

# Measurement reports

Manufacturer: TECORA  
 ISOSTACK  
 Instrument: G4

## Isokinetic sampling 18/10/2011 14:22:09

MACHINE INFORMATION  
 Master Firmware: v1.6.5000  
 Master Serial Number: 11180084P  
 Slave Firmware: v0.6.6000  
 Slave Serial Number: 11180084P  
 Encoder resolution: 0.05  
 Last calibration date: 23/06/2011

### POINT LIST

start ts [timestamp]	Port [##]	Point [##]	Distance [cm]	Elapsed Time [hh:mm:ss]	rw avg [s-1]	t <sub>min</sub> avg [°C]	t <sub>min</sub> min [°C]	t <sub>min</sub> max [°C]	t <sub>probe</sub> avg [°C]	t <sub>tot</sub> avg [°C]	t <sub>tot1</sub> avg [°C]	t <sub>tot2</sub> avg [°C]	t <sub>ps</sub> avg [°C]	P <sub>a</sub> avg [hPa]	P <sub>int</sub> avg [hPa]	P <sub>amb</sub> avg [hPa]	V <sub>a</sub> avg [m/s]	V <sub>a</sub> min [m/s]	V <sub>a</sub> max [m/s]	qV <sub>a</sub> avg [m³/s]	DI avg [%]	pn avg [%]	O <sub>2</sub> avg [%]	CO <sub>2</sub> avg [%]	Q <sub>Va</sub> [m³/s]	Q <sub>Vn</sub> [m³/s]	Q <sub>Vn</sub> [m³/s]	qV <sub>ps</sub> avg [m³/s]	V <sub>in</sub> [l]	V <sub>ps</sub> [l]	V <sub>psm</sub> [l]
18/10/2011 14:22:32	1	1	5.7	00:04:37	0.01	45.536	42.755	46.116	34.016	25.386	145.334	188.152	22.904	102.1	83.592	102.142	21.349	9.766	22.13	35.019	-0.04	1.286	20.95	0.02	118311.2	102198.9	101177	0	0	132.26	174.55
18/10/2011 14:27:18	1	2	18.7	00:04:37	0.01	46.251	46.1	46.519	14.702	22.015	139.687	192.156	22.786	102.092	79.319	102.142	21.537	19.974	22.983	35.328	0.077	1.286	20.95	0.02	119353.1	102859.9	101831.4	0	0	149.29	210.7
18/10/2011 14:31:59	1	3	36.4	00:04:37	0.01	50.022	46.519	54.7	32.943	24.383	136.153	196.806	22.853	102.088	80.458	102.142	21.077	18.176	22.228	34.574	0.077	1.286	20.95	0.02	116803.9	99483.96	98489.12	0	0	146.88	204.7
18/10/2011 14:38:30	1	4	70	00:04:37	0.01	60.974	58.019	63.466	24.756	23.84	145.539	202.808	23.016	102.079	81.844	102.142	20.792	19.812	22.267	34.105	0.067	1.286	20.95	0.02	115224.5	94912.12	93963	0	0	138.25	188.35
18/10/2011 14:44:18	1	5	103.7	00:04:37	0.01	66.452	64.658	67.454	26.157	23.565	151.563	201.674	23.031	102.076	81.868	102.142	21.096	19.785	22.341	34.605	0.075	1.286	20.95	0.02	116909.2	94742.98	93795.55	0	0	134.83	182.95
18/10/2011 14:49:16	1	6	121.4	00:04:37	0.01	63.448	57.736	66.542	29.823	23.951	152.674	201.722	22.992	102.073	78.23	102.142	21.27	19.645	22.352	34.89	0.132	1.286	20.95	0.02	117873.4	96374.49	95410.74	0	0	151.48	220.45
18/10/2011 14:55:04	1	7	134.4	00:04:37	0.01	56.586	52.214	61.331	26.655	23.798	149.993	201.42	23.056	102.069	80.343	102.142	21.373	20.114	22.286	35.059	0.071	1.286	20.95	0.02	118444.2	98853.54	97865.01	0	0	144.03	199.7
18/10/2011 14:59:55	2	1	5.7	00:04:37	0.01	49.138	46.22	51.811	27.237	24.757	145.35	209.675	23.096	102.065	80.507	102.142	20.701	13.882	22.562	33.957	0.087	1.286	20.95	0.02	114720.2	97955.28	96975.73	0	0	143.01	198.7
18/10/2011 15:05:00	2	2	18.7	00:04:37	0.01	54.632	49.869	58.229	28.49	24.083	143.395	208.058	23.165	102.065	81.595	102.142	20.567	15.198	22.365	33.736	0.079	1.286	20.95	0.02	113977.6	95689.25	94732.35	0	0	137.99	189.35
18/10/2011 15:10:09	2	3	36.4	00:04:37	0.01	58.557	52.477	63.337	22.085	23.358	145.353	202.207	23.239	102.058	84.04	102.142	20.437	13.859	22.456	33.523	0.003	1.286	20.95	0.02	113257.1	93952.35	93012.83	0	0	129.84	172
18/10/2011 15:15:29	2	5	103.7	00:04:37	0.01	67.03	64.203	69.008	29.953	23.589	150.022	209.916	23.239	102.052	81.745	102.142	21.018	20.048	22.122	34.476	0.075	1.286	20.95	0.02	116476.9	94210.07	93267.97	0	0	134.68	184.1
18/10/2011 15:20:31	2	6	121.4	00:04:37	0.01	69.927	69.225	70.292	34.873	24.575	153.216	199.015	23.229	102.05	81.41	102.142	21.341	20.199	22.432	35.007	0.077	1.286	20.95	0.02	118266.9	94847.91	93899.43	0	0	136.47	186.8
18/10/2011 15:25:41	2	7	134.4	00:04:37	0.01	60.919	57.727	68.869	33.901	25.449	154.571	201.129	23.238	102.048	80.523	102.142	21.608	20.177	22.436	35.444	0.06	1.286	20.95	0.02	119746.6	98623.31	97637.08	0	0	141.11	194.75

### NORMALIZATION FACTOR

T<sub>norm</sub> [K] 273  
 P<sub>norm</sub> [hPa] 101.3

### PITOT DATA SPECIFICATION

Name: 356  
 Velocity [m/s] 1.046 0.87  
 Velocity [m/s] 8.017 0.87  
 Velocity [m/s] 16.042 0.87  
 Velocity [m/s] 25.041 0.87  
 Velocity [m/s] 35.08 0.87

### DUCT AND GAS SPECIFICATION

Name: BEFESAB  
 Section: Circular  
 Diameter [m] 1.4  
 Area [m²] 1.539  
 Port: B 2  
 Points: P 7  
 Density [kg/m³] 1.286 1.286  
 Carbon dioxide CO<sub>2</sub> [%] 0.02 0.020  
 Oxygen O<sub>2</sub> [%] 20.95 20.950  
 Water vapor ratio rw [%] 0.01 0.010  
 Nozzle nz [mm] 5.9  
 Turbulence factor ft [sec] 1

### DUCT FLOW RATE

Dry actual QV<sub>a</sub> [m³/s] 115705 128089  
 Moist actual QV<sub>a</sub> [m³/s] 116874 119747  
 Moist standard [T<sub>room</sub>, P<sub>room</sub>] QV<sub>n</sub> [m³/s] 97285 102860  
 Dry standard [T<sub>room</sub>, P<sub>room</sub>] QV<sub>n</sub> [m³/s] 96312 101831

### AVERAGE VALUES

Total Points [#] 13  
 Velocity v<sub>a</sub> [m/s] 21.089 22.983

Stack temperature	$t_s$	[°C]	57.651 [42.755; 70.292]
Stack Static Pressure	$P_{s\_static}$	[kPa]	102.07 [102.027; 102.123]
Isokinetic Deviation	DI	[%]	0.064 [-1.000; 0.866]
Probe temperature	$t_{probe}$	[°C]	28.122 [72.414; 115.007]
Box temperature	$t_{box}$	[°C]	24.057 [7.290; 40.922]
Aux1 temperature	$t_{aux1}$	[°C]	147.142 [135.334; 156.379]
Aux2 temperature	$t_{aux2}$	[°C]	201.133 [161.487; 217.734]
Stack Differential Pitot Pressure	$dP_{pitot}$	[Pa]	314.017 [134.667; 385.312]
Ambient Pressure	$P_{amb}$	[kPa]	102.142 [102.142]

#### SAMPLED VOLUMES

Elapsed time	et	[hh:mm:ss]	01:00:01
Total encoder impulses		[#]	3895
Standard Volume [ $T_{ref}$ , $P_{ref}$ ]	$V_{gn}$	[m <sup>3</sup> ]	1.8201
Volume at ogm conditions	$V_{ogm}$	[m <sup>3</sup> ]	2.5071
Gas meter temperature	$t_{gm}$	[°C]	23.064 [22.369; 24.121]
Gas Meter Pressure	$P_{gm}$	[kPa]	81.19 [63.767; 102.082]

#### SIDE STREAM

Elapsed time	etd	[hh:mm:ss]	00:00:00 [3.000]
Flowrate	$qV_{on}$	[l/min]	0 [3.000]
Volume	$V_{on}$	[m <sup>3</sup> ]	0

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