

VOC Emissions Results

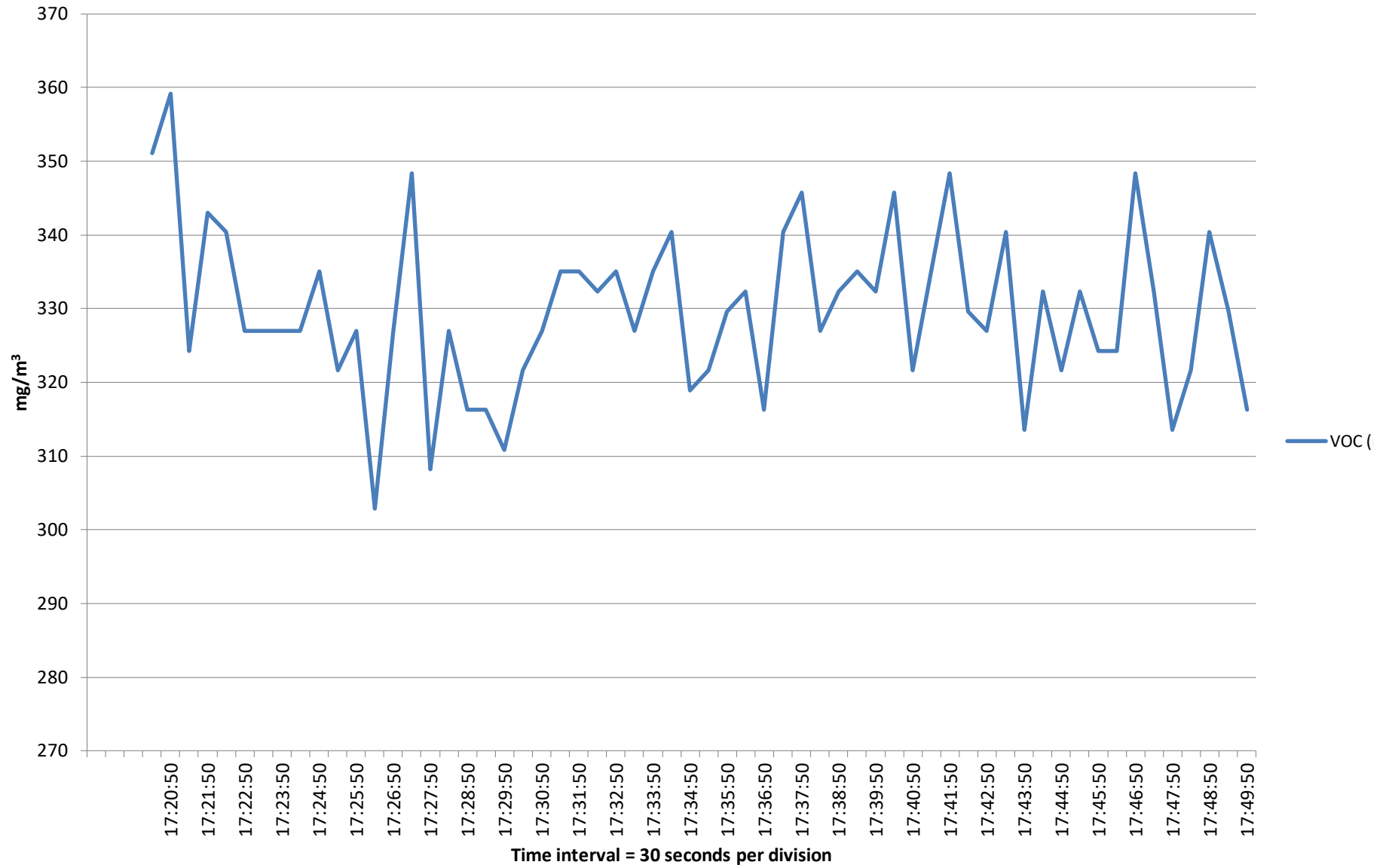
**Client** WZ Packaging **Job No** 799565  
**Location** Telford  
**Date** 29 November 2018  
**Emission Point Reference** Dryer 364  
**Press/Coating Line** Texmo 364  
**Analyser make and model** Signal 3030PM 3904  
**Engineer** M Dudek / J Pagett  
**Test run** One  
**No. of readings** 60  
**Start time** 17:20:20  
**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
<b>VOC mg/m<sup>3</sup></b>	359.12	329.73

Sample Time	FID Reading (ppm)	Methane Content (ppm)	VOC Less Methane (ppm)	Mean Stack Temp. (°C)	VOC (mg/m <sup>3</sup> )	Exhaust Rate Nm <sup>3</sup> /Hr	Comments	30 minute mean
17:20:20	655.00		655.00	73.00	351.08	39,051.03		
17:20:50	670.00		670.00		359.12			
17:21:20	605.00		605.00		324.28			
17:21:50	640.00		640.00		343.04			
17:22:20	635.00		635.00		340.36			
17:22:50	610.00		610.00		326.96			
17:23:20	610.00		610.00		326.96			
17:23:50	610.00		610.00		326.96			
17:24:20	610.00		610.00		326.96			
17:24:50	625.00		625.00		335.00			
17:25:20	600.00		600.00		321.60			
17:25:50	610.00		610.00		326.96			
17:26:20	565.00		565.00		302.84			
17:26:50	610.00		610.00		326.96			
17:27:20	650.00		650.00		348.40			
17:27:50	575.00		575.00		308.20			
17:28:20	610.00		610.00		326.96			
17:28:50	590.00		590.00		316.24			
17:29:20	590.00		590.00		316.24			
17:29:50	580.00		580.00		310.88			
17:30:20	600.00		600.00		321.60			
17:30:50	610.00		610.00		326.96			
17:31:20	625.00		625.00		335.00			
17:31:50	625.00		625.00		335.00			
17:32:20	620.00		620.00		332.32			
17:32:50	625.00		625.00		335.00			
17:33:20	610.00		610.00		326.96			
17:33:50	625.00		625.00		335.00			
17:34:20	635.00		635.00		340.36			
17:34:50	595.00		595.00		318.92			
17:35:20	600.00		600.00		321.60			
17:35:50	615.00		615.00		329.64			
17:36:20	620.00		620.00		332.32			
17:36:50	590.00		590.00		316.24			
17:37:20	635.00		635.00		340.36			



# Total VOC as mg/m<sup>3</sup>



WZ

**Calculation of Duct Gas Velocity**

**364 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	166.00	73.00	174.00	73.00	12.88	13.19
2	0.135D	181.00	73.00	176.00	73.00	13.45	13.27
3	0.321D	162.00	73.00	167.00	73.00	12.73	12.92
4	0.679D	153.00	73.00	165.00	73.00	12.37	12.85
5	0.865D	135.00	73.00	140.00	73.00	11.62	11.83
6	0.968D	92.00	73.00	129.00	73.00	9.59	11.36

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

Average Hh: 12.34  
 Average Temp T: 73.00  
 Enter Duct Dia (mm): 1100.00  
 Q (duct area):  $(P \cdot D^2) / 4000000$   
 0.950 m<sup>2</sup>  
 Gas Velocity:  $0.075 \cdot H(h/K) \cdot H(273 + \text{Duct Temp})$   
 14.46 m/s  
 Total gas Flow:  $Q \cdot V$   
 13.75 m<sup>3</sup>/s  
 49493.25 m<sup>3</sup>/hr  
 Gas Flow correction to reference conditions  
 Nm<sup>3</sup>/hr:  $\text{Gas Flow} \cdot (273 / (273 + \text{Average duct Temp}))$   
 39051.03 Nm<sup>3</sup>/hr

\*Enter duct side A in mm:   
 \*Enter duct side B in mm:   
 Q (duct area):  $A \cdot B / 1000000$   
 0.000 m<sup>2</sup>

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 799565

WZ Packaging

43433

**Dryer 364**

Engineer: M Dudek / J Pagett

Species	Units		Permitted	Result	Uncertainty
Volatile Organic Compounds	mg/m <sup>3</sup>	Peak	N/A	359.12	± 7.3%
		<b>Mean</b>	<b>N/A</b>	<b>329.73</b>	

Parameters			
	Unit	Result	Comments
Mean stack temperature	°C	73.00	
Mean volume flow rate	Nm <sup>3</sup> /hr	39,051.03	
Stack Diameter	mm	1,100.00	
Stack Velocity	m/sec	14.46	
Oxidiser Combustion Chamber Temperature	°C		
Fuel	N/A	Natural gas	
Plume appearance	N/A	None visible	

