

VOC Emissions Results

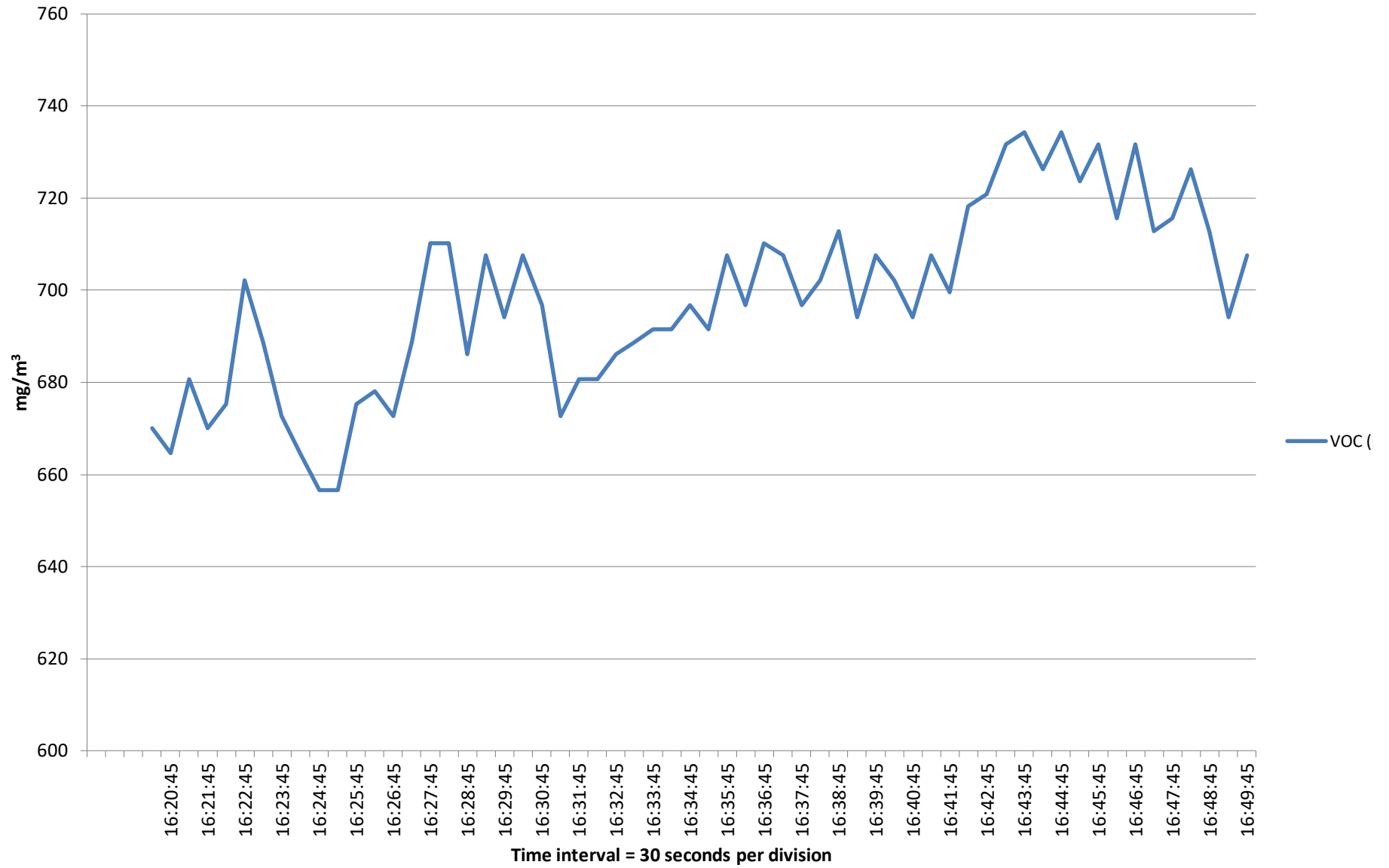
<b>Client</b>	WZ Packaging	<b>Job No 802691 Dotty</b>
<b>Location</b>	Telford	
<b>Date</b>	29 November 2018	
<b>Emission Point Reference</b>	Rotomec 334	
<b>Press/Coating Line</b>	Machine 334	
<b>Analyser make and model</b>	Signal 3030PM 3904	
<b>Engineer</b>	M Dudek / J Pagett	
<b>Test run</b>	One	
<b>No. of readings</b>	60	
<b>Start time</b>	16:20:15	
<b>Test period duration</b>	01:00:00	
<b>Time Interval</b>	30sec	
<b>Calibration Gas ppm</b>	500 Methane	
<b>Methane test ppm</b>	N/A	
<b>Conversion Factor</b>	0.536	

	Peak	Average
<b>VOC mg/m<sup>3</sup></b>	734.32	698.10

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
16:20:15	1250.00		1250.00	42.00	670.00	26,296.82		
16:20:45	1240.00		1240.00		664.64			
16:21:15	1270.00		1270.00		680.72			
16:21:45	1250.00		1250.00		670.00			
16:22:15	1260.00		1260.00		675.36			
16:22:45	1310.00		1310.00		702.16			
16:23:15	1285.00		1285.00		688.76			
16:23:45	1255.00		1255.00		672.68			
16:24:15	1240.00		1240.00		664.64			
16:24:45	1225.00		1225.00		656.60			
16:25:15	1225.00		1225.00		656.60			
16:25:45	1260.00		1260.00		675.36			
16:26:15	1265.00		1265.00		678.04			
16:26:45	1255.00		1255.00		672.68			
16:27:15	1285.00		1285.00		688.76			
16:27:45	1325.00		1325.00		710.20			
16:28:15	1325.00		1325.00		710.20			
16:28:45	1280.00		1280.00		686.08			
16:29:15	1320.00		1320.00		707.52			
16:29:45	1295.00		1295.00		694.12			
16:30:15	1320.00		1320.00		707.52			
16:30:45	1300.00		1300.00		696.80			
16:31:15	1255.00		1255.00		672.68			
16:31:45	1270.00		1270.00		680.72			
16:32:15	1270.00		1270.00		680.72			
16:32:45	1280.00		1280.00		686.08			
16:33:15	1285.00		1285.00		688.76			
16:33:45	1290.00		1290.00		691.44			
16:34:15	1290.00		1290.00		691.44			
16:34:45	1300.00		1300.00		696.80			
16:35:15	1290.00		1290.00		691.44			
16:35:45	1320.00		1320.00		707.52			
16:36:15	1300.00		1300.00		696.80			
16:36:45	1325.00		1325.00		710.20			
16:37:15	1320.00		1320.00		707.52			



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



WZ

**Calculation of Duct Gas Velocity**

**334 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	90.00	42.00	103.00	42.00	9.49	10.15
2	0.135D	84.00	42.00	92.00	42.00	9.17	9.59
3	0.321D	91.00	42.00	84.00	42.00	9.54	9.17
4	0.679D	93.00	42.00	91.00	42.00	9.64	9.54
5	0.865D	98.00	42.00	93.00	42.00	9.90	9.64
6	0.968D	94.00	42.00	92.00	42.00	9.70	9.59

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

Average Hh: 9.59  
 Average Temp T: 42.00  
 Enter Duct Dia (mm): 1000.00  
 Q (duct area):  $(P \cdot D^2) / 4000000$   
 0.786 m<sup>2</sup>  
 Gas Velocity:  $0.075 \cdot H(h/K) \cdot H(273 + \text{Duct Temp})$   
 10.73 m/s  
 Total gas Flow:  $Q \cdot V$   
 8.43 m<sup>3</sup>/s  
 30342.49 m<sup>3</sup>/hr  
 Gas Flow correction to reference conditions  
 Nm<sup>3</sup>/hr:  $\text{Gas Flow} \cdot (273 / (273 + \text{Average duct Temp}))$   
 26296.82 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 802691 Dotty

WZ Packaging

43433

**Rotomec 334**

Engineer: M Dudek / J Pagett

Species	Units		Permitted	Result	Uncertainty
Volatile Organic Compounds	mg/m <sup>3</sup>	Peak	N/A	734.32	± 7.3%
		<b>Mean</b>	<b>N/A</b>	<b>698.10</b>	

Parameters			
	Unit	Result	Comments
Mean stack temperature	°C	42.00	
Mean volume flow rate	Nm <sup>3</sup> /hr	26,296.82	
Stack Diameter	mm	1,000.00	
Stack Velocity	m/sec	10.73	
Oxidiser Combustion Chamber Temperature	°C		
Fuel	N/A	Natural gas	
Plume appearance	N/A	None visible	

