

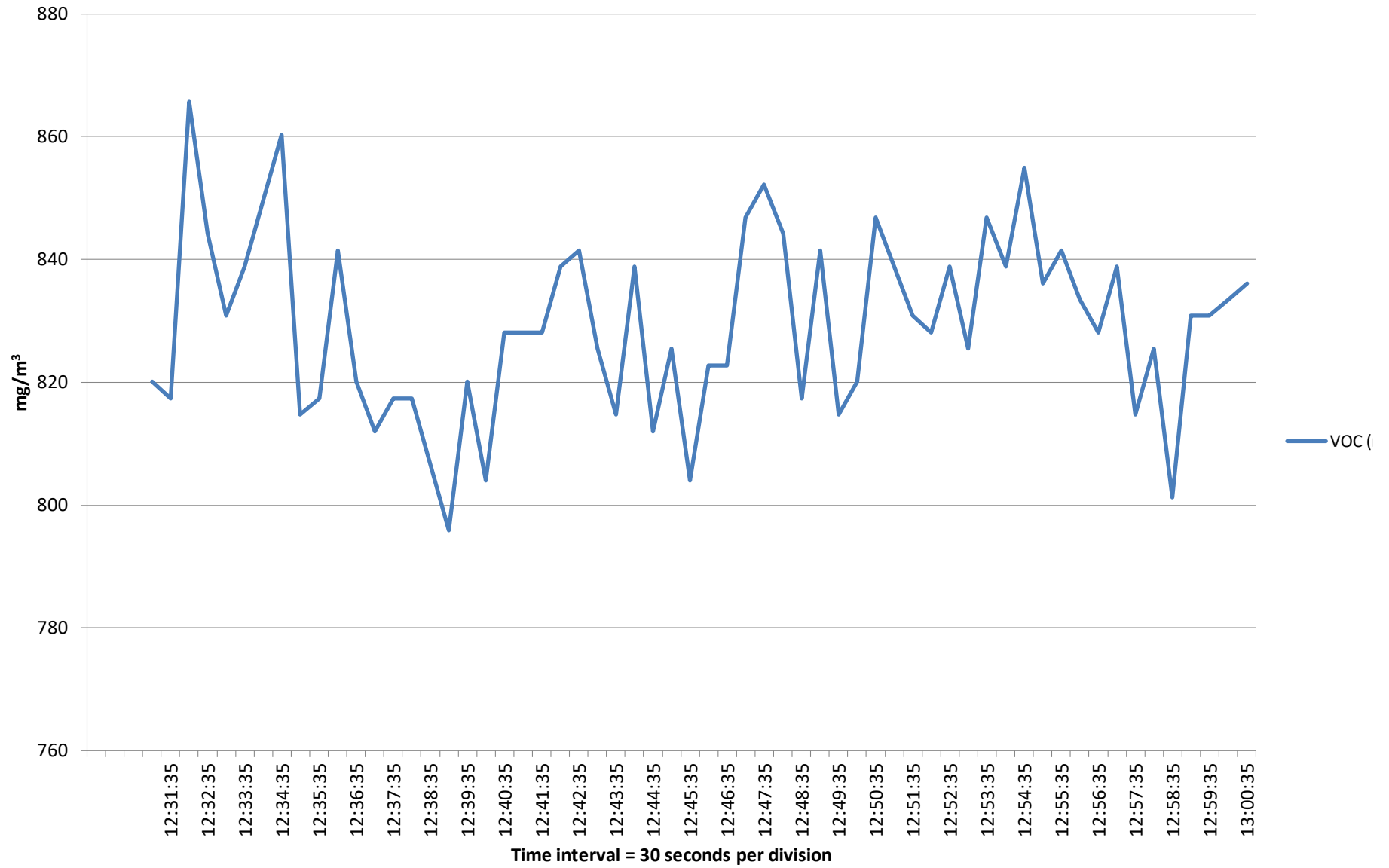
VOC Emissions Results

Client WZ Packaging Job No 183886
 Location Telford
 Date 29 November 2018
 Emission Point Reference Dryer 365
 Press/Coating Line Kroenert 365
 Analyser make and model Signal 3030PM 3904
 Engineer M Dudek / J Pagett
 Test run One
 No. of readings 60
 Start time 12:31:05
 Test period duration 01:00:00
 Time Interval 30sec
 Calibration Gas ppm 500 Methane
 Methane test ppm N/A
 Conversion Factor 0.536

	Peak	Average
VOC mg/m ³	865.64	829.37

Sample Time	FID Reading (ppm)	Methane Content (ppm)	VOC Less Methane (ppm)	Mean Stack Temp. (°C)	VOC (mg/m ³)	Exhaust Rate Nm ³ /Hr	Comments	30 minute mean
12:31:05	1530.00		1530.00	148.00	820.08	11,670.58		
12:31:35	1525.00		1525.00		817.40			
12:32:05	1615.00		1615.00		865.64			
12:32:35	1575.00		1575.00		844.20			
12:33:05	1550.00		1550.00		830.80			
12:33:35	1565.00		1565.00		838.84			
12:34:05	1585.00		1585.00		849.56			
12:34:35	1605.00		1605.00		860.28			
12:35:05	1520.00		1520.00		814.72			
12:35:35	1525.00		1525.00		817.40			
12:36:05	1570.00		1570.00		841.52			
12:36:35	1530.00		1530.00		820.08			
12:37:05	1515.00		1515.00		812.04			
12:37:35	1525.00		1525.00		817.40			
12:38:05	1525.00		1525.00		817.40			
12:38:35	1505.00		1505.00		806.68			
12:39:05	1485.00		1485.00		795.96			
12:39:35	1530.00		1530.00		820.08			
12:40:05	1500.00		1500.00		804.00			
12:40:35	1545.00		1545.00		828.12			
12:41:05	1545.00		1545.00		828.12			
12:41:35	1545.00		1545.00		828.12			
12:42:05	1565.00		1565.00		838.84			
12:42:35	1570.00		1570.00		841.52			
12:43:05	1540.00		1540.00		825.44			
12:43:35	1520.00		1520.00		814.72			
12:44:05	1565.00		1565.00		838.84			
12:44:35	1515.00		1515.00		812.04			
12:45:05	1540.00		1540.00		825.44			
12:45:35	1500.00		1500.00		804.00			
12:46:05	1535.00		1535.00		822.76			
12:46:35	1535.00		1535.00		822.76			
12:47:05	1580.00		1580.00		846.88			
12:47:35	1590.00		1590.00		852.24			
12:48:05	1575.00		1575.00		844.20			

Total VOC as mg/m³



WZ

Calculation of Duct Gas Velocity

365 Customer: Packaging

Date: 29 November 2018

Sample Number	Distance	Sample (A) VP + Temp		Sample (B) VP + Temp		Hh (A)	Hh (B)
		Pitot Reading	Gas Temp°C	Pitot reading	Gas Temp°C		
1	0.032D	58.00	148.00	76.00	148.00	7.62	8.72
2	0.135D	57.00	148.00	49.00	148.00	7.55	7.00
3	0.321D	77.00	148.00	78.00	148.00	8.77	8.83
4	0.679D	61.00	148.00	63.00	148.00	7.81	7.94
5	0.865D	59.00	148.00	56.00	148.00	7.68	7.48
6	0.968D	44.00	148.00	39.00	148.00	6.63	6.24

Enter Stack readings in blue data areas, VP in Pa, Temp in Degrees C

Average Hh: 7.69
 Average Temp T: 148.00
 Enter Duct Dia (mm): 800.00
 Q (duct area): $(P \cdot D^2) / 4000000$
 0.503 m²
 Gas Velocity: $0.075 \cdot H(h/K) \cdot H(273 + \text{Duct Temp})$
 9.94 m/s
 Total gas Flow: $Q \cdot V$
 5.00 m³/s
 17997.49 m³/hr
 Gas Flow correction to reference conditions
 Nm³/hr: $\text{Gas Flow} \cdot (273 / (273 + \text{Average duct Temp}))$
 11670.58 Nm³/hr

*Enter duct side A in mm:

*Enter duct side B in mm:

Q (duct area): $A \cdot B / 1000000$
 0.000 m²

Enter pitot tube Constant K : 1.190

For S type K = 1.190
 For L type K = 1

* NOTE! The program will only use the two sided duct area, if no round duct diameter measurement is entered.

Summary of Test Results

Job No 183886

WZ Packaging

43433

Dryer 365

Engineer: M Dudek / J Pagett

Species	Units		Permitted	Result	Uncertainty
Volatile Organic Compounds	mg/m ³	Peak	N/A	865.64	± 7.3%
		Mean	N/A	829.37	

Parameters			
	Unit	Result	Comments
Mean stack temperature	°C	148.00	
Mean volume flow rate	Nm ³ /hr	11,670.58	
Stack Diameter	mm	800.00	
Stack Velocity	m/sec	9.94	
Oxidiser Combustion Chamber Temperature	°C		
Fuel	N/A	Natural gas	
Plume appearance	N/A	None visible	

