

RPS Health, Safety and Environment
Steadings Barn
Pury Hill Business Park
Nr Alderton
Towcester
Northants NN12 7LS

Report Date: 16th August 2006
Report Ref: FTA 5678

DUNLOP AEROSPACE BRAKING SYSTEMS

**Report on Air Emission Monitoring at
DUNLOP AEROSPACE BRAKING SYSTEMS
HOLLBROOK LANE, COVENTRY, CV6 4AA
AUGUST 2006**

**Stack Emission Monitoring Report – Executive Summary
Ref. FTA 5678**



1709



1709

Report for Periodic Monitoring of Emissions to Atmosphere

Part 1: Executive Summary
Permit Number: PPC/156 & PPC/157
Operator: Dunlop Aerospace Braking Systems
Installation: Surface Treatment & Spraybooths, Holbrook Lane, Coventry
Emission Points: W & B Oven; W & B Spraybooth (RHS)
Monitoring Date(s): 3rd August 2006



1709



1709

Contract Reference: FTA 5678 (Re-test)
Operator: Dunlop Aerospace Braking Systems
Address: Holbrook Lane
Coventry
CV6 4AA
Monitoring Organisation: RPS Health, Safety & Environment
Address: Steadings Barn, Pury Hill Business Park, Alderton Road,
Towcester, Northamptonshire, NN12 7LS
Report Date: 14th August 2006
Report Approved By: Martin Johnson
Position: Team Manager
MCERTS Registration No.: MM03 168

Signature:



RPS Health, Safety and Environment has produced this report within the term of the contract with the client and taking account of the resources devoted to it by agreement with the client.

We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above. This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own risk.

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Monitoring Objectives

At the request of Mr D Warrington of Dunlop Aerospace Braking Systems, RPS Health, Safety and Environment conducted air emission monitoring at the Holbrook Lane site, Coventry in August 2006.

The monitoring programme at this installation was carried out to provide data on emissions to atmosphere for comparison with the limits specified in the air emission criteria for this site.

The parameters requested for monitoring at each emission point and the actual monitoring conducted are detailed below.

Table 1

Parameters Requested to be Monitored	Emission Point	
	W & B Oven	W & B Spraybooth (RHS)
Total Organic Compounds (as total organic carbon excluding particulate matter)	✓	✓
Specific Requirements	Normal Operating Conditions	Normal Operating Conditions

Notes:

✓ Represents the actual parameters monitored

Monitoring Results

Table 2 – Monitoring Results from the W & B Oven at Dunlop Aerospace Braking Systems, Coventry in August 2006

Substance Monitored	Emission Limit Value	Periodic Monitoring Result	Units	Uncertainty (%)#	Reference Conditions/75kPa	Sampling Date	Sampling Times	Monitoring Reference Method	Accreditation Status	Operating Status
Total Organic Compounds (as total organic carbon)	50	82	mg/m ³	± 4.8	without correction for moisture content	03-Aug-06	13:34 - 1600	BS EN 13526:2002	MCERTS	Normal

Table 2 (continued) – Monitoring Results from the W & B Spraybooth (RHS) at Dunlop Aerospace Braking Systems, Coventry in August 2006

Substance Monitored	Emission Limit Value	Periodic Monitoring Result	Units	Uncertainty (%)#	Reference Conditions/75kPa	Sampling Date	Sampling Times	Monitoring Reference Method	Accreditation Status	Operating Status
Total Organic Compounds (as total organic carbon)	50	30	mg/m ³	± 4.8	without correction for moisture content	03-Aug-06	11:07 - 13:32	BS EN 13526:2002	MCERTS	Normal

Notes:

The uncertainty associated with the quoted result is at the 95% confidence interval
Results presented in bold are above their associated emission limit value

Operating Information

Table 3 – Operating Information During Monitoring of the Specified Emission Points at Dunlop Aerospace Braking Systems, Coventry in August 2006

Parameter	W&B Spraybooth	W&B Oven
Sample Date	03-Aug-06	03-Aug-06
Process Type	Batch – Spraying of drum braking parts is conducted manually, over relatively short periods at a time. Basecoat or topcoat may be applied	Batch – When a batch of braking parts have been sprayed in the W & B spraybooth, they are loaded into the W & B oven where drying at elevated temperature occurs.
Process Duration	< 30 minutes	~1 hour
If 'Batch', was monitoring carried out over the whole batch?	Yes	Yes
If 'No', give details	Sampling during normal production routine	Sampling during normal production routine
Abatement/Operational?	Wet back booths / Yes	None
Fuel Type	N/K	N/K
Feedstock	Braking components	Braking components
Load	N/K	N/K
Throughput	N/K	N/K

Monitoring Deviations

Table 4 – Monitoring Deviations During Monitoring of the Specified Emission Points at Dunlop Aerospace Braking Systems, Coventry in August 2006

Substance Deviations	Monitoring Deviations	Other Relevant Issues
W & B Oven – NA	W & B Oven – NA	W & B Oven – NA
W & B Spraybooth – NA	W & B Spraybooth – NA	W & B Spraybooth – NA

RPS Health, Safety and Environment
Steadings Barn
Pury Hill Business Park
Nr Alderton
Towcester
Northants NN12 7LS

Report Date: 16th August 2006
Report Ref: FTA 5678

DUNLOP AEROSPACE BRAKING SYSTEMS

**Report on Air Emission Monitoring at
DUNLOP AEROSPACE BRAKING SYSTEMS
HOLLBROOK LANE, COVENTRY, CV6 4AA
AUGUST 2006**

**Stack Emission Monitoring Report – Supporting
Information Ref. FTA 5678**



1709



1709

Report for Periodic Monitoring of Emissions to Atmosphere

Part 2: Supporting Information
Permit Number: PPC/156 & PPC/157
Operator: Dunlop Aerospace Braking Systems
Installation: Surface Treatment & Spraybooths, Holbrook Lane, Coventry
Emission Points: W & B Oven; W & B Spraybooth (RHS)
Monitoring Date(s): 3rd August 2006



1709



1709

Contract Reference: FTA 5678 (Re-test)
Operator: Dunlop Aerospace Braking Systems
Address: Holbrook Lane
Coventry
CV6 4AA
Monitoring Organisation: RPS Health, Safety & Environment
Address: Steadings Barn, Pury Hill Business Park, Alderton Road,
Towcester, Northamptonshire, NN12 7LS
Report Date: 14th August 2006
Report Approved By: Martin Johnson
Position: Team Manager
MCERTS Registration No.: MM03 168

Signature:



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APPENDIX 1: General Information

Monitoring Organisation Staff Details

Table 5

Site Team	Position	MCERTS Level	Technical Endorsements	MCERTS Registration Number
Mike Smith	Project Manager	2	1, 2, 3, 4	MM 03 211
Chris Smith	Technician	1	-	MM 04 557

Report Author	Position	MCERTS Level	Technical Endorsements	MCERTS Registration Number
Mike Smith	Project Manager	2	1, 2, 3, 4	MM 03 211

Report Reviewer	Position	MCERTS Level	Technical Endorsements	MCERTS Registration Number
Martin Johnson	Team Manager	2	1, 2, 3, 4	MM 03 168

Monitoring Organisation Method Details

Table 6

Emission Parameter	Standard Method	Monitoring Procedure No.	Monitoring Accreditation Status	Analysis Technique	Analysis Procedure No.	Analytical Laboratory	Analysis Accreditation Status
Practical Considerations Prior to Monitoring	N/A	RPSCE/1/1	MCERTS	N/A	N/A	N/A	N/A
Gas Flows	BS-EN 13284-1:2001	RPSCE/1/2	MCERTS	N/A	N/A	N/A	N/A
Gas Temperatures	BS-EN 13284-1:2001	RPSCE/1/2	MCERTS	N/A	N/A	N/A	N/A
TOCs (as total organic carbon)	BS EN 13526:2002	RPSCE/1/4c	MCERTS	FID	N/A	N/A	N/A

APPENDIX 2: Emission Points – W& B Oven; W & B Spraybooth (RHS)

Stack Gas Measurements

Table 7 - Temperature and Velocity Profile

Results of Gas Flows and Gas Temperatures Measured from the W & B Oven at Dunlop Aerospace Braking Systems, Coventry on the 3rd August 2006

Traverse Point (m)	Sample Line A			
	T (°C)	ΔP (Pa)	Neg. Flow?	Spin <15°
0.13	73	< 5	No	< 15

Barometric pressure (kPa)	100.4
Static Pressure (Pa)	+ve 5
Stack Dimension Ø (m)	0.25

Table 8 - Temperature and Velocity Profile

Results of Gas Flows and Gas Temperatures Measured from the W & B Spraybooth (RHS) at Dunlop Aerospace Braking Systems, Coventry on the 3rd August 2006

Traverse Point (m)	Sample Line A				Sample Line B			
	T (°C)	ΔP (Pa)	Neg. Flow?	Spin <15°	T (°C)	ΔP (Pa)	Neg. Flow?	Spin <15°
0.11	19	22	No	< 15	19	18	No	< 15
0.19	19	23	No	< 15	19	24	No	< 15
0.58	19	42	No	< 15	19	34	No	< 15
0.66	19	31	No	< 15	19	47	No	< 15

Barometric pressure (kPa)	100.4
Static Pressure (Pa)	+ve 33
Stack Dimension Ø (m)	0.77

Table 9 - Gas Measurements (continued)

General Emission Parameters and Total Organic Compounds (as total organic carbon excluding particulate matter) Concentration Measured from the Specified Process Exhausts at Dunlop Aerospace Braking Systems, Coventry in May 2006

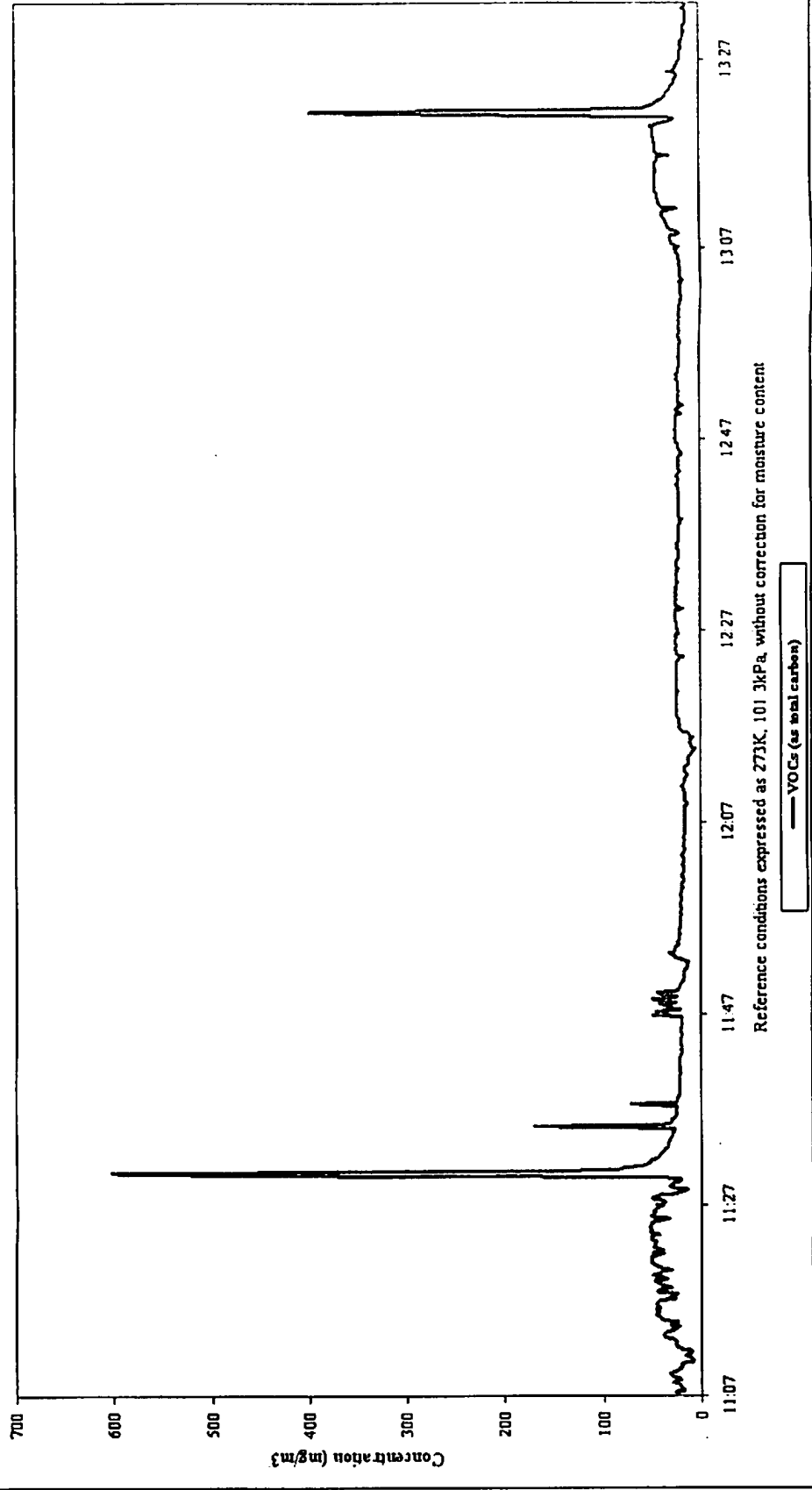
Emission Parameter		Units	W & B Spraybooth (RHS)	W & B Oven
Sample Date		-	03-Aug-06	03-Aug-06
Sample Period		hrs	1107 – 1333	1334 - 1600
Barometric Pressure		kPa	100.4	100.4
Internal Area Of Duct		m ²	0.466	0.049
Stack Temperature		°C	19	73
Gas Velocity (as measured at sampling plane)		m/sec	7.0	3.1
Volumetric Flowrate (as measured)		m ³ /sec	3.3	0.15
Volumetric Flowrate (at reference conditions)		m ³ /sec *	3.0	0.12
TOCs (as total organic carbon)				
	Maximum	mg/m ³ *	593	309
	Mean	mg/m ³ *	30	82

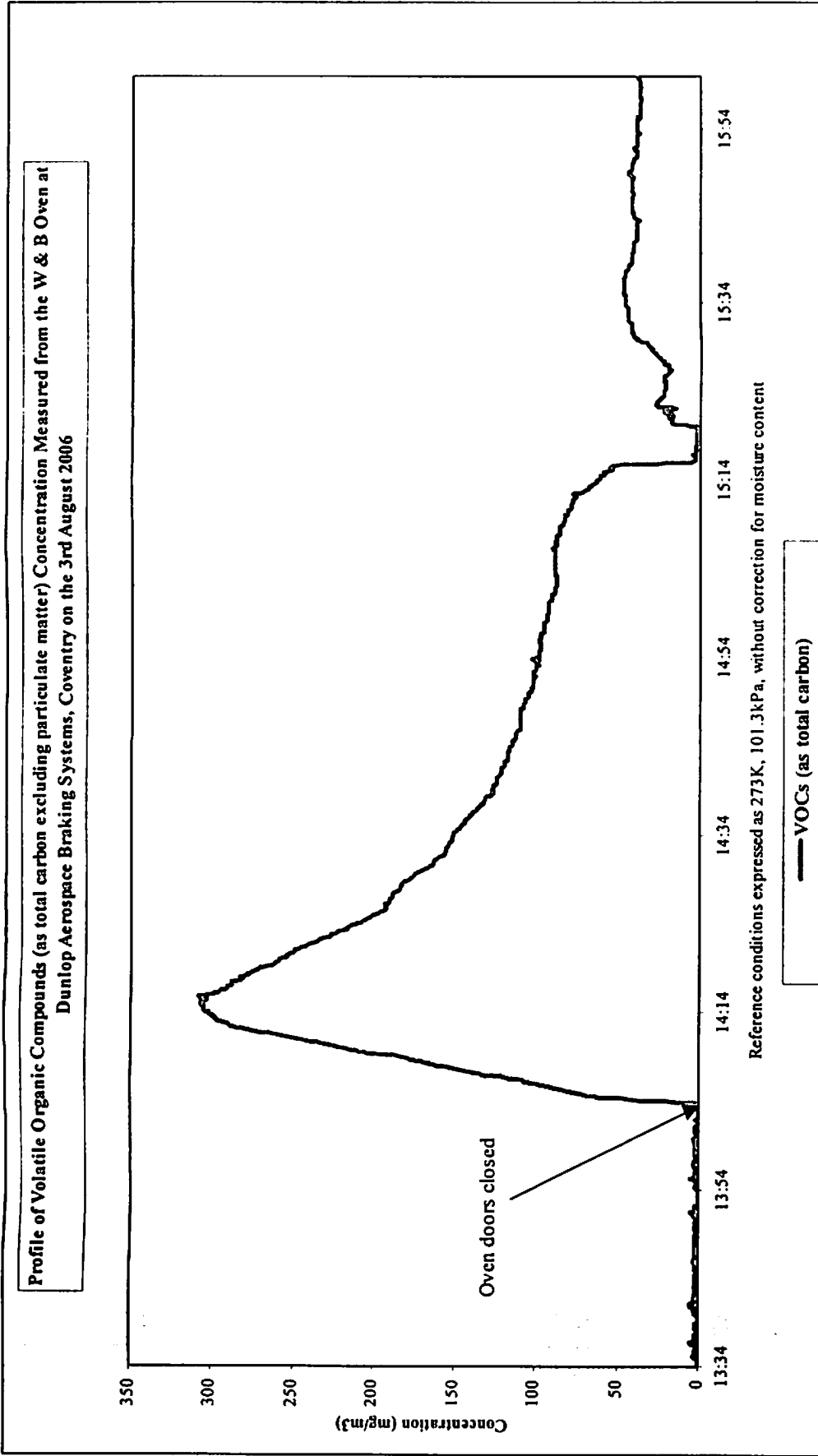
Notes:

* Reference conditions expressed as 273 K, 101.3 kPa, without correction for moisture content

Monitoring Profiles

Profile of Volatile Organic Compounds (as total carbon excluding particulate matter) Concentration Measured from the W & B Spraybooth at Dunlop Aerospace Braking Systems, Coventry on the 3rd August 2006





Instrumental Gas Analyser - Site Calibration Measurements

Table 16

Equipment Name	Equipment ID Number	Span Gas Type	Span Gas Concentration	Span Result	Zero Result
Signal 3030PM	00917	C ₃ H ₈	802.7 ppm	798 ppm	0 ppm

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Appendix I

Annual Stack Emission Monitoring Report

RPS Health, Safety and Environment
Steadings Barn
Pury Hill Business Park
Nr Alderton
Towcester
Northants NN12 7LS

Report Date: 14th June 2006
Report Ref: FTA 5477

DUNLOP AEROSPACE BRAKING SYSTEMS

**Report on Air Emission Monitoring at
DUNLOP AEROSPACE BRAKING SYSTEMS
HOLLBROOK LANE, COVENTRY, CV6 4AA
JUNE 2006**

Stack Emission Monitoring Report – Executive Summary



1709



1709

Report for Periodic Monitoring of Emissions to Atmosphere

Part 1: **Executive Summary**

Permit Number: **PPC/156 & PPC/157**

Operator: **Dunlop Aerospace Braking Systems**

Installation: **Surface Treatment & Spraybooths,
Holbrook Lane, Coventry**

Emission Point: **DAS1 Stacks, DAS2 Stacks, W & B Stacks
and Main Scrubber**

Monitoring Date(s): **16th to 19th and 25th of May 2006**



1709 Group



1709

Contract Reference: **FTA 5477**

Operator: **Dunlop Aerospace Braking Systems**

Address: **Holbrook Lane
Coventry
CV6 4AA**

Monitoring Organisation: **RPS Health, Safety & Environment**

Address: **Steadings Barn, Pury Hill Business Park, Alderton Road,
Towcester, Northamptonshire, NN12 7LS**

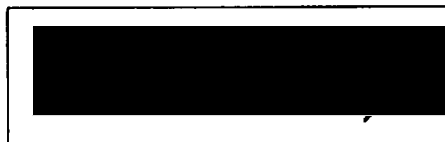
Report Date: **14th June 2006**

Report Approved By: **Richard Harvey**

Position: **Team Manager**

MCERTS Registration No.: **MM 02 020**

Signature:



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Monitoring Objectives

At the request of Mr D Warrington of Dunlop Aerospace Braking Systems, RPS Health, Safety and Environment conducted air emission monitoring at the Holbrook Lane site, Coventry in May 2006.

The monitoring programme at this installation was carried out to provide data on emissions to atmosphere for comparison with the limits specified in the air emission criteria for this site.

The parameters requested for monitoring at each emission point and the actual monitoring conducted are detailed below.

Table 1

Parameters Requested to be Monitored	Emission Point													
	DAS 1				DAS 2			W & B Spraybooths (LHS)			W & B Spraybooths (RHS)			Main Scrubber
	Mixing Room Bench	Degreaser	Oven	Spraybooth	Oven	Spraybooth	Spraybooth	Degreaser	Mixing Bench	Mixing Room (Ground)	Oven	Mixing Room (Ground)	Oven	
Total Particulate Matter	-	-	-	✓	-	✓	✓	-	-	-	-	-	-	-
Total Organic Compounds (as total organic carbon excluding particulate matter)	✓	-	✓	✓	✓	✓	✓	-	✓	✓	-	✓	✓	-
Isocyanates (as NCO group excluding particulate matter)	-	-	-	✓	-	✓	✓	-	-	-	-	-	-	-
Trichloroethylene	-	✓	-	-	-	-	-	✓	-	-	-	-	-	-
Hydrogen Fluoride	-	-	-	-	-	-	-	-	-	-	-	-	-	✓
Oxides of Nitrogen (as NO ₂)	-	-	-	-	-	-	-	-	-	-	-	-	-	✓
Specific Requirements	Normal Operating Conditions (See Table 7)													

Notes:
✓ Represents the actual parameters monitored.

Monitoring Results

Table 2 – Monitoring Results of Total Particulate Matter from the Specified Process Exhausts at Dunlop Aerospace Braking Systems, Coventry in May 2006

Emission Reference	Emission Limit Value	Periodic Monitoring Result	Units	Uncertainty (mg/m ³) #	Reference Conditions 273K, 101.3kPa	Sampling Date	Sampling Times	Monitoring Reference Method	Accreditation Status	Operating Status
DAS 1 Spraybooth	50	4.6	mg/m ³	± 0.50	without correction for moisture content	16-May-06	11:10 – 11:50	BS-EN 13284-1 2002	MCERTS	Refer to Tables 8, 9 & 10
DAS 2 Spraybooth	50	1.2	mg/m ³	± 0.13	without correction for moisture content	17-May-06	15:29 – 16:19	BS-EN 13284-1 2002	MCERTS	Refer to Tables 8, 9 & 10
W & B Spraybooth (LHS)	50	< 1.4	mg/m ³	± 0.15	without correction for moisture content	25-May-06	13:09 – 13:49	BS-EN 13284-1 2002	MCERTS	Refer to Tables 8, 9 & 10
W & B Spraybooth (RHS)	50	1.3	mg/m ³	± 0.14	without correction for moisture content	18-May-06	15:20 – 16:00	BS-EN 13284-1 2002	MCERTS	Refer to Tables 8, 9 & 10

Notes:

The uncertainty associated with the quoted result is at the 95% confidence interval.

Table 3 – Monitoring Results of Isocyanates (as NCO group excluding particulate matter) from the Specified Process Exhausts at Dunlop Aerospace Braking Systems, Coventry in May 2006

Emission Reference	Emission Limit Value ∇	Periodic Monitoring Result	Units	Uncertainty (mg/m^3) #	Reference Conditions, 273K, 101.3kPa	Sampling Date	Sampling Times	Monitoring Reference Method	Accreditation Status	Operating Status
DAS 1 Spraybooth	0.1	< 0.0038	mg/m^3	$\pm < 0.00050$	without correction for moisture content	17-May-06	11:26 – 11:46	USEPA Method 207-1	UKAS	Refer to Tables 8, 9 & 10
DAS 2 Spraybooth	0.1	0.0020	mg/m^3	± 0.00027	without correction for moisture content	18-May-06	13:38 – 14:08	USEPA Method 207-1	UKAS	Refer to Tables 8, 9 & 10
W & B Spraybooth (LHS)	0.1	0.0012	mg/m^3	± 0.00016	without correction for moisture content	19-May-06	12:01 – 12:17	USEPA Method 207-1	UKAS	Refer to Tables 8, 9 & 10
W & B Spraybooth (RHS)	0.1	< 0.0022	mg/m^3	$\pm < 0.00030$	without correction for moisture content	19-May-06	10:51 – 11:07	USEPA Method 207-1	UKAS	Refer to Tables 8, 9 & 10

Notes:

The uncertainty associated with the quoted result is at the 95% confidence interval.

∇ 0.1 mg/m^3 as 15 minute mean. Average periodic monitoring result over the four tests of 0.0023 mg/m^3 .

Table 4 – Monitoring Results of Volatile Organic Compounds (as total organic carbon excluding particulate matter) from the Specified Process Exhausts at Dunlop Aerospace Braking Systems, Coventry in May 2006

Emission Reference	Emission Limit Value	Periodic Monitoring Result	Units	Uncertainty (mg/m ³) #	Reference Conditions 2/95K 10.3gpa	Sampling Date	Sampling Times	Monitoring Reference Method	Accreditation Status	Operating Status
DAS 1 Mixing Room Bench	50	11	mg/m ³	± 2.5	without correction for moisture content	16-May-06	13:27 – 14:27	BS EN 13526:2002	MCERTS	Refer to Tables 8, 9 & 10
DAS 1 Oven	50	6.2	mg/m ³	± 2.5	without correction for moisture content	16-May-06	11:50 – 12:45	BS EN 13526:2002	MCERTS	Refer to Tables 8, 9 & 10
DAS 1 Spraybooth	50	19	mg/m ³	± 2.6	without correction for moisture content	16-May-06	14:52 – 15:22	BS EN 13526:2002	MCERTS	Refer to Tables 8, 9 & 10
DAS 2 Oven	50	14	mg/m ³	± 2.5	without correction for moisture content	17-May-06	12:50 – 14:43	BS EN 13526:2002	MCERTS	Refer to Tables 8, 9 & 10
DAS 2 Spraybooth	50	41	mg/m ³	± 2.5	without correction for moisture content	17-May-06	15:26 – 16:27	BS EN 13526:2002	MCERTS	Refer to Tables 8, 9 & 10
W & B Mixing Bench	50	21	mg/m ³	± 2.5	without correction for moisture content	26-May-06	11:01 – 12:08	BS EN 13526:2002	MCERTS	Refer to Tables 8, 9 & 10
W & B Mixing Room Floor (Ground)	50	5.9	mg/m ³	± 2.5	without correction for moisture content	26-May-06	10:01 – 11:00	BS EN 13526:2002	MCERTS	Refer to Tables 8, 9 & 10
W & B Oven	50	85	mg/m ³	± 2.5	without correction for moisture content	18-May-06	11:45 – 13:02	BS EN 13526:2002	MCERTS	Refer to Tables 8, 9 & 10
W & B Spraybooth (LHS)	50	20	mg/m ³	± 2.5	without correction for moisture content	18-May-06	13:45 – 14:38	BS EN 13526:2002	MCERTS	Refer to Tables 8, 9 & 10
W & B Spraybooth (RHS)	50	68	mg/m ³	± 2.5	without correction for moisture content	18-May-06	15:15 – 15:52	BS EN 13526:2002	MCERTS	Refer to Tables 8, 9 & 10

Notes:

The uncertainty associated with the quoted result is at the 95% confidence interval.

▽ 50mg/m³ as 15 minute mean.

Table 5 – Monitoring Results of Trichloroethylene from the W & B Degreaser at Dunlop Aerospace Braking Systems, Coventry in May 2006

Emission Reference	Emission Limit Value ▽	Periodic Monitoring Result	Units	Uncertainty (mg/m ³) #	Reference Conditions 273K, 101.3kPa	Sampling Date	Sampling Times	Monitoring Reference Method	Accreditation Status	Operating Status
15 minute Run 1 (as Trichloroethylene)	-	1122	mg/m ³	± 234	without correction for moisture content	25-May-06	15:10 – 15:25	BS EN 13649:2002	MCERTS	Refer to Tables 8, 9 & 10
15 minute Run 1 (as Carbon)	50	205	mg/m ³	± 43	without correction for moisture content	25-May-06	15:10 – 15:25	BS EN 13649:2002	MCERTS	Refer to Tables 8, 9 & 10
15 minute Run 2 (as Trichloroethylene)	-	1539	mg/m ³	± 323	without correction for moisture content	25-May-06	15:28 – 15:45	BS EN 13649:2002	MCERTS	Refer to Tables 8, 9 & 10
15 minute Run 2 (as Carbon)	50	281	mg/m ³	± 59	without correction for moisture content	25-May-06	15:28 – 15:45	BS EN 13649:2002	MCERTS	Refer to Tables 8, 9 & 10
15 minute Run 3 (as Trichloroethylene)	-	848	mg/m ³	± 178	without correction for moisture content	25-May-06	16:00 – 16:15	BS EN 13649:2002	MCERTS	Refer to Tables 8, 9 & 10
15 minute Run 3 (as Carbon)	50	155	mg/m ³	± 33	without correction for moisture content	25-May-06	16:00 – 16:15	BS EN 13649:2002	MCERTS	Refer to Tables 8, 9 & 10
15 minute Run 4 (as Trichloroethylene)	-	1279	mg/m ³	± 269	without correction for moisture content	25-May-06	16:18 – 16:33	BS EN 13649:2002	MCERTS	Refer to Tables 8, 9 & 10
15 minute Run 4 (as Carbon)	50	233	mg/m ³	± 49	without correction for moisture content	25-May-06	16:18 – 16:33	BS EN 13649:2002	MCERTS	Refer to Tables 8, 9 & 10

Notes:

- # The uncertainty associated with the quoted result is at the 95% confidence interval.
- ▽ 50mg/m³ as 15 minute mean.

Table 6 – Monitoring Results of Trichloroethylene from the DAS 1 Degreaser at Dunlop Aerospace Braking Systems, Coventry in May 2006

Emission Reference	Emission Limit Value	Periodic Monitoring Result	Units	Uncertainty (mg/m ³) #	Reference Conditions (7/24h, 101-101%)	Sampling Date	Sampling Times	Monitoring Reference Method	Accreditation Status	Operating Status
15 minute Run 1 (as Trichloroethylene)	-	4758	mg/m ³	± 999	without correction for moisture content	25-May-06	13:30 – 13:45	BS EN 13649:2002	MCERTS	Refer to Tables 8, 9 & 10
15 minute Run 1 (as Carbon)	50	868	mg/m ³	± 182	without correction for moisture content	25-May-06	13:30 – 13:45	BS EN 13649:2002	MCERTS	Refer to Tables 8, 9 & 10
15 minute Run 2 (as Trichloroethylene)	-	3821	mg/m ³	± 802	without correction for moisture content	25-May-06	13:50 – 14:05	BS EN 13649:2002	MCERTS	Refer to Tables 8, 9 & 10
15 minute Run 2 (as Carbon)	50	697	mg/m ³	± 146	without correction for moisture content	25-May-06	13:50 – 14:05	BS EN 13649:2002	MCERTS	Refer to Tables 8, 9 & 10
15 minute Run 3 (as Trichloroethylene)	-	4675	mg/m ³	± 982	without correction for moisture content	25-May-06	14:08 – 14:23	BS EN 13649:2002	MCERTS	Refer to Tables 8, 9 & 10
15 minute Run 3 (as Carbon)	50	853	mg/m ³	± 179	without correction for moisture content	25-May-06	14:08 – 14:23	BS EN 13649:2002	MCERTS	Refer to Tables 8, 9 & 10
15 minute Run 4 (as Trichloroethylene)	-	4976	mg/m ³	± 1045	without correction for moisture content	25-May-06	14:25 – 14:40	BS EN 13649:2002	MCERTS	Refer to Tables 8, 9 & 10
15 minute Run 4 (as Carbon)	50	908	mg/m ³	± 191	without correction for moisture content	25-May-06	14:25 – 14:40	BS EN 13649:2002	MCERTS	Refer to Tables 8, 9 & 10

Notes:

The uncertainty associated with the quoted result is at the 95% confidence interval.

V 50mg/m³ as 15 minute mean.

Table 7 – Monitoring Results from the Main Exhaust at Dunlop Aerospace Braking Systems, Coventry in May 2006

Substance Monitored	Emission Limit Value	Periodic Monitoring Result	Units	Uncertainty (mg/m ³) #	Reference Conditions: 273K, 101.3kPa	Sampling Date	Sampling Times	Monitoring Reference Method	Accreditation Status	Operating Status
Hydrogen Fluoride	10	< 0.12	mg/m ³	± 0.011	without correction for moisture content	26-May-06	09:10 – 10:10	US EPA Method 26a	UKAS	Refer to Tables 8, 9 & 10
Oxides of Nitrogen (as NO ₂)	400 Y	1.0	mg/m ³	± 0.10	without correction for moisture content	26-May-06	10:25 – 11:45	Based on US EPA Method 7d	UKAS	Refer to Tables 8, 9 & 10

Notes:

- # The uncertainty associated with the quoted result is at the 95% confidence interval.
- Y 400 mgm³ as a 1-hour mean emission concentration.

Operating Information

Table 8 – Operating Information During Monitoring of the Specified Process Exhausts at Dunlop Aerospace Braking Systems, Coventry in May 2006

	DAS/1			
	Mixing Room / Bench	Degreaser	Oven	Spraybooth
Sample Date	16-May-06	25-May-06	16-May-06	17-May-06
Process Type	Batch	Batch	Batch	Batch
Process Duration	~20 mins	1 Cycle < 10 mins. Cycle – - Open Lid. - Lower components into degreasing tank for 2 to 3 minutes. - Raise components into void allowing vapour to evaporate for 2 to 3 minutes. - Raise components and shut lid.	~1 hour	< 30 minutes
If 'Batch', was monitoring carried out over the whole batch? If 'No', give details	13:27 Start mixing. 13:35 Finished spraying and started cleaning parts in Mixing Room.		Braking components are coated in high temperature aluminium paint oven set at 190°C.	Braking components are coated in high temperature aluminium paint oven set at 190°C. At least one cycle covered. 15:26 Start spraying.
Abatement/Operational?	None	None	None	Wet back booths / Yes
Fuel Type	N/K	N/K	N/K	N/K
Feedstock	N/K	Torque tubes	Braking components	Braking components
Load	N/K	2 components	N/K	N/K
Throughput	N/K	2 components per 10 minutes.	N/K	N/K

Table 9 – Operating Information During Monitoring of the Specified Process Exhausts at Dunlop Aerospace Braking Systems, Coventry in May 2006

Parameter	W & B Spraybooths		W & B				Main Exhaust
	(LHS)	(RHS)	Degreaser	Mixing Bench	Mixing Room (Ground)	Oven	
Sample Date	18-May-06	18-May-06	25-May-06	26-May-06	26-May-06	18-May-06	26-May-06
Process Type	Batch	Batch	Batch	Batch	Batch	Batch	Continuous
Process Duration	< 30 minutes	< 30 minutes	1 Cycle < 10 mins.	~20 mins	~20 mins	~1 hour	N/A
If 'Batch', was monitoring carried out over the whole batch?	Cleaning and spraying throughout test but minimal throughput.	Cleaning and spraying throughout test.	Cycle – - Open Lid. - Lower components into degreasing tank for 2 to 3 minutes. - Raise components into void allowing vapour to evaporate for 2 to 3 minutes. - Raise components and shut lid.	Mixing conducted over sample run.	Mixing conducted over sample run.	Braking components are coated in high temperature aluminium paint oven set at 190°C. At least one cycle covered.	N/A
Abatement Operational?	Wet back booths Yes	Wet back booths Yes	None	None	None	None	Sodium Hydroxide Scrubber Yes
Fuel Type	N/K	N/K	N/K	N/K	N/K	N/K	N/K
Feedstock	Braking components	Braking components	Braking components	Braking components	Braking components	Braking components	N/K
Load	N/K	N/K	N/K	N/K	N/K	N/K	N/K
Throughput	N/K	N/K	N/K	N/K	N/K	N/K	N/K

Table 10 – Operating Information During Monitoring of the Specified Process Exhausts at Dunlop Aerospace Braking Systems, Coventry in May 2006

Parameter	DAS-1 Spraybooth	DAS-2 Spraybooth	W & B Spraybooth (LHS)	W & B Spraybooth (RHS)
Sample Date	17-May-06	18-May-06	19-May-06	19-May-06
Process Type	Batch	Batch	Batch	Batch
Process Duration	~ 20 minutes	~ 20 minutes	~ 20 minutes	~ 20 minutes
If 'Batch' was monitoring carried out over the whole batch? If 'No', give details	Hand spraying with Isocyanate paint and Non-Isocyanate paint throughout test.	Hand spraying with Isocyanate paint and Non-Isocyanate paint throughout test.	Hand spraying with Isocyanate paint and Non-Isocyanate paint throughout test.	Hand spraying with Isocyanate paint and Non-Isocyanate paint throughout test.
Abatement/Operational?	Wet back booths / Yes	Wet back booths / Yes	Wet back booths / Yes	Wet back booths / Yes
Fuel Type	N/K	N/K	N/K	N/K
Feedstock	Braking components	Braking components	Braking components	Braking components
Load	N/K	N/K	N/K	N/K
Throughput	N/K	N/K	N/K	N/K

Monitoring Deviations

Table 11 – Monitoring Deviations During Monitoring of the Specified Process Exhausts at Dunlop Aerospace Braking Systems, Coventry in May 2006

Substance Deviations	Monitoring Deviations	Other Relevant Issues
<p><u>DAS 1 – All Stacks</u> N/A</p>	<p><u>DAS 1 – All Stacks</u> DAS 1 Spraybooth – Monitoring percent isokinetics below limits set in BS EN 13284-1 of between 95% and 115%. DAS 1 Degreaser – Flow stability criteria not met as the angle of gas flow was greater than $\pm 15^\circ$ from the stack longitudinal axis.</p>	<p><u>DAS 1 – All Stacks</u> N/A</p>
<p><u>DAS 2 – All Stacks</u> N/A</p>	<p><u>DAS 2 – All Stacks</u> DAS 2 Spraybooth – Only one sample port used during monitoring due to health and safety considerations.</p>	<p><u>DAS 2 – All Stacks</u> N/A</p>
<p><u>W & B – All Stacks</u> N/A</p>	<p><u>W & B – All Stacks</u> N/A</p>	<p><u>W & B – All Stacks</u> N/A</p>
<p><u>Main Exhaust</u> N/A</p>	<p><u>Main Exhaust</u> N/A</p>	<p><u>Main Exhaust</u> N/A</p>

Report for Periodic Monitoring of Emissions to Atmosphere

Part 2: Supporting Information
Permit Number: PPC/156 & PPC/157
Operator: Dunlop Aerospace Braking Systems
Installation: Surface Treatment & Spraybooths,
Holbrook Lane, Coventry
Emission Point: DAS1 Stacks, DAS2 Stacks, W & B Stacks
and Main Scrubber
Monitoring Date(s): 16th to 19th and 25th of May 2006



1709



1709

Contract Reference: FTA 5477
Operator: Dunlop Aerospace Braking Systems
Address: Holbrook Lane
Coventry
CV6 4AA
Monitoring Organisation: RPS Health, Safety & Environment
Address: Steadings Barn, Pury Hill Business Park, Alderton Road,
Towcester, Northamptonshire, NN12 7LS
Report Date: 14th June 2006
Report Approved By: Richard Harvey
Position: Team Manager
MCERTS Registration No.: MM 02 020

Signature:



RPS Health, Safety and Environment has produced this report within the term of the contract with the client and taking account of the resources devoted to it by agreement with the client.

We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above. This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own risk.

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APPENDIX 1: General Information

Monitoring Organisation Staff Details

Table 12

Site Team	Position	MCERTS Level	Technical Endorsements	MCERTS Registration Number
Richard Harvey	Team Manager	2	1, 2, 3 & 4	MM 02 020
Duncan Stewart	Team Leader	2	1, 2, 3 & 4	MM 03 174
Chris Smith	Technician	1	-	MM 04 557
Peter O'Connor	Technician	1	-	MM 05 620

Report Author	Position	MCERTS Level	Technical Endorsements	MCERTS Registration Number
Carl Redgrove	Team Leader	2	1, 2 & 3	MM 03 173

Report Reviewer	Position	MCERTS Level	Technical Endorsements	MCERTS Registration Number
Richard Harvey	Team Manager	2	1, 2, 3 & 4	MM 02 020

Monitoring Organisation Method Details

Table 13

Emission Parameter	Standard Method	Monitoring Procedure No.	Monitoring Accreditation Status	Analysis Technique	Analysis Procedure No.	Analytical Laboratory	Analysis Accreditation Status
Practical Considerations Prior to Monitoring	N/A	RPSCE/1/1	MCERTS	N/A	N/A	N/A	N/A
Gas Flows	BS-EN 13284-1:2001	RPSCE/1/2	MCERTS	N/A	N/A	N/A	N/A
Gas Temperatures	BS-EN 13284-1:2001	RPSCE/1/2	MCERTS	N/A	N/A	N/A	N/A
Total Particulate Matter	BS EN 13284-1:2001	RPSCE/1/7c	MCERTS	Gravimetric	D9	RPS Laboratories, Manchester	UKAS
Isocyanates (as NCO group excluding particulate matter)	US EPA Method 207-1	RPSCE/1/18a	UKAS	HPLC	N/A	RPS Laboratories, Manchester	UKAS
VOCs (as total organic carbon excluding particulate matter)	BS EN 13526:2002	RPSCE/1/4c	MCERTS	FID	N/A	N/A	N/A
Speciated Organic Compounds (Trichloroethylene)	BS EN 13649:2002	RPSCE/1/19b	MCERTS	GC-FID	08	RPS Laboratories, Manchester	UKAS
Hydrogen Fluoride	USEPA Method 26a	RPSCE/1/8a	UKAS	IC	C27	RPS Laboratories, Manchester	UKAS
Oxides of Nitrogen (as NO ₂)	Based on US EPA Method 7d	RPSCE/1/8	UKAS	Chromatographic	N/A	RPS Laboratories, Manchester	UKAS

APPENDIX 2: Emission Point Details – DAS 1 Stacks (Mixing Room Bench, Degreaser, Oven & Spraybooth), DAS 2 Stacks (Oven & Spraybooth), W & B Stacks (Spraybooths LHS & RHS, Degreaser, Mixing Bench, Mixing Room (Ground), & Oven) and the Main Scrubber Exhaust

Stack Gas Measurements

Table 14 - Temperature and Velocity Profile

Results of Gas Flows and Gas Temperatures Measured from the Specified Process Exhausts at Dunlop Aerospace Braking Systems, Coventry in May 2006

Emission Reference	Traverse Point (m)	Sample Plane A			Sample Plane B					
		T (°C)	ΔP (mm H ₂ O)	Neg. Flow?	Spin <15°	T (°C)	ΔP (mm H ₂ O)	Neg. Flow?	Spin <15°	
DAS 1 Mixing Room	0.13	23	10.9	No	Yes		N/A		N/A	
DAS 1 Degreaser	0.08	28	10.8	No	No ~35°		N/A		N/A	
DAS 1 Spraybooth	0.13	18	3.8	No	Yes		18	2.0	No	Yes
	0.79	18	8.0	No	Yes		18	7.0	No	Yes
DAS 2 Oven	0.13	94	0.4	No	Yes				N/A	
	0.05	14	5.2	No	Yes					
DAS 2 Spraybooth	0.20	13	6.0	No	Yes		Only one port used due to health and safety considerations.			
	0.59	12	6.5	No	Yes					
	0.73	12	6.5	No	Yes					

	DAS 1 Mixing Room	DAS 1 Degreaser	DAS 1 Spraybooth	DAS 2 Oven	DAS 2 Spraybooth
Barometric Pressure (kPa)	104.1	101.6	101.4	104.1	101.4
Static Pressure (mm H ₂ O)	+ve 5.6	+ve 17.4	+ve 2.2	-ve 0.5	+ve 1.0
Stack Dimension Ø (m)	0.25	0.145	0.92	0.255	0.78

Table 15 - Temperature and Velocity Profile (continued)

Results of Gas Flows and Gas Temperatures Measured from the Specified Process Exhausts at Dunlop Aerospace Braking Systems, Coventry in May 2006

Emission Reference	Traverse Point (m)	Sample Plane A			Sample Plane B		
		T (°C)	ΔP (mm H ₂ O)	Neg. Flow	T (°C)	ΔP (mm H ₂ O)	Neg. Flow
W & B Spraybooth LHS	0.11	28	2.4	No	28	4.0	No
	0.66	28	10.6	No	28	6.8	No
W & B Spraybooth RHS	0.11	22	1.5	No	22	2.0	No
	0.66	22	2.0	No	22	4.3	No
W & B Degreaser	0.11	24	11.2	No	No ~35°	N/A	N/A
W & B Mixing Bench	0.15	22	1.0	No	Yes	N/A	N/A
W & B Oven	0.13	95	0.4	No	Yes	N/A	N/A
Main Scrubber	0.07	24	8.4	No	Yes		
	0.23	24	7.5	No	Yes		
	0.47	24	6.3	No	Yes		
	1.12	24	2.2	No	Yes		
	1.36	24	1.2	No	Yes		
	1.53	24	1.2	No	Yes		

	W & B Spraybooth LHS	W & B Spraybooth RHS	W & B Degreaser	W & B Mixing Bench	W & B Oven	Main Scrubber
Barometric pressure (kPa)	101.6	101.4	101.6	101.7	101.7	101.6
Static Pressure (mm H ₂ O)	+ve 4.0	+ve 6.5	+ve 11.2	+ve 1.0	+ve 1.0	+ve 1.0
Stack Dimension (m)	0.77	0.77	0.21	0.30	0.25	1.6

Table 16 - Gas Measurements (continued)

Results of Total Particulate Matter and General Emission Parameters Measured from the Specified Process Exhausts at Dunlop Aerospace Braking Systems, Coventry in May 2006

Emission Parameter	Units	DAS 1 Mixing Room	DAS 1 Degreaser	DAS 1 Spraybooth	DAS 2 Oven	DAS 2 Spraybooth
Sample Date	-	16-May-06	25-May-06	16-May-06	17-May-06	17-May-06
Sample Period	-	13:27 - 14:27	13:30 - 13:45	11:10 - 11:50	12:50 - 14:43	15:29 - 16:19
Barometric Pressure	kPa	104.1	101.6	101.4	12:50 - 14:43	101.4
Internal Area Of Duct	m ²	0.049	0.017	0.67	0.051	0.48
Static Pressure	mm H ₂ O	+ve 5.6	+ve 17	+ve 2.2	-ve 0.4	+ve 1.0
Stack Moisture Content	%	-	-	1.0	-	1.8
Stack Temperature	°C	23	28	20	94	45
Gas Velocity (as measured at sampling plane)	m/sec	13	13	6.0	3.2	8.7
Volumetric Flowrate (as measured)	m ³ /sec	0.66	0.22	4.0	0.16	4.1
Volumetric Flowrate (at reference conditions)	m ³ /sec*	0.62	0.20	3.7	0.13	3.6
Total Particulate Matter Emission	kg/hr	-	-	0.062	-	0.016
Total Particulate Matter Concentration	mg/m ³ *	-	-	4.6	-	1.2

Notes:

* Reference conditions expressed as 273 K, 101.3 kPa, without correction for moisture content.

Table 17 - Gas Measurements (continued)

Results of Total Particulate Matter and General Emission Parameters Measured from the Specified Process Exhausts at Dunlop Aerospace Braking Systems, Coventry in May 2006

Emission Parameter	Units	W & B Spraybooth EHS	W & B Spraybooth RHS	W & B Degreaser	W & B Mixing/Bench	W & B Oven	Main Scrubber
Sample Date	-	25-May-06	18-May-06	25-May-06	18-May-06	18-May-06	26-May-06
Sample Period	-	13:09 - 13:49	15:20 - 16:00	16:00 - 16:15	11:01 - 12:08	11:45 - 13:02	10:25 - 11:45
Barometric Pressure	kPa	101.6	101.4	101.6	101.7	101.7	101.3
Internal Area Of Duct	m ²	0.47	0.47	0.035	0.071	0.049	2.0
Static Pressure	mm H ₂ O	+ve 4.0	+ve 6.5	+ve 11.2	+ve 1.0	+ve 1.0	+ve 1.0
Stack Moisture Content	%	3.8	0.3	-	-	-	-
Stack Temperature	°C	29	15	24	22	95	24
Gas Velocity (as measured at sampling plane)	m/sec	7.1	6.6	14	4.1	3.2	8.0
Volumetric Flowrate (as measured)	m ³ /sec	3.3	3.1	0.47	0.29	0.16	1.6
Volumetric Flowrate (at reference conditions)	m ³ /sec *	3.0	2.9	0.43	0.27	0.12	1.4
Total Particulate Matter Mass Emission							
	kg/hr	0.015	0.013	-	-	-	-
Total Particulate Matter Concentration							
	mg/m ³ *	<1.4	1.3	-	-	-	-

Notes:

* Reference conditions expressed as 273 K, 101.3 kPa, without correction for moisture content.

Table 18 - Gas Measurements (continued)

Results of Isocyanates (as NCO group excluding particulate matter) Concentration Measured from the Specified Process Exhausts at Dunlop Aerospace Braking Systems, Coventry in May 2006

Emission Reference	Emission Parameter	Units	Result
DAS 1 Spraybooth	Sample Date	-	17-May-06
	Sample Period	-	11:26 – 11:46
	Mean Concentration of Isocyanates	mg/m ³	< 0.0038
DAS 2 Spraybooth	Sample Date	-	18-May-06
	Sample Period	-	13:38 – 14:08
	Mean Concentration of Isocyanates	mg/m ³	0.0020
W & B Spraybooth (LHS)	Sample Date	-	19-May-06
	Sample Period	-	12:01 – 12:17
	Mean Concentration of Isocyanates	mg/m ³	0.0012
W & B Spraybooth (RHS)	Sample Date	-	19-May-06
	Sample Period	-	10:51 – 11:07
	Mean Concentration of Isocyanates	mg/m ³	< 0.0022

Notes

- Reference conditions expressed as 273 K, 101.3 kPa, without correction for moisture content

Table 19 - Gas Measurements (continued)
Results of Total Organic Compounds (as total organic carbon excluding particulate matter) Concentration Measured from the Specified Process Exhausts at Dunlop Aerospace Braking Systems, Coventry in May 2006

Emission Reference	Sample Date	Sample Period	Units	TOCs (as total organic carbon)	
DAS 1 Mixing Room Bench	16-May-06	13:27 - 14:27	mg/m ³	Maximum	135
				Mean	11
DAS 1 Oven	16-May-06	11:50 - 12:45	mg/m ³	Maximum	16
				Mean	6.2
DAS 1 Spraybooth	16-May-06	14:52 - 15:22	mg/m ³	Maximum	113
				Mean	19
DAS 2 Oven	17-May-06	12:50 - 14:43	mg/m ³	Maximum	78
				Mean	14
DAS 2 Spraybooth	17-May-06	15:26 - 16:27	mg/m ³	Maximum	2019
				Mean	41
W & B Mixing Bench	26-May-06	11:01 - 12:08	mg/m ³	Maximum	75
				Mean	21
W & B Mixing Room Floor (Ground)	26-May-06	10:01 - 11:00	mg/m ³	Maximum	38
				Mean	5.9
W & B Oven	18-May-06	11:45 - 13:02	mg/m ³	Maximum	233
				Mean	85
W & B Spraybooth (LHS)	18-May-06	13:45 - 14:38	mg/m ³	Maximum	405
				Mean	20
W & B Spraybooth (RHS)	18-May-06	15:15 - 15:52	mg/m ³	Maximum	1188
				Mean	68

Notes:
* Reference conditions expressed as 273 K, 101.3 kPa, without correction for moisture content.

Table 20 - Gas Measurements (continued)
Results of Trichloroethylene Measured from the Specified Process Exhausts at Dunlop Aerospace Braking Systems, Coventry in May 2006

Emission Reference	Sample Date	Sample Period	Units	Mean Result (as Trichloroethylene)	Mean Result (as Carbon)
W & B Degreaser	25-May-06	Run 1 15:10 – 15:25	mg/m ³	1123	205
		Run 2 15:28 – 15:45	mg/m ³	1539	281
		Run 3 16:00 – 16:15	mg/m ³	848	155
		Run 4 16:18 – 16:33	mg/m ³	1279	233
DAS 1 Degreaser	25-May-06	Run 1 13:30 – 13:45	mg/m ³	4758	868
		Run 2 13:50 – 14:05	mg/m ³	3821	697
		Run 3 14:08 – 14:23	mg/m ³	4675	853
		Run 4 14:25 – 14:40	mg/m ³	4976	908

Notes:
* Reference conditions expressed as 273 K, 101.3 kPa, without correction for moisture content.

Table 21 - Gas Measurements (continued)

Result of Hydrogen Fluoride and Oxides of Nitrogen (as NO₂) Measured from the Main Scrubber at Dunlop Aerospace Braking Systems, Coventry in May 2006

Parameter Monitored	Emission Parameter	Units	Results
Hydrogen Fluoride	Sample Date	-	26-May-06
	Sample Period	-	09:10 – 10:10
	Mean Concentration of Hydrogen Fluoride	mg/m ³	0.12
Oxides of Nitrogen (as NO ₂)	Sample Date	-	26-May-06
	Sample Period	-	10:25 – 11:45
	Mean Concentration of Oxides of Nitrogen	mg/m ³	1.0

Notes:

- Reference conditions expressed as 273 K, 101.3 kPa, without correction for moisture content.

Reportable Blank Results

Table 22 - Results of the Reportable Blank Concentrations for Total particulate Matter and Trichloroethylene taken for the Specified Process Exhausts at Dunlop Aerospace Braking Systems, Coventry in May 2006

Emission Reference	Parameter Monitored	Sample Date	Units	Mean Concentration (uncorrected) #
DAS 1 Spraybooth	Total Particulate Matter	16-May-06	mg/m ³	3.3
DAS 2 Spraybooth	Total Particulate Matter	17-May-06	mg/m ³	< 0.78
W & B Spraybooth (LHS)	Total Particulate Matter	25-May-06	mg/m ³	1.4
W & B Spraybooth (RHS)	Total Particulate Matter	18-May-06	mg/m ³	< 0.80
DAS 1 Degreaser & W & B Degreaser	Trichloroethylene	25-May-06	mg/m ³	< 0.38

Notes:

Reference conditions expressed as 273 K, 101.3 kPa, without correction for moisture content.

Monitoring Profiles

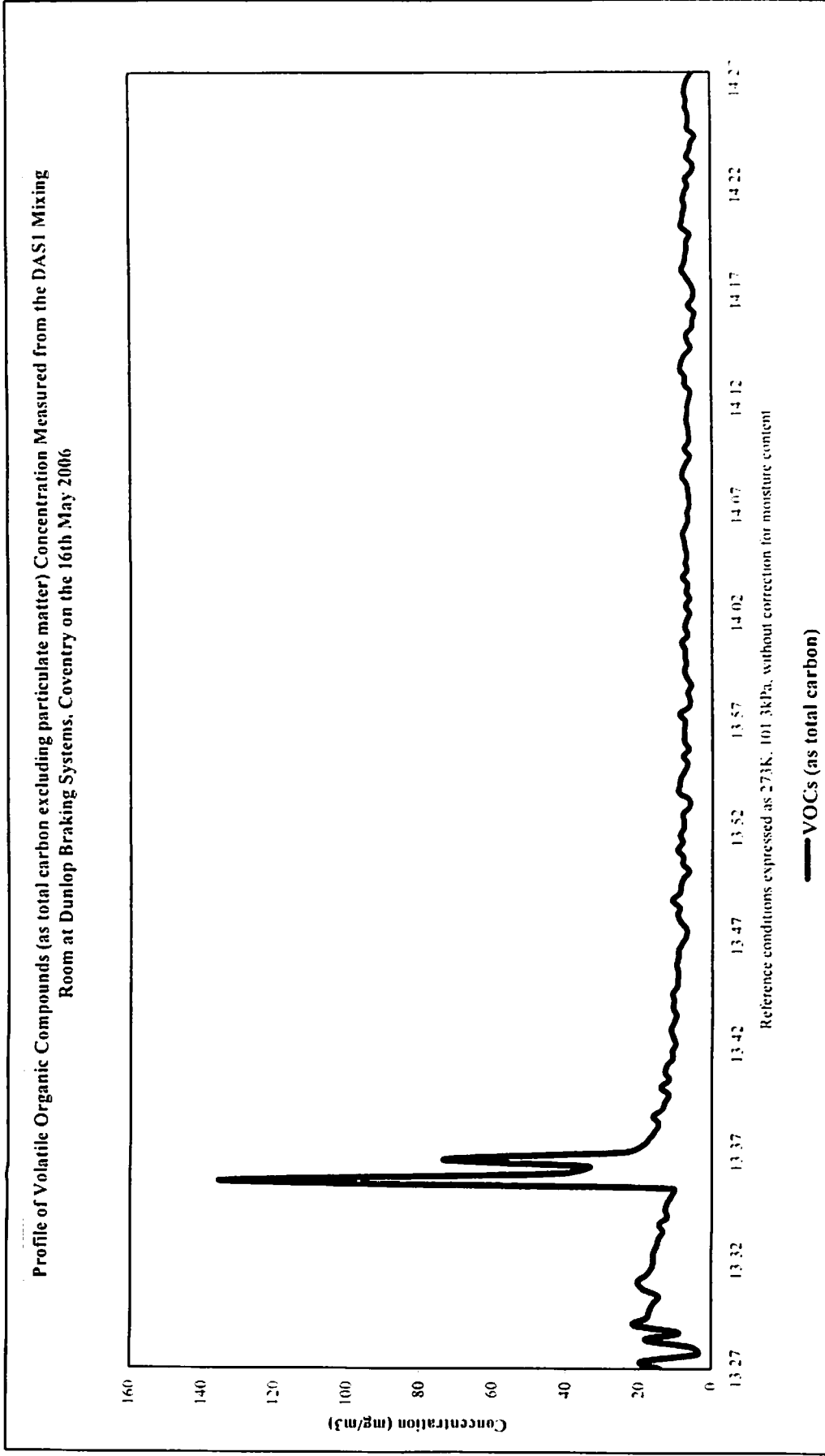
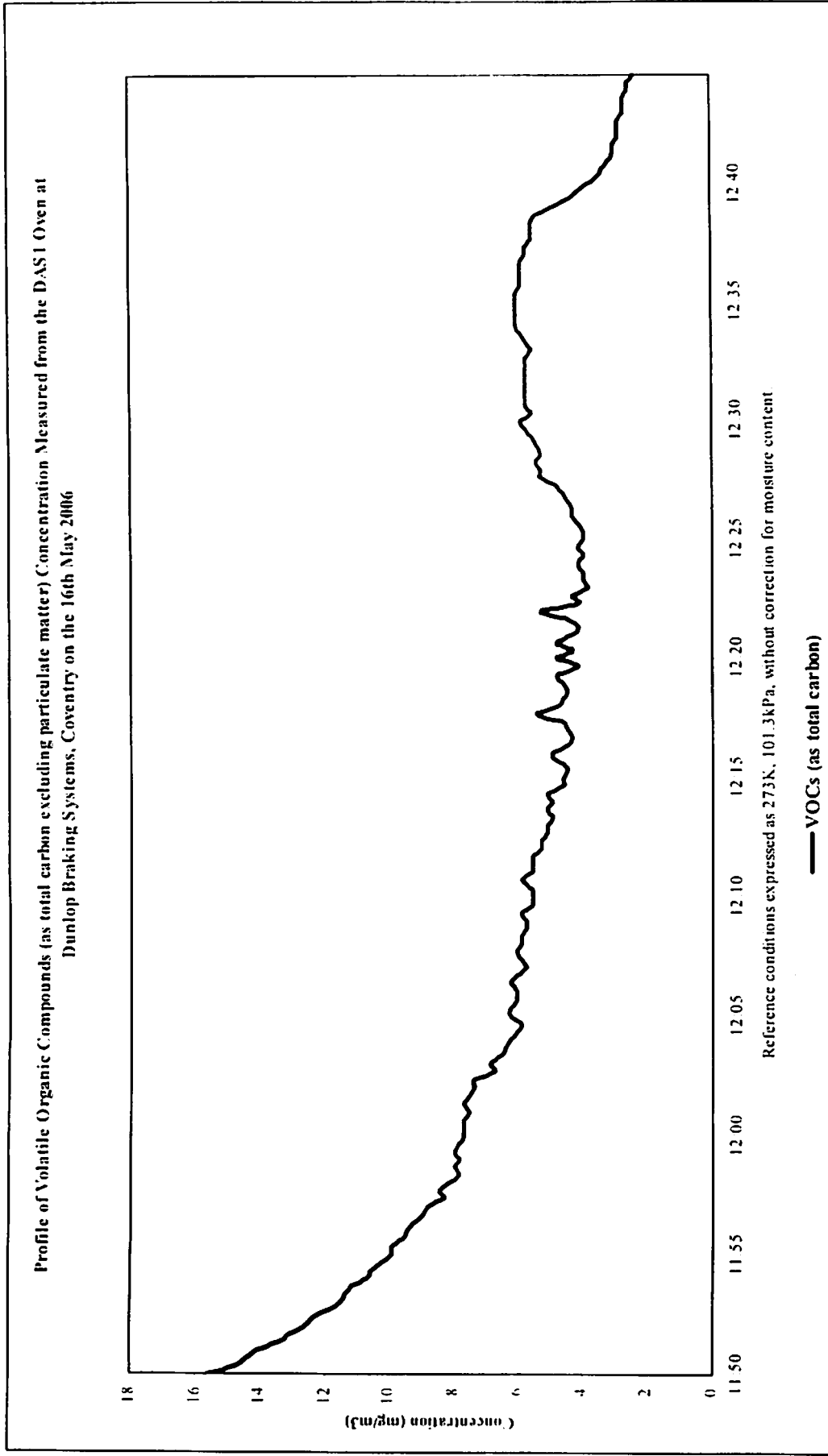
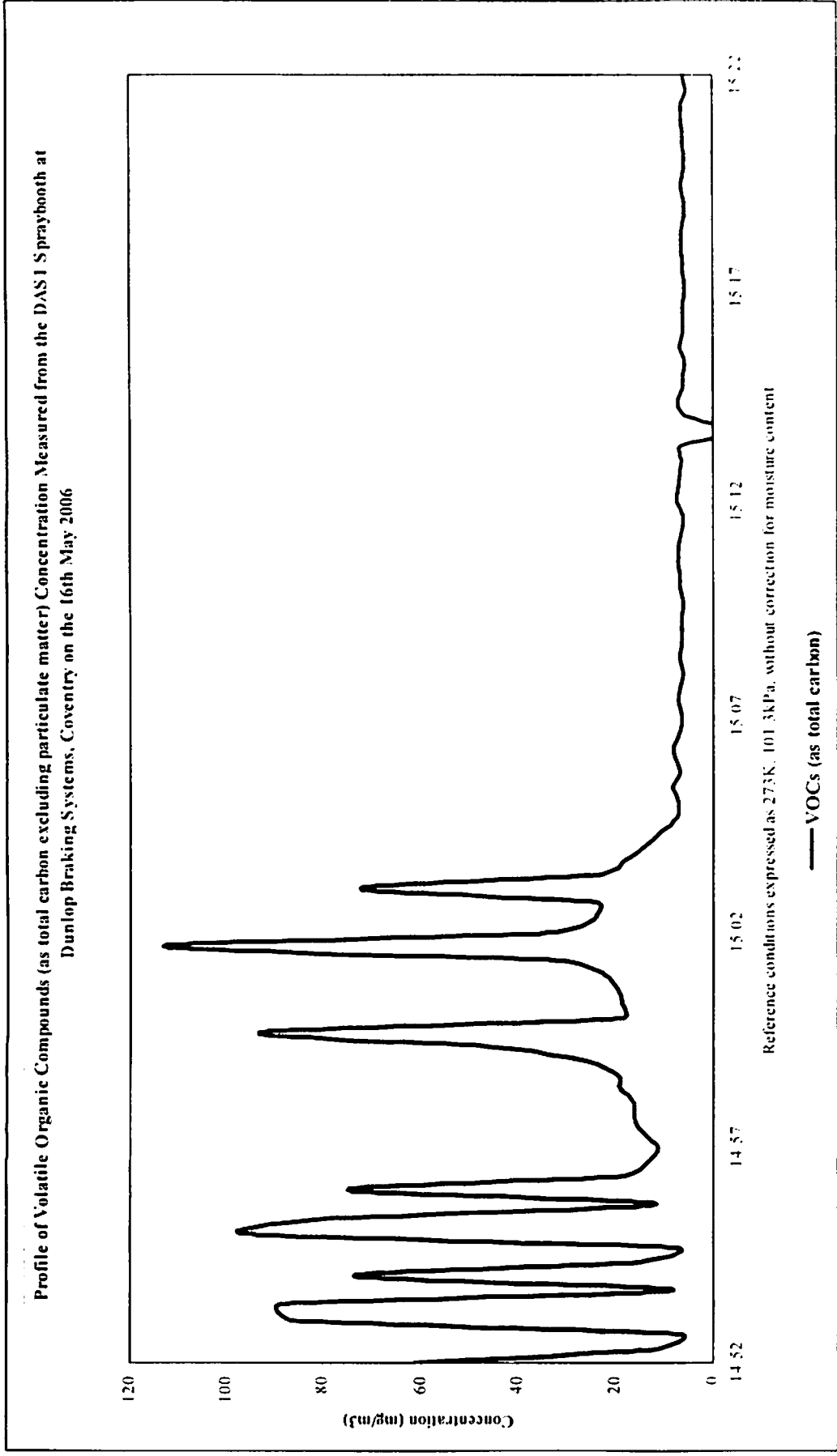
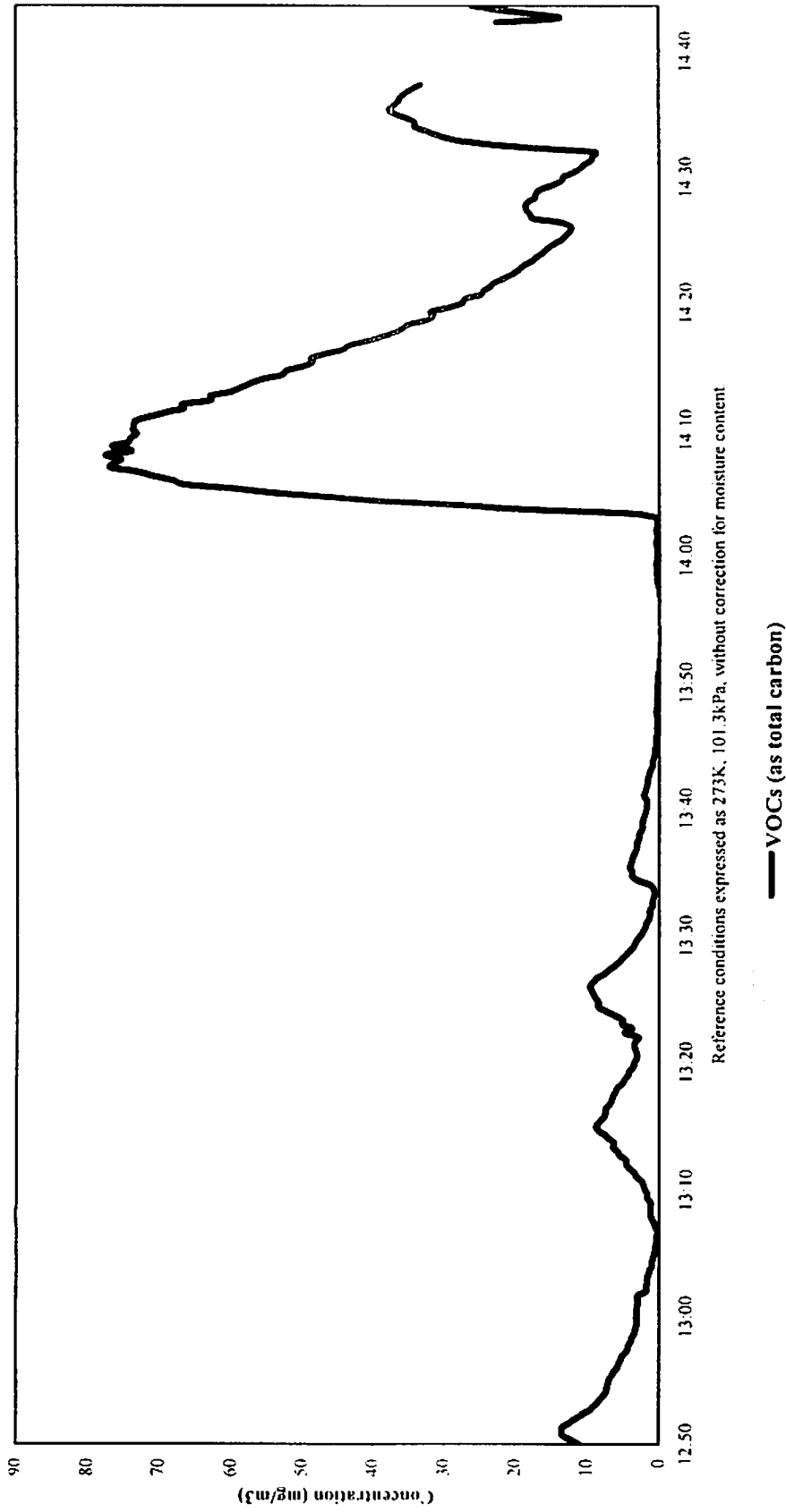


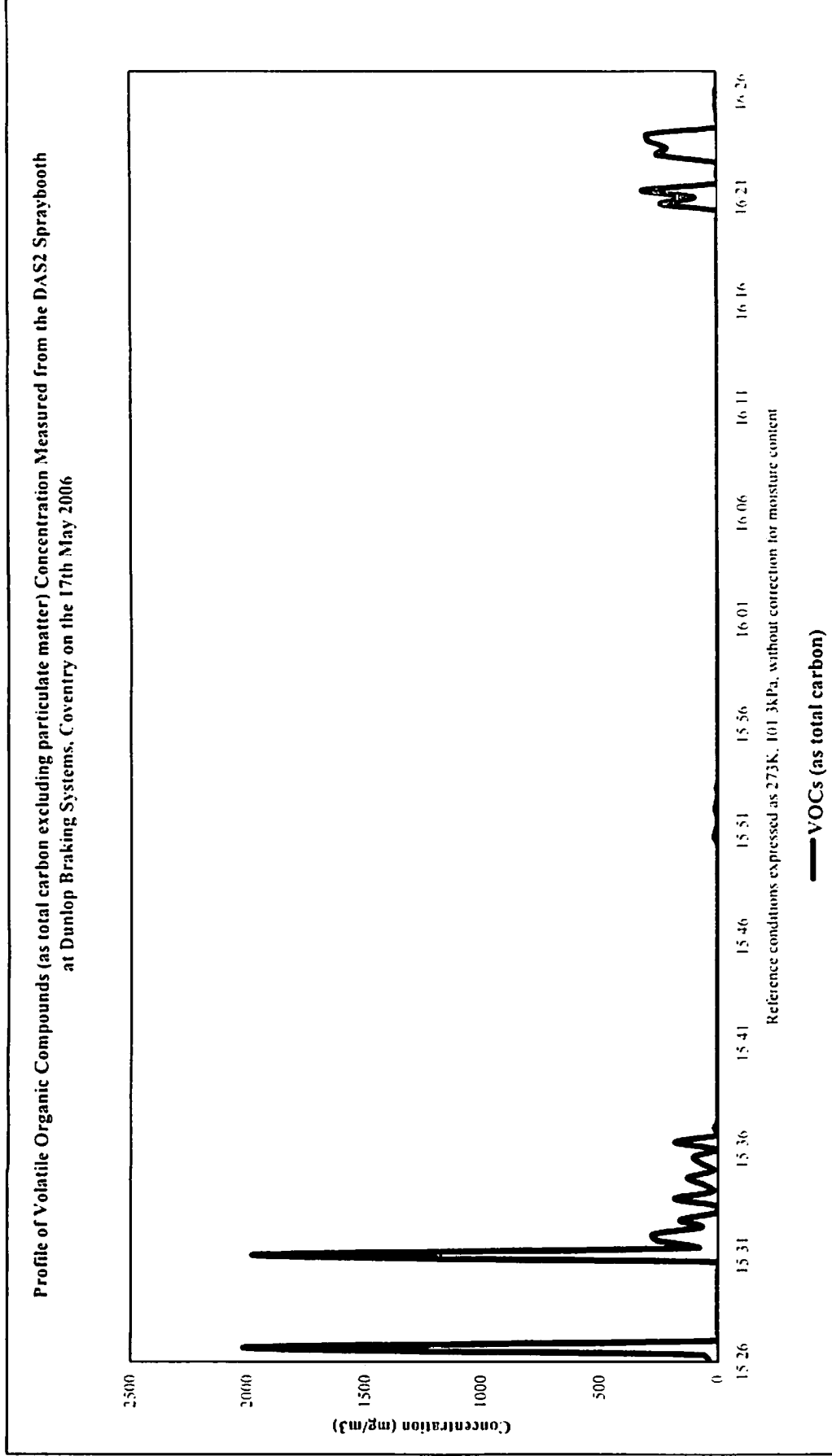
Figure 2 - Results of TOCs (as total carbon excluding particulate matter) Concentrations





Profile of Volatile Organic Compounds (as total carbon excluding particulate matter) Concentration Measured from the DAS2 Oven at Dunlop Braking Systems, Coventry on the 17th May 2006





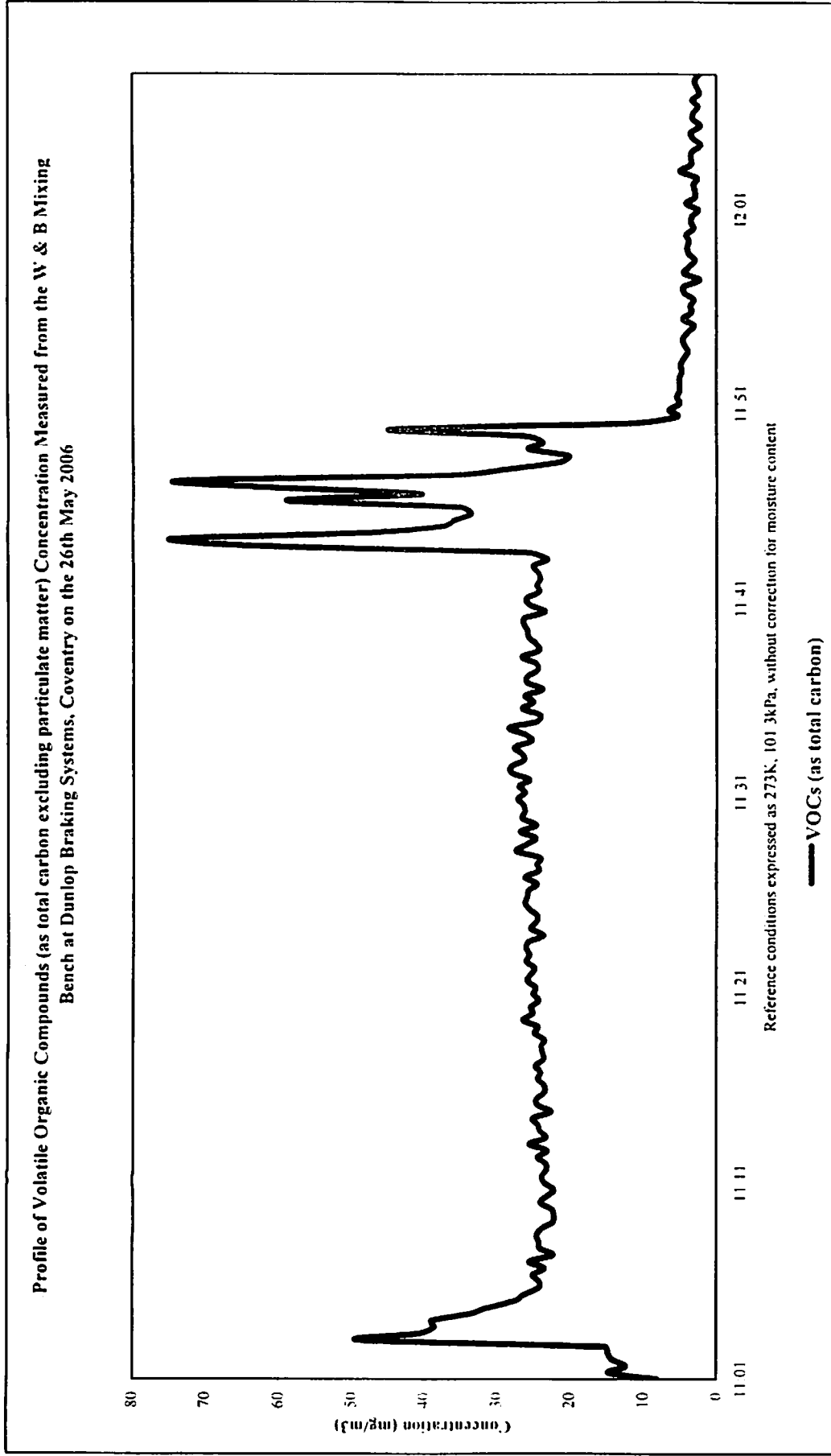
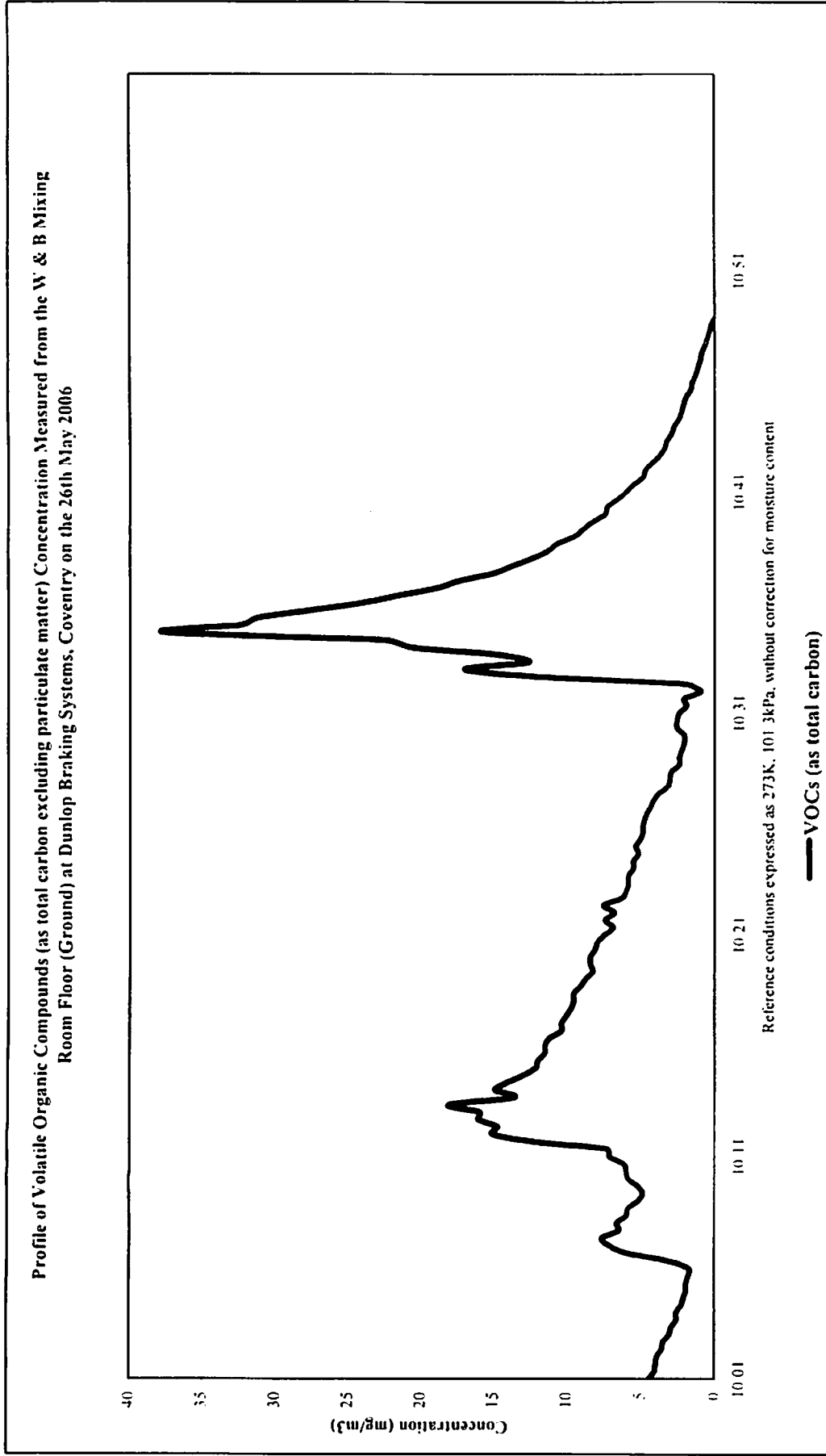
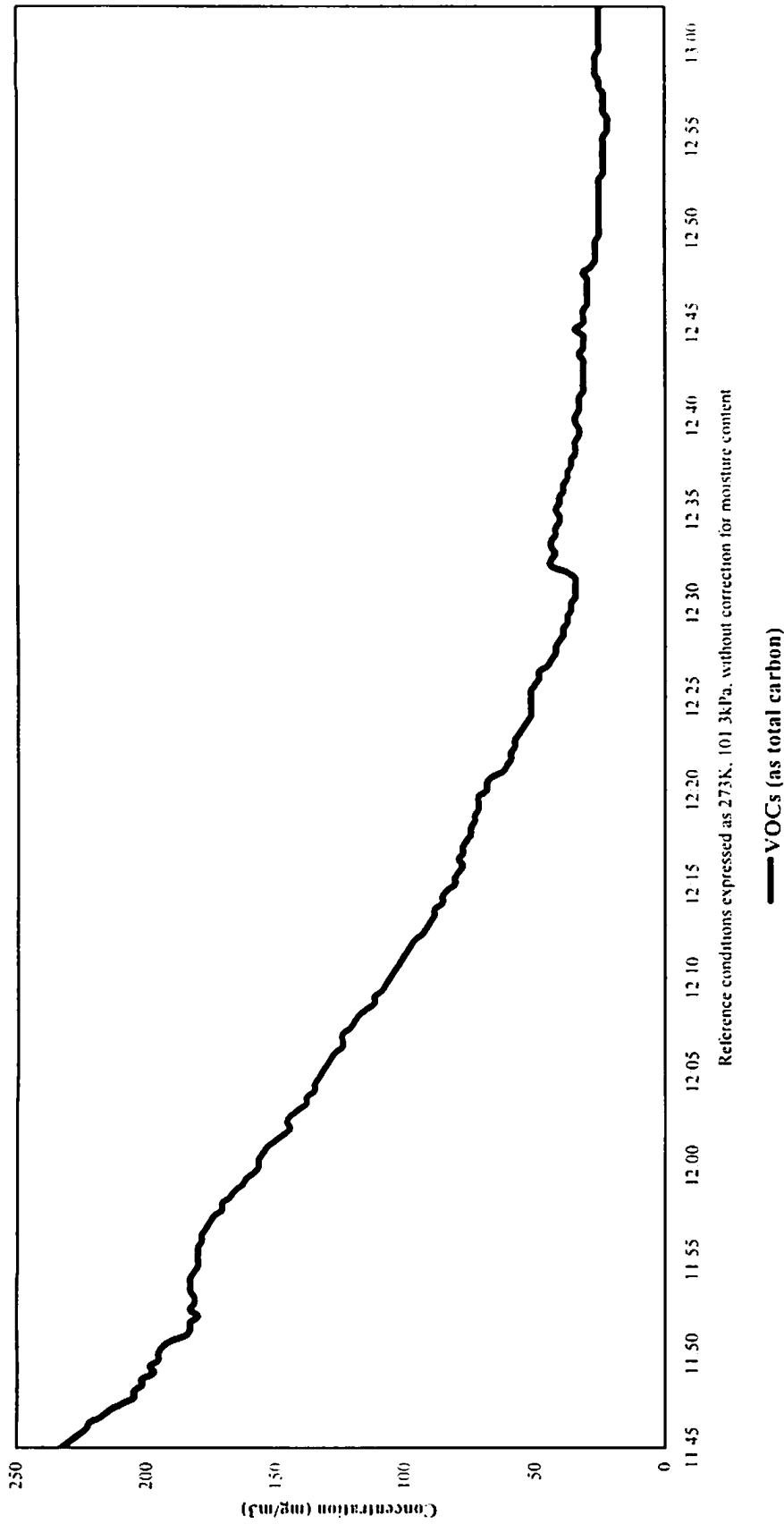
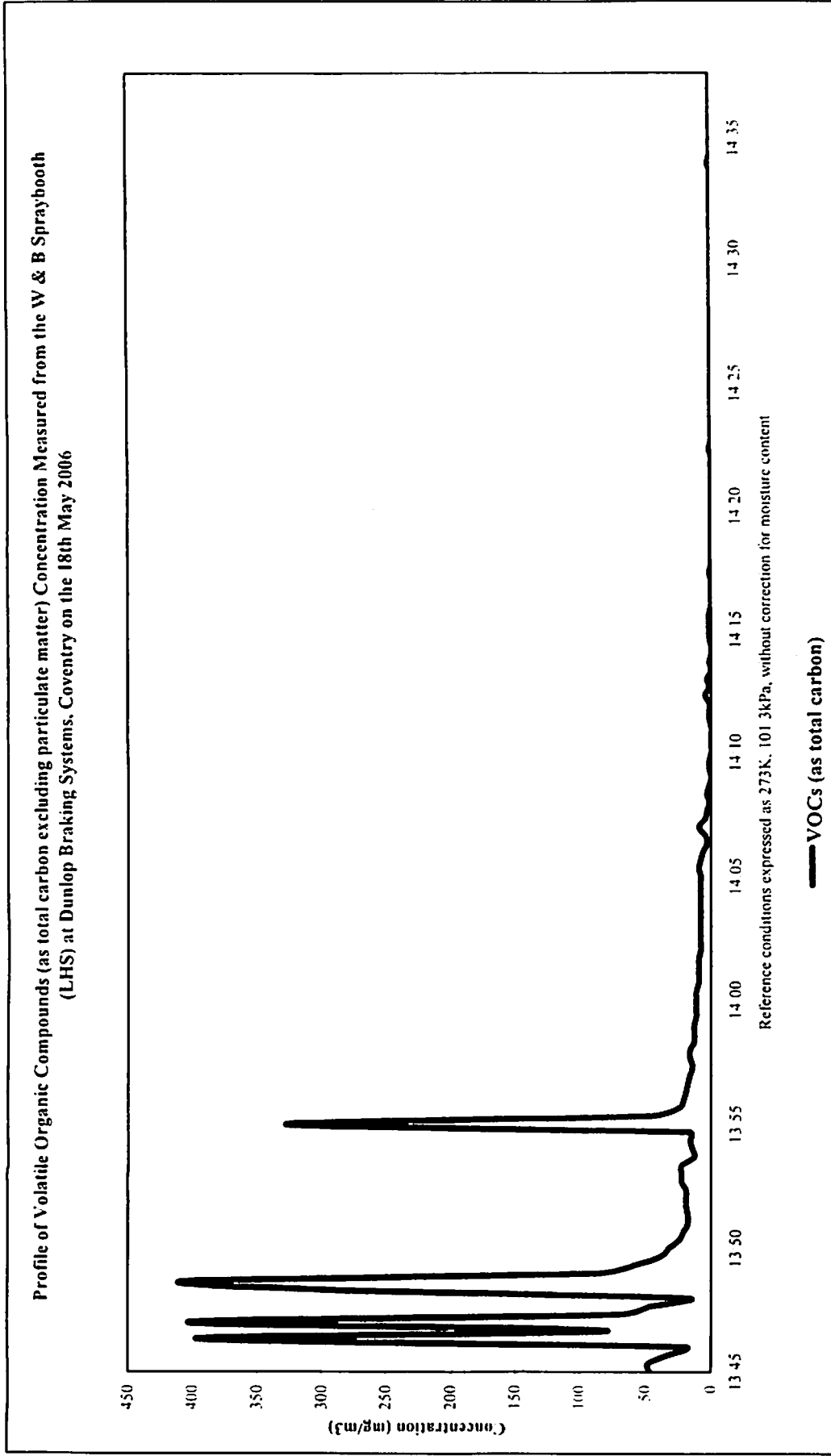


Figure 7 - Results of TOCs (as total carbon excluding particulate matter) Concentrations

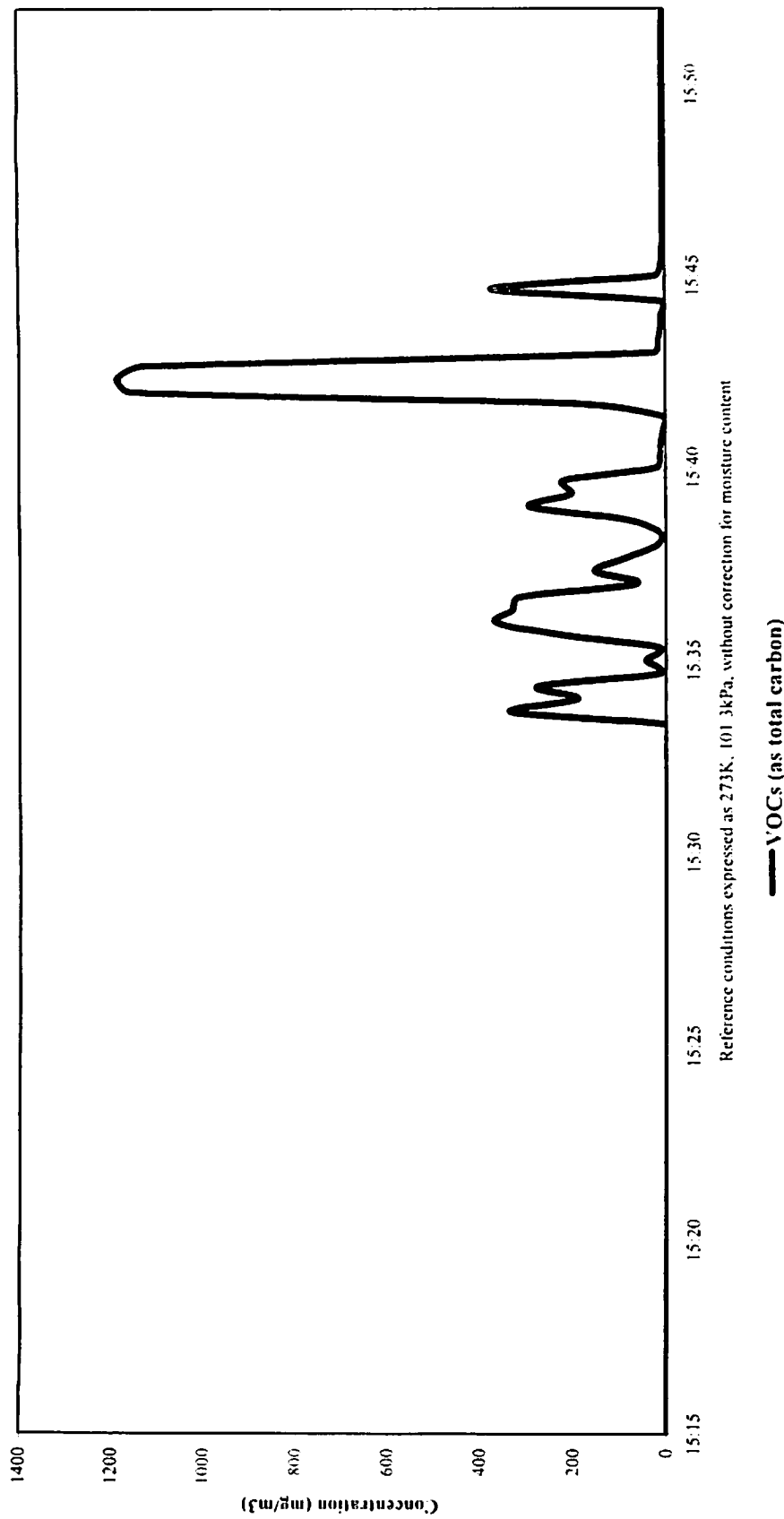


Profile of Volatile Organic Compounds (as total carbon excluding particulate matter) Concentration Measured from the W & B Oven at Dunlop Braking Systems, Coventry on the 18th May 2006





Profile of Volatile Organic Compounds (as total carbon excluding particulate matter) Concentration Measured from the W & B Spraybooth (RHS) at Dunlop Braking Systems, Coventry on the 18th May 2006



Instrumental Gas Analyser - Site Calibration Measurements

Table 16

Emission Reference	Equipment Name	Equipment ID Number	Span Gas Type	Span Gas Concentration	Span Result	Zero Result
DAS 1 Mixing Room	Signal 3030 FID	00917	C ₃ H ₈	79.9 ppm	79.9 ppm	0.0 ppm
DAS 1 Oven	Signal 3030 FID	00917	C ₃ H ₈	79.9 ppm	79.9 ppm	0.1 ppm
DAS 1 Spraybooth	Signal 3030 FID	00917	C ₃ H ₈	79.9 ppm	79.6 ppm	0.0 ppm
DAS 2 Oven	Signal 3030 FID	00917	C ₃ H ₈	79.9 ppm	79.8 ppm	0.1 ppm
DAS 2 Spraybooth	Signal 3030 FID	00917	C ₃ H ₈	79.9 ppm	79.1 ppm	0.6 ppm
W & B Mixing Bench	Signal 3030 FID	00917	C ₃ H ₈	79.9 ppm	79.5 ppm	0.3 ppm
W & B Mixing Room Floor (Ground)	Signal 3030 FID	00917	C ₃ H ₈	79.9 ppm	79.5 ppm	0.3 ppm
W & B oven	Signal 3030 FID	00917	C ₃ H ₈	79.9 ppm	82.0 ppm	0.6 ppm
W & B Spraybooth (LHS)	Signal 3030 FID	00917	C ₃ H ₈	800.7 ppm	801 ppm	1.0 ppm
W & B Spraybooth (RHS)	Signal 3030 FID	00917	C ₃ H ₈	800.7 ppm	799 ppm	0.0 ppm

Certificates of Analysis



RPS Laboratories

RPS Laboratories, Unit 12, Waters Edge Business Park, Modwen Road, Salford, M5 3EZ
Tel: (0161) 872 2443, Fax: (0161) 877 3969

Test Certificate

RPS CONSULTANTS
STEADINGS BARN
PURY HILL BUSINESS PARK
NR ALDERTON
TOWCESTER
NN12 7LS

CRT No 052087 : Issue 1
Ord No FTA5477

Date Tested 06/06/06
Date Reported 06/06/06

Attn: CHRIS SMITH

Item - 9 CHARCOAL TUBES FOR TRICHLOROETHYLENE

Specification- Not Applicable

Trichloroethylene		- In-House Method 08	
Sample	Description	Result	Comments
01:411184	T107474	4600 ug	N11
02:411185	T107475	2400 ug	N11
03:411186	T107476	3100 ug	N11
04:411187	T107477	3000 ug	N11
05:411188	T107478	590 ug	N11
06:411189	T107479	1200 ug	N11
07:411190	T107480	720 ug	N11
08:411191	T106702	<2 ug	N11
09:411192	T107482	950 ug	N11

Certificate Comments

Date of sample receipt: 01/06/2006

If you have any queries regarding this analysis please do not hesitate to contact the Laboratory Manager, Joanne Dewhurst.

Analysis was carried out on the samples 'as received'.

Standard terms and conditions are applicable, a copy is available on request.

Tested by Nicholas Lynch

[Redacted Signature]
for and on authority of
RPS Laboratories



RPS Laboratories

RPS Laboratories, Unit 12, Waters Edge Business Park, Modwen Road, Salford, M5 3EZ
Tel: (0161) 872 2443 Fax: (0161) 877 3959

Test Certificate

RPS CONSULTANTS
STEADINGS BARN
PURY HILL BUSINESS PARK
NR ALDERTON
TOWCESTER
NN12 7LS

CRT No 051845 : Issue 1
Ord No FTA5477

Date Tested 07/06/06
Date Reported 07/06/06

Attn: PETER OCONNOR

Item - 6 FILTERS AND 6 WASHES FOR TPM

Specification- Not Applicable

Total particulate		- In-House Method D9	
Sample	Description	Result	Comments
01:410119	012215	<0.1 mg	N11
02:410120	T107472	1.83 mg	N11
03:410121	012214	<0.1 mg	N11
04:410122	T107473	1.33 mg	N11
05:410123	012217	0.65 mg	N11
06:410124	T106897	<0.5 mg	N11
07:410125	012223	<0.1 mg	N11
08:410126	T106891	<0.5 mg	N11
09:410127	012218	0.69 mg	N11
10:410128	T106864	<0.5 mg	N11
11:410129	012219	<0.1 mg	N11
12:410130	T106894	<0.5 mg	N11

Certificate Comments

Date of sample receipt: 24/05/2006

If you have any queries regarding this analysis please do not hesitate to contact the Laboratory Manager, Joanne Dewhurst.

Analysis was carried out on the samples 'as received'.

Standard terms and conditions are applicable, a copy is available on request.

Tested by Catherine Weatherall

For and on authority of
RPS Laboratories

Senior Chemist



RPS Laboratories

RPS Laboratories, Unit 12, Waters Edge Business Park, Moowen Road, Salford, M5 3EZ
Tel: (0161) 872 2443, Fax: (0161) 877 3959

Test Certificate

RPS CONSULTANTS
STEADINGS BARN
PURY HILL BUSINESS PARK
NR ALDERTON
TOWCESTER
NN12 7LS

CRI No 051846 : Issue 1
Ord No FTA5477

Date Tested 07/06/06
Date Reported 07/06/06

Attn: PETER OCONNOR

Item - 16 SAMPLES FOR HDI

Specification - Not Applicable

HDI as NCO		- In-House Method I3	
Sample	Description	Result	Comments
01-410131	T106859	<0.20 ug	N11
02-410132	T106860	<0.50 ug	N11
03-410133	T106857	0.21 ug	N11
04-410134	T106858	<0.50 ug	N11
05-410135	T106863	0.68 ug	N11
06-410136	T106893	<0.50 ug	N11
07-410137	T106861	<0.20 ug	N11
08-410138	T106862	<0.20 ug	N11
09-410139	T106899	0.20 ug	N11
10-410140	T106901	<0.20 ug	N11
11-410141	T106900	<0.20 ug	N11
12-410142	T106902	<0.20 ug	N11
13-410143	T106895	<0.20 ug	N11
14-410144	T106896	<0.50 ug	N11
15-410145	T106897	<0.20 ug	N11
16-410146	T106898	<0.50 ug	N11

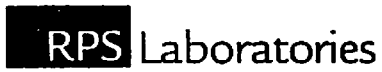
Certificate Comments

Date of sample receipt: 24/05/2006

If you have any queries regarding this analysis please do not hesitate to contact the Laboratory Manager, Joanne Dewhurst.

Analysis was carried out on the samples 'as received'.

Standard terms and conditions are applicable, a copy is available on request.



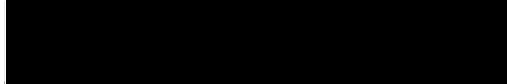
RPS Laboratories

Test Certificate

RPS CONSULTANTS
16 SAMPLES FOR HDI

CRT No 051846 : Issue 1

Tested by Kate Rawlinson



For and on authority of
RPS Laboratories

Steve Lewis

14-JUN-2006 14:56 From:RPS

2:618773959

To:01327811517

P.2/2



RPS Laboratories Unit 12, Watons Edge Business Park, Madwan Road, Sellford, M53E2
Tel: 01811 872 2443, Fax: 01811 877 3000

Test Certificate

RPS CONSULTANTS
STEADINGS BARN
PURY HILL BUSINESS PARK
NR ALDERTON
TOWCESTER
NN12 7LS

CRT No 052089 : Issue 1
Ord No FTA5477

Date Tested 14/06/06
Date Reported 14/06/06

Attn: CHRIS SMITH

Item - 2 SOLUTIONS FOR HF

Specification- Not Applicable

Hydrofluoric acid		- In House Method: C27	
Sample	Description	Result	Comments
01 411197	T106704	<0.5 ug/ml	40 ml
02 411198	T106703	<0.5 ug/ml	86 ml

Certificate Comments

Date of sample receipt: 01/06/2006

If you have any queries regarding this analysis please do not hesitate to contact the Laboratory Manager, Joanne Dewhurst.

Analysis was carried out on the samples 'as received'

Standard terms and conditions are applicable, a copy is available on request.

Tested by Lora McKerracher

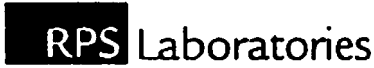
[Redacted Signature]
For and on authority of
RPS Laboratories

15-JUN-2006 13:50 From:RPS

01618773959

To:01327811517

P.1/1



RPS Laboratories, Unit 12, Waters Edge Business Park, Madwen Road, Salford, M5 3E2
Tel: 0161 872 2443 Fax: 0161 877 3669

Test Certificate

RPS CONSULTANTS
STEADINGS BARN
PURY HILL BUSINESS PARK
NR ALDERTON
TOWCESTER
NN12 7LS

CRT No 052090 : Issue 2
Ord No FTA5477

Date Tested 14/06/06
Date Reported 15/06/06

Attn: CHRIS SMITH

Item - 2 SOLUTIONS FOR OXIDES OF NITROGEN

Specification- Not Applicable

Nitrogen oxides		In-house Method C27	
Sample	Description	Result	Comments
01 411199	T106708	<1 ug/ml	172 ml
02 411200	T106709	2.0 ug/ml	88 ml

Certificate Comments

Date of sample receipt: 01/06/2006

If you have any queries regarding this analysis please do not hesitate to contact the Laboratory Manager, Joanne Dewhurst.

Analysis was carried out on the samples 'as received'.

Standard terms and conditions are applicable, a copy is available on request.

This is an amended report which replaces the one issued on 14/06/06. Sample volumes added.

Tested by Lora McKerracher



For and on authority of
RPS Laboratories

Appendix II

Solvent based products or materials used in the areas controlled by permit 157 that contain the risk phrased substances R45, R46, R49, R60 and R61.

NAME OF SUBSTANCE	MANUFACTURER, SUPPLIER OR STOCKIST	RISK PHRASES	USE	QUANTITIES USED (TONNES/ANNUUM)	NON RISK ALTERNATIVE - YES/NO	ALTERNATIVE	NOTES
PP59B ETCH	COURTAULDS AEROSPACE	R45	COMPONENT COATINGS	0.01	WORK IS ONGOING TO SOURCE A NON-RISK ALTERNATIVE		