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AN ASSESSMENT OF EMISSIONS TO ATMOSPHERE FROM THE MAIN STACK

TRELLEBORG PPL
TUFTHANE BUILDING
FALKLAND CLOSE
COVENTRY
CV4 8AU

Report No:	14625C revised	Client Ref:	OH12224 Emissions Monitoring
Survey Date:	7 October and 19 November 2014	Site Contact:	Victoria Tennant
Report Date:	01 December 2014	Server Reference:	G:\REPORTS\Reports by Name\2014\Trelleborg

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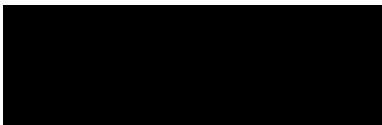
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EXECUTIVE SUMMARY

Emissions to atmosphere were assessed on 7 October 2014 and 19 November 2014 during the spray application of adhesive coatings, moulding polyurethane items, curing of polyurethane mouldings and preheating isocyanate materials. The monitoring was deemed requisite to comply with the requirements stated in permit PPC 194. The results and information obtained during the visit indicated that:

- Levels of Isocyanates as methylene diphenyl diisocyanate (MDI) were under the LOD (Limit of Detection) and also under all pollution prevention control limits.
- Levels of VOC were all well under the PPC 194 limits given as 100mg/nm³
- The results were therefore under the authorised limits for Trelleborg PPL as stated within PPC 194

SURVEYED BY :



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VERIFIED BY:



Simon Skentelbery MSc
General Manager

1. INTRODUCTION

The survey described in this report was carried out on the 7 October and 19 November 2014 by Geoff Waggett at the request of Victoria Tennant of Trelleborg PPL and in accordance with our work specifications outlined in quotation reference OH12224, in order to determine emissions to atmosphere to comply with the companies Pollution Prevention Control PPC194

Monitoring of emissions was carried out from the main factory stack extracting from three process hoods.

2. DESCRIPTION OF PROCESS

Production schedules on the date of the survey were described as normal and the emissions quantified may be considered representative of working conditions.

The main stack fed from Ovens 22 & 23, the press, seismic mould and the release area, and a new workstation at the bottom end of the factory. This stack was tested for isocyanates and total volatile organic compounds. Operators were casting for 30 minute periods during the test phase mostly at hood 1 and the paddles operation.

3. MONITORING

Isocyanate Monitoring

A sampling pump was connected to an impinger tube containing a solution of 1-(2 methoxyphenyl) piperazine in dry of toluene, the method based on MDHS 25. Sampling is performed by extracting air from the stack or vent, and bubbling through the impinger solution at 1 litre per minute for 30 minutes. The process was repeated over a one hour period.

The sampling solution was sealed in glass jars and sent for analysis using High Performance Liquid Chromatography.

Volatile Organic Compound (VOC) Monitoring

The sampling system comprises of a sampling head containing a SKC Sorbent sample tube (226-01), connected to a portable precision pump, capable of running continuously for 8 hours at the recommended flow rate. Following monitoring the 226-01 sorbent tube is capped and placed in a sealed inert container until analysis can be carried out. Analysis is by Gas Chromatography/Mass Spectrometry using specified procedures for the instrumentation.

Stack Velocity

Stack velocity was measured using a pitot tube, coupled to an electronic manometer; both are calibrated annually by a UKAS accredited supplier. Temperature measurements were taken using an electronic thermometer.

4. RESULTS

The detailed results are attached as Appendix 1 for the Volatile Organic Compounds, as no NCO was detected there are no appendixes for these in the calculation sheets. The results for the monitoring period are summarised below:-

Main Stack

Substance	Concentration	PPC Limit	Time
	mg/nm ³		
di-isocyanates total NCO Run 1	<0.007	0.1	09:25 to 09:55
di-isocyanates total NCO Run 2	<0.007	0.1	09:56 to 10:26
VOC As Carbon Run 1	7.77	100	11:09 to 11:39
VOC As Carbon Run 2	9.89	100	11:40 to 12:10

Pitot Traverse Velocity Profile from Each Stack

Location	Velocity Profile Pa	Average Pa
Main Stack	9/8/7/18/32/48/61/75/102/131	49

5. CONCLUSIONS AND RECOMMENDATIONS

All results were satisfactory and within the limits set out in PPC194.

APPENDIX I
VOC EMISSION CALCULATIONS

Location:	Main stack run 1
Date of Sample:	19-Nov-14

Absolute temperature in duct (Td)	291	K
Total pressure in duct = barometric + static (Pd)	101.85	kPa
Flow rate for VOC sampling (f)	100	ml/min
Total period of sampling (t) = T1-T0	30	mins
Total quantity of air samples = f x t (Q voc)	0.003	m ³
Weight of VOC collected expressed as carbon	0.022	mg
Concentration VOC = $\frac{Wc}{Q \text{ voc}}$	7.33	mg/m ³
Correction to STP = $\frac{Wc \times Td \times 101.3}{Q \text{ voc} \times 273 \times Pd}$	7.77	mg/m ³
Sample GW1802		

Location:	Main stack run 2
Date of Sample:	19-Nov-14

Absolute temperature in duct (Td)	292	K
Total pressure in duct = barometric + static (Pd)	101.85	kPa
Flow rate for VOC sampling (f)	100	ml/min
Total period of sampling (t) = T1-T0	30	mins
Total quantity of air samples = f x t (Q voc)	0.003	m ³
Weight of VOC collected expressed as carbon (Wc)	0.028	mg
Concentration VOC = $\frac{Wc}{Q \text{ voc}}$	9.33	mg/m ³
Correction to STP = $\frac{Wc \times Td \times 101.3}{Q \text{ voc} \times 273 \times Pd}$	9.89	mg/m ³
Sample GW1803		

APPENDIX II
IMAGE OF SAMPLE POINT



MAIN STACK