16	4.85	5.24	0.43	0.86	FTP	0.46	0.07	0.39	Yes-Outlier	No	No	No	No	No	0.210987111	0.004937404	0.151372871	0.428542522
					1.30	0.98	0.94	1.07	0.20	0.40	Hwy	0.23	0.10	0.13	Yes-Outlier	No	No	No	No	No	0.053053444	0.009538778	0.017600444	0.200240689
2/16/07	9.6	4.6	70 Comp		11.01	9.54	10.38	10.31	0.74	1.47	US06	0.70	0.77	0.07	No	No	Yes-Outlier	No	No	No	0.490466778	0.590848444	0.004669444	0.736880135

Mfr Testing			PM Std												Probe A	Probe A	Probe B	Probe B	Probe C	Probe C				
Mfr Testing			PM Std		Data and calculations to determine appropriate outlier criteria for screening out data from Probes, A, B, C																Manual std dev (σ) calculations (using N-1)			
Mfr	PM	PM	50K/120K		Probe A	Probe B	Probe C	Ave	One	Two	Test	Probe A	Probe B	Probe C	Probe A	Probe A	Probe B	Probe B	Probe C	Probe C	Probe A	Probe B	Probe C	DJG Calc'd
Test Date	(mg/mi)	Comp*	(mg/mi)	Comments	PM	PM	PM	PM	Std Dev	Std Dev	Type	$\lvert x_i\text{-ave}\rvert$	$\lvert x_i\text{-ave}\rvert$	$\lvert x_i\text{-ave}\rvert$	> 1σ ?	> 2σ ?	> 1σ ?	> 2σ ?	> 1σ ?	> 2σ ?	$(x_i\text{-ave})^2$	$(x_i\text{-ave})^2$	$(x_i\text{-ave})^2$	σ
			20	PM not measured on EPA US06 test	0.83	1.65	0.97	1.15	0.44	0.88	FTP	0.32	0.50	0.18	No	No	Yes-Outlier	No	No	No	0.103684	0.251001	0.032041	0.439730599
			20		0.65	1.16	0.93	0.91	0.26	0.51	FTP	0.26	0.25	0.01	Yes-Outlier	No	No	No	No	No	0.068993778	0.062666778	0.000152111	0.256722288
			NA		0.80	0.51	0.41	0.57	0.21	0.41	Hwy	0.23	0.07	0.17	Yes-Outlier	No	No	No	No	No	0.053361	0.004356	0.027225	0.206084934
			NA		0.38	0.46	0.62	0.49	0.12	0.24	Hwy	0.11	0.03	0.13	No	No	No	No	Yes-Outlier	No	0.011306778	0.000641778	0.017336111	0.12100551
	8.0		80	No SFTP PM standard for Interim T2 vehs	2.36	1.57	2.64	2.19	0.55	1.11	FTP	0.17	0.62	0.45	No	No	Yes-Outlier	No	No	No	0.029469444	0.383573778	0.200405444	0.553826989
					0.37	1.27	0.79	0.81	0.45	0.90	Hwy	0.44	0.46	0.02	No	No	Yes-Outlier	No	No	No	0.194775111	0.212213778	0.000373778	0.451310684
	0.0		80	No SFTP PM standard for Interim T2 vehs	2.84	2.17	3.99	3.00	0.92	1.84	FTP	0.16	0.83	0.99	No	No	No	No	Yes-Outlier	No	0.026460444	0.688346778	0.984725444	0.921827713
					1.90	2.47	1.98	2.12	0.31	0.62	FTP	0.22	0.35	0.14	No	No	Yes-Outlier	No	No	No	0.046512111	0.125552111	0.019228444	0.309267414
					0.93	0.96	1.22	1.04	0.16	0.32	Hwy	0.10	0.08	0.18	No	No	No	No	Yes-Outlier	No	0.010472111	0.006453444	0.033367111	0.158575954
				Test case	5.00	5.00	500.00	170.00	285.79	571.58	0	165.00	165.00	330.00	No	No	No	No	Yes-Outlier	No	27225	27225	108900	285.7883832
				Test case	500.00	250.00	5.00	251.67	247.50	495.01		248.33	1.67	246.67	Yes-Outlier	No	No	No	No	No	61669.44444	2.777777778	60844.44444	247.5042087

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