



Team Results for Clean Snowmobile Challenge 2010

2010 Clean Snowmobile Competition - Lab Emission Event Emission Data Sheet

Team Name : SUNY - Buffalo
 Model : SUNY-B
 Engine : SUNY-B
 Displacement[cc] : 980cc
 100% Speed : 4578
 100% Torque : 62.0
 No of Strokes : 4
 Fuel : Diesel H/C: 1.79 O/C: 0.00

ModeNum	:	1	2	3	4	5
Weighting	:	0.12	0.27	0.25	0.31	0.05
Power kW	:	29.6	13.2	7.7	3.8	0.0
HC_m g/hr	:	61.46	16.52	11.56	13.88	2.59
CO_m g/hr	:	4.72	0.13	0.29	2.68	0.06
NOx_m g/hr	:	273.85	349.11	297.96	62.43	8.33
N2O_m g/hr	:	0.00	0.00	0.00	0.00	0.00
Soot_m mg/hr	:	7449.63	1014.82	592.61	748.85	209.24
W_HC g/hr	:	7.38	4.46	2.89	4.30	0.13
W_CO g/hr	:	0.57	0.03	0.07	0.83	0.00
W_NOx g/hr	:	32.86	94.26	74.49	19.35	0.42
W_HCNOx g/hr	:	40.24	98.72	77.38	23.66	0.55
W_Soot mg/hr	:	893.96	274.00	148.15	232.14	10.46

Total Weighted Power [kW] 10.215

Weighted Emissions

	HC	CO	NOx	HC+NOx
Total Mass [g/hr]	19.2	1.5	221.4	240.5
Specific Mass [g/kW-hr]	1.9	0.1	21.7	23.5

Total Soot [mg/hr] 1558.7 Specific Soot [mg/kW-hr] 152.6
 BSFC [g/kW-hr] 411.6

Not Used for Competition

	CO2	N2O	CH4
Total Mass [g/hr]	32393	0.00	0.07
Specific Mass [g/kW-hr]	3887	0.00	0.01

EMISSION TESTS:

	Value	Limit	Result
Power	29.6	<96.94 kW	PASS
Soot	152.594	<100 mg/kW-hr	FAIL
CO	0.15	<275 g/kW-hr	PASS
HC + NOX	23.55	<90 g/kW-hr	PASS
E-Score	194.3	>100	PASS
Valid Data for All 5 Modes			PASS

LAB EMISSION TEST FAIL



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Modal Raw Data : Engine / Environmental

ModeNum		1	2	3	4	5
Total Points	points	312	1206	1201	1201	1206
PtsInMode	points	312	1206	1201	1201	1206
Speed	rpm	4577.93	3901.15	3439.79	2980.54	696.01
Torque	Nm	61.82	32.36	21.37	12.04	0.00
Power	kW	29.64	13.22	7.70	3.76	0.00
BSFC	g/kw-hr	345.17	347.36	441.80	535.24	**
Fuel	g/hr	10230.03	4592.28	3400.54	2010.60	460.36
T_int	degC	34.40	37.41	37.05	30.79	23.27
RelHumid	%	92.76	92.76	92.76	92.76	92.75
Baro	in Hg	29.97	29.97	29.98	29.98	29.98
Baro	mmHg	761.24	761.32	761.49	761.50	761.52
Pvap_kPa	kPa	3.91	4.53	4.46	3.26	2.20
Pvap_inHg	inHg	1.16	1.34	1.32	0.96	0.65
AbsHumidity	grains/lb	174.61	203.90	200.18	144.49	96.43
SatPres	kPa	97.57	96.95	97.06	98.26	99.32
Hum Factor		1.88	2.54	2.43	1.49	1.11
F_fac		1.04	1.05	1.05	1.02	0.99
K_fac		1.01	1.01	1.01	1.00	0.99
Humidity	g/kg	24.94	29.13	28.60	20.64	13.78
H2		0.00	0.00	0.00	0.00	0.00
WetDry Factor		0.90	0.94	0.96	0.96	0.95



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Modal Emissions Concentrations

ModeNum		1	2	3	4	5
THC	ppmC1	625.58	215.64	154.06	319.12	270.35
CO	%	0.00	0.00	0.00	0.00	0.00
N2O	ppm	6.95	2.21	5.26	18.57	97.62
CH4	ppm	0.65	1.06	1.14	0.04	1.31
CO2	%	10.35	5.97	4.52	4.59	4.78
O2	%	4.93	11.56	13.76	13.66	13.29
CNOx	ppm	836.82	1367.77	1192.25	430.92	261.27
AHC	ppm	44.39	10.26	4.87	53.86	15.17
C2H2	ppm	0.31	0.07	0.06	0.34	0.17
C2H4	ppm	0.77	0.31	0.90	2.92	0.27
C3H6	ppm	0.93	0.06	0.23	0.22	0.08
C4H6	ppm	0.13	0.04	0.03	0.12	0.05
ETOH	ppm	0.00	0.02	0.22	0.00	0.00
H2O	%	9.59	5.71	4.44	4.48	4.80
HCHO	ppm	2.77	0.66	1.72	4.82	0.88
HCN	ppm	0.65	0.12	0.12	0.25	0.10
HNCO	ppm	6.31	4.80	3.76	2.34	3.58
MECHO	ppm	0.00	0.00	0.00	0.00	0.00
NC5	ppm	334.04	99.44	50.11	419.25	131.58
NH3	ppm	0.06	0.03	0.01	0.01	0.01
NO	ppm	395.04	171.93	349.25	288.13	158.18
SO2	ppm	4.55	0.76	1.16	4.85	2.45
Soot	mg/m3	42.298	7.383	4.430	9.615	12.099
ModalAFR_MO	-	19.694	34.979	46.285	45.560	44.154