

## Report for Periodic Monitoring of Emissions to Atmosphere

Part 1: **Executive Summary**

Permit Number: **PPC/067 Variation Ref: 002**

Operator: **Covrad Heat Transfer Ltd**

Installation: **Canley, Coventry**

Emission Points: **Industrial Spray Booth 1 (LHS)**  
**Industrial Spray Booth 1 (RHS)**  
**Industrial Spray Booth 2 (LHS)**  
**Industrial Spray Booth 2 (LHS)**  
**Assembly Shop Spray Booth (1)**  
**Assembly Shop Spray Booth (2)**  
**Assembly Shop Spray Booth (3)**

Monitoring Dates: **11<sup>th</sup> – 14<sup>th</sup> January 2010**



1709



1709

Contract Reference: FTBS 10613

Operator: Covrad Heat Transfer Ltd

Address: Sir Henry Parkes Road  
Canley  
Coventry  
CV5 6BN

Monitoring Organisation: RPS Consultants Ltd

Address: Grafton Building, Caswell Science & Technology Park  
Caswell  
Towcester  
Northants.  
NN12 8EQ

Report Date: 9<sup>th</sup> February 2010

Report Approved By: Richard Harvey

Position: Principal Consultant

MCERTS Registration No.: MM 02 020

Signature:



RPS Consultants Ltd 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.

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### Part 1: Executive Summary

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## Monitoring Objectives

At the request of Mr Bob Holmes of Covrad Heat Transfer Limited, RPS Consultants Ltd conducted air emission monitoring at the Canley site, Coventry in January 2010.

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 Points						
	Industrial Spray Booth 1		Industrial Spray Booth 2		Assembly Shop Spray Booth		
	LHS Exhaust	RHS Exhaust	LHS Exhaust	RHS Exhaust	Exhaust #1	Exhaust #2	Exhaust #3
Total Particulate Matter	✓	✓	✓	✓	✓	✓	✓
Specific Requirements	Normal Operating Conditions						

Notes:

- ✓ Represents the actual parameters monitored
- ✗ Represent parameters requested but not actually monitored

## Monitoring Results

**Table 2 – Monitoring Results from the Industrial Spray Booth 1 - LHS Exhaust, at Covrad Heat Transfer Ltd., Canley, Coventry in January 2010**

Substance Monitored	Emission Limit Value	Periodic Monitoring Result	Units	Uncertainty (mg/m <sup>3</sup> ) #	Reference Conditions 273K, 101.3kPa....	Sampling Date	Sampling Times	Monitoring Reference Method	Accreditation Status	Operating Status
Total Particulate Matter	50	2.4	mg/m <sup>3</sup>	No stated uncertainty	wet gas, without correction for oxygen	14-Jan-10	10:07 – 11:07	BS-EN 13284-1 2002	MCERTS	Normal

Notes:

# An uncertainty of measurement could not be stated due to the fact that sampling could only be conducted along a single traverse line.

**Table 3 – Monitoring Results from the Industrial Spray Booth 1 - RHS Exhaust at Covrad Heat Transfer Ltd., Canley, Coventry in January 2010**

Substance Monitored	Emission Limit Value	Periodic Monitoring Result	Units	Uncertainty (mg/m <sup>3</sup> ) #	Reference Conditions 273K, 101.3kPa....	Sampling Date	Sampling Times	Monitoring Reference Method	Accreditation Status	Operating Status
Total Particulate Matter	50	1.1	mg/m <sup>3</sup>	± 0.12	wet gas, without correction for oxygen	14-Jan-10	11:28 – 12:32 φ	BS-EN 13284-1 2002	MCERTS	Normal

Notes:

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

φ Actual sampling duration was 60 minutes

**Monitoring Results (cont.)**

**Table 4 – Monitoring Results from the Industrial Spray Booth 2 - LHS Exhaust at Covrad Heat Transfer Ltd., Canley, Coventry in January 2010**

Substance Monitored	Emission Limit Value	Periodic Monitoring Result	Units	Uncertainty (mg/m <sup>3</sup> ) #	Reference Conditions 273K, 101.3kPa....	Sampling Date	Sampling Times	Monitoring Reference Method	Accreditation Status	Operating Status
Total Particulate Matter	50	2.1	mg/m <sup>3</sup>	No stated uncertainty	wet gas, without correction for oxygen	13-Jan-10	13:45 – 14:45	BS-EN 13284-1 2002	MCERTS	Normal

Notes:

# An uncertainty of measurement could not be stated due to the fact that sampling could only be conducted along a single traverse line.

**Table 5 – Monitoring Results from the Industrial Spray Booth 2 - RHS Exhaust at Covrad Heat Transfer Ltd., Canley, Coventry in January 2010**

Substance Monitored	Emission Limit Value	Periodic Monitoring Result	Units	Uncertainty (mg/m <sup>3</sup> ) #	Reference Conditions 273K, 101.3kPa....	Sampling Date	Sampling Times	Monitoring Reference Method	Accreditation Status	Operating Status
Total Particulate Matter	50	0.47	mg/m <sup>3</sup>	No stated uncertainty	wet gas, without correction for oxygen	13-Jan-10	11:58 – 12:58	BS-EN 13284-1 2002	MCERTS	Normal

Notes:

# An uncertainty of measurement could not be stated due to the fact that sampling could only be conducted along a single traverse line.

**Monitoring Results (cont.)**

**Table 6 – Monitoring Results from the Assembly Shop Booth - LHS Exhaust 1 at Covrad Heat Transfer Ltd., Canley, Coventry in January 2010**

Substance Monitored	Emission Limit Value	Periodic Monitoring Result	Units	Uncertainty (mg/m <sup>3</sup> ) #	Reference Conditions 273K, 101.3kPa....	Sampling Date	Sampling Times	Monitoring Reference Method	Accreditation Status	Operating Status
Total Particulate Matter	50	< 0.38	mg/m <sup>3</sup>	± 0.042	wet gas, without correction for oxygen	11-Jan-10	13:43 – 14:46 φ	BS-EN 13284-1 2002	MCERTS	Normal

Notes:

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

φ Actual sampling duration was 60 minutes

**Table 7 – Monitoring Results from the Assembly Shop Booth - Middle Exhaust 2 at Covrad Heat Transfer Ltd., Canley, Coventry in January 2010**

Substance Monitored	Emission Limit Value	Periodic Monitoring Result	Units	Uncertainty (mg/m <sup>3</sup> ) #	Reference Conditions 273K, 101.3kPa....	Sampling Date	Sampling Times	Monitoring Reference Method	Accreditation Status	Operating Status
Total Particulate Matter	50	3.0	mg/m <sup>3</sup>	± 0.33	wet gas, without correction for oxygen	12-Jan-10	10:35 – 11:37 φ	BS-EN 13284-1 2002	MCERTS	Normal

Notes:

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

φ Actual sampling duration was 60 minutes

**Monitoring Results (cont.)**

**Table 8 – Monitoring Results from the Assembly Shop Booth - RHS Exhaust 3 at Covrad Heat Transfer Ltd., Canley, Coventry in January 2010**

Substance Monitored	Emission Limit Value	Periodic Monitoring Result	Units	Uncertainty (mg/m <sup>3</sup> ) #	Reference Conditions 273K, 101.3kPa....	Sampling Date	Sampling Times	Monitoring Reference Method	Accreditation Status	Operating Status
Total Particulate Matter	50	1.4	mg/m <sup>3</sup>	± 0.15	wet gas, without correction for oxygen	12-Jan-10	13:33 – 14:37	BS-EN 13284-1 2002	MCERTS	Normal

Notes:

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

## Operating Information

**Table 9 – Operating Information During Monitoring of the Specified Spray Booth Exhausts at Covrad Heat Transfer Ltd., Canley, Coventry in January 2010**

Parameter	Industrial Spray Booth 1		Industrial Spray Booth 2		Assembly Shop Spray Booth		
	LHS Exhaust	RHS Exhaust	LHS Exhaust	RHS Exhaust	LHS Exhaust #1	Middle Exhaust #2	RHS Exhaust #3
Sample Date	14-Jan-10	14-Jan-10	13-Jan-10	13-Jan-10	11-Jan-10	12-Jan-10	12-Jan-10
Process Type	Manual spraying of solvent free paint onto radiator parts	Manual spraying of solvent free paint onto radiator parts	Manual spraying of solvent free paint onto radiator parts	Manual spraying of solvent free paint onto radiator parts	Manual spraying of solvent free paint onto radiator parts and completed units	Manual spraying of solvent free paint onto radiator parts and completed units	Manual spraying of solvent free paint onto radiator parts and completed units
Process Duration	Variable depending on size of part	Variable depending on size of part	Variable depending on size of part				
If 'Batch', was monitoring carried out over the whole batch?	Yes – several parts sprayed during monitoring period	Yes – several parts sprayed during monitoring period	Yes – several parts sprayed during monitoring period	Yes – several parts sprayed during monitoring period	Yes – several parts sprayed during monitoring period	Yes – several parts sprayed during monitoring period	Yes – several parts sprayed during monitoring period
If 'No', give details	-	-	-	-	-	-	-
Abatement/Operational?	Dry-back Filter - Yes	Dry-back Filter - Yes	Dry-back Filter - Yes				
Feedstock	Radiator Components and parts	Radiator Components and parts	Radiator Components and parts				
Throughput	Variable	Varies	Varies	Varies	Varies	Varies	Varies

**Monitoring Deviations**

**Table 10 – Monitoring Deviations During Monitoring of the Specified Spray Booth Exhausts at Covrad Heat Transfer Ltd., Canley, Coventry in January 2010**

Substance Deviations	Monitoring Deviations	Other Relevant Issues
N/A	<p><u>Industrial Spray Booth 2 LHS &amp; RHS exhausts and Industrial Spray Booth 1 LHS exhaust</u>                      BS-EN 13284-1 stipulates that for an exhaust with a cross-sectional area <math>&gt;0.1\text{m}^2</math>, sampling should be carried out along at least two sample lines on the same plane.</p> <p>The size of the monitoring platforms and/or orientation of the sample ports (relative to the platform) associated with the above emission points, only allowed sampling to be conducted along one sample line – a traverse could not be conducted along the second sample line. Consequently, an uncertainty of measurement cannot be stated with the reported result.</p>	N/A

**Report for Periodic Monitoring of Emissions to Atmosphere**

Part 2: **Supporting Information**

Permit Number: **PPC/067 Variation Ref: 002**

Operator: **Covrad Heat Transfer Ltd**

Installation: **Canley, Coventry**

Emission Points: **Industrial Spray Booth 1 (LHS)  
Industrial Spray Booth 1 (RHS)  
Industrial Spray Booth 2 (LHS)  
Industrial Spray Booth 2 (LHS)  
Assembly Shop Spray Booth (1)  
Assembly Shop Spray Booth (2)  
Assembly Shop Spray Booth (3)**

Monitoring Dates: **11<sup>th</sup> – 14<sup>th</sup> January 2010**



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Contract Reference: FTBS 10613

Operator: Covrad Heat Transfer Ltd

Address: Sir Henry Parkes Road  
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Coventry  
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## **APPENDIX 1: General Information**

**Monitoring Organisation Staff Details****Table 11**

Site Team	Position	MCERTS Level	Technical Endorsements	Re-certification Dates	MCERTS Registration Number
Katie Brewis	Consultant	2	1 2 3 4	29/01/14 03/12/13 26/05/14 26/05/14	MM 07 876
Richard Carter	Technician	2	1 2 3 -	13/06/13 03/12/13 07/12/14 -	MM 07 861

Report Author	Position	MCERTS Level	Technical Endorsements	Re-certification Dates	MCERTS Registration Number
Martin Johnson	Senior Consultant	2	1 2 3 4	16/06/13 21/06/11 21/06/11 03/08/11	MM 03 168

Report Reviewer	Position	MCERTS Level	Technical Endorsements	Re-certification Dates	MCERTS Registration Number
Richard Harvey	Principal Consultant	2	1 2 3 4	20/11/12 09/03/10 20/03/11 07/12/10	MM 02 020

## Monitoring Organisation Method Details

Table 12

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

## **APPENDIX 2: Emission Points - Industrial Spray Booths 1 & 2 and Assembly Shop Spray Booth**

**Stack Gas Measurements****Table 13 - Temperature and Velocity Profile**

**Results of Gas Flows and Gas Temperatures Measured from the Industrial Spray Booth 1 - LHS Exhaust at Covrad Heat Transfer Ltd., Canley, Coventry on the 14<sup>th</sup> January 2010**

Traverse Point (m)	Sample Line A				Sample Line B			
	T (°C)	ΔP (mm H <sub>2</sub> O)	Neg. Flow?	Spin <15°?	T (°C)	ΔP (mm H <sub>2</sub> O)	Neg. Flow?	Spin <15°?
0.09	15.3	2.0	No	Yes	16.6	7.8	No	Yes
0.51	15.6	1.8	No	Yes	16.1	9.6	No	Yes

<b>Barometric pressure (kPa)</b>	99.2
<b>Static Pressure (mm H<sub>2</sub>O)</b>	+ve 7.2
<b>Stack Dimension Ø (m)</b>	0.60

**Table 14 - Temperature and Velocity Profile**

**Results of Gas Flows and Gas Temperatures Measured from the Industrial Spray Booth 1 - RHS Exhaust at Covrad Heat Transfer Ltd., Canley, Coventry on the 14<sup>th</sup> January 2010**

Traverse Point (m)	Sample Line A				Sample Line B			
	T (°C)	ΔP (mm H <sub>2</sub> O)	Neg. Flow?	Spin <15°?	T (°C)	ΔP (mm H <sub>2</sub> O)	Neg. Flow?	Spin <15°?
0.09	16.1	10.6	No	Yes	Sample line not accessible			
0.51	16.2	10.4	No	Yes				

<b>Barometric pressure (kPa)</b>	99.2
<b>Static Pressure (mm H<sub>2</sub>O)</b>	+ve 9.0
<b>Stack Dimension Ø (m)</b>	0.60

**Table 15 - Temperature and Velocity Profile**

**Results of Gas Flows and Gas Temperatures Measured from the Industrial Spray Booth 2 - LHS Exhaust at Covrad Heat Transfer Ltd., Canley, Coventry on the 13<sup>th</sup> January 2010**

Traverse Point (m)	Sample Line A				Sample Line B			
	T (°C)	ΔP (mm H <sub>2</sub> O)	Neg. Flow?	Spin <15°?	T (°C)	ΔP (mm H <sub>2</sub> O)	Neg. Flow?	Spin <15°?
0.09	14.4	12.6	No	No	14.4	10.6	No	No
0.51	14.6	13.2	No	No	14.4	8.8	No	No

<b>Barometric pressure (kPa)</b>	99.0
<b>Static Pressure (mm H<sub>2</sub>O)</b>	+ve 5.6
<b>Stack Dimension Ø (m)</b>	0.60

**Table 16 - Temperature and Velocity Profile**

**Results of Gas Flows and Gas Temperatures Measured from the Industrial Spray Booth 2 - RHS Exhaust at Covrad Heat Transfer Ltd., Canley, Coventry on the 13<sup>th</sup> January 2010**

Traverse Point (m)	Sample Line A				Sample Line B			
	T (°C)	ΔP (mm H <sub>2</sub> O)	Neg. Flow?	Spin <15°?	T (°C)	ΔP (mm H <sub>2</sub> O)	Neg. Flow?	Spin <15°?
0.09	12.5	9.8	No	No	12.0	9.8	No	No
0.51	12.5	7.8	No	No	12.0	8.0	No	No

<b>Barometric pressure (kPa)</b>	99.0
<b>Static Pressure (mm H<sub>2</sub>O)</b>	+ve 6.4
<b>Stack Dimension Ø (m)</b>	0.60

**Table 17 - Temperature and Velocity Profile**

**Results of Gas Flows and Gas Temperatures Measured from the Assembly Shop Spray Booth – LHS Exhaust (1) at Covrad Heat Transfer Ltd., Canley, Coventry on the 11<sup>th</sup> January 2010**

Traverse Point (m)	Sample Line A				Sample Line B			
	T (°C)	ΔP (mm H <sub>2</sub> O)	Neg. Flow?	Spin <15°?	T (°C)	ΔP (mm H <sub>2</sub> O)	Neg. Flow?	Spin <15°?
0.12	13.6	2.2	No	Yes	13.8	2.6	No	Yes
0.68	10.2	2.4	No	Yes	13.7	2.6	No	Yes

<b>Barometric pressure (kPa)</b>	101.0
<b>Static Pressure (mm H<sub>2</sub>O)</b>	+ve 2.8
<b>Stack Dimension Ø (m)</b>	0.80

**Table 18 - Temperature and Velocity Profile**

**Results of Gas Flows and Gas Temperatures Measured from the Assembly Shop Spray Booth - Middle Exhaust (2) at Covrad Heat Transfer Ltd., Canley, Coventry on the 12<sup>th</sup> January 2010**

Traverse Point (m)	Sample Line A				Sample Line B			
	T (°C)	ΔP (mm H <sub>2</sub> O)	Neg. Flow?	Spin <15°?	T (°C)	ΔP (mm H <sub>2</sub> O)	Neg. Flow?	Spin <15°?
0.12	12.3	3.8	No	No	12.7	7.6	No	No
0.68	12.4	3.8	No	No	12.6	4.4	No	No

<b>Barometric pressure (kPa)</b>	100.2
<b>Static Pressure (mm H<sub>2</sub>O)</b>	-ve 1.6
<b>Stack Dimension Ø (m)</b>	0.80

**Table 19 - Temperature and Velocity Profile**

**Results of Gas Flows and Gas Temperatures Measured from the Assembly Shop Spray Booth - RHS Exhaust (3) at Covrad Heat Transfer Ltd., Canley, Coventry on the 12<sup>th</sup> January 2010**

Traverse Point (m)	Sample Line A				Sample Line B			
	T (°C)	ΔP (mm H <sub>2</sub> O)	Neg. Flow?	Spin <15°?	T (°C)	ΔP (mm H <sub>2</sub> O)	Neg. Flow?	Spin <15°?
0.12	13.1	4.8	No	No	12.1	6.0	No	No
0.68	13.1	13.6	No	No	11.5	5.6	No	No

<b>Barometric pressure (kPa)</b>	100.2
<b>Static Pressure (mm H<sub>2</sub>O)</b>	+ve 1.2
<b>Stack Dimension Ø (m)</b>	0.80

**Table 20 - Gas Measurements (continued)**

**Results of Total Particulate Matter and General Emission Parameters Measured from the Specified Spray Booth Exhausts at Covrad Heat Transfer Ltd., Canley, Coventry in January 2010**

Emission Parameter	Units	Assembly Shop Spray Booth		
		Left Exhaust (1)	Middle Exhaust (2)	Right Exhaust (3)
Sample Date	-	11-Jan-10	12-Jan-10	12-Jan-10
Sample Period	-	13:43 – 14:46	10:35 – 11:37	13:33 – 14:37
Mean Barometric Pressure	kPa	101.2	100.2	100.2
Internal Area of Duct	m <sup>2</sup>	0.50	0.50	0.50
Isokinetic Ratio	%	99	110	97
Mean Stack Moisture Content	%	< 1.0	< 1.0	< 1.0
Mean Stack Temperature	°C	14.2	12.7	12.5
Mean Gas Velocity (as measured at sampling plane)	m/sec	5.4	6.0	11
Mean Volumetric Flowrate (as measured)	m <sup>3</sup> /sec	2.7	3.0	5.3
Mean Volumetric Flowrate (at reference conditions)	m <sup>3</sup> /sec*	2.6	2.8	5.0
Mean Total Particulate Matter Mass Emission	kg/hr	< 0.0036	0.030	0.025
Mean Total Particulate Matter Concentration	mg/m <sup>3</sup> *	< 0.38	3.0	1.4

Notes: Reference conditions expressed as 273 K, 101.3 kPa, wet gas without correction oxygen.

**Table 21 - Gas Measurements (continued)**

**Results of Total Particulate Matter and General Emission Parameters Measured from the Specified Spray Booth Exhausts at Covrad Heat Transfer Ltd., Canley, Coventry in January 2010**

Emission Parameter	Units	Industrial Spray Booth 1		Industrial Spray Booth 2	
		LHS Exhaust	Right Exhaust	Left Exhaust	Right Exhaust
Sample Date	-	14-Jan-10	14-Jan-10	13-Jan-10	13-Jan-10
Sample Period	-	10:07 – 11:07	11:28 – 12:32	13:45 – 14:45	11:58 – 12:58
Barometric Pressure	kPa	99.2	99.2	99.0	99.0
Internal Area of Duct	m <sup>2</sup>	0.28	0.28	0.28	0.28
Isokinetic Ratio	%	101	99	100	99
Mean Stack Moisture Content	%	0.64	0.32	1.3	1.4
Mean Stack Temperature	°C	15.3	16.3	16.7	14.4
Mean Gas Velocity (as measured at sampling plane)	m/sec	8.4	8.6	11	9.8
Mean Volumetric Flowrate (as measured)	m <sup>3</sup> /sec	2.4	2.4	3.1	2.8
Mean Volumetric Flowrate (at reference conditions)	m <sup>3</sup> /sec*	2.2	2.2	2.9	2.6
Mean Total Particulate Matter Mass Emission	kg/hr	0.019	0.0087	0.022	0.0044
Mean Total Particulate Matter Concentration	mg/m <sup>3</sup> *	2.4	1.1	2.1	0.47

Notes: Reference conditions expressed as 273 K, 101.3 kPa, wet gas, without correction oxygen.

**Reportable Blank Results****Table 22 - Results of the Reportable Blank Concentrations for Total Particulate Matter taken for the Specified Spray Booth Exhausts at Covrad Heat Transfer Ltd., Canley, Coventry in January 2010**

<b>Emission Reference</b>	<b>Emission Parameter</b>	<b>Sample Date</b>	<b>Units</b>	<b>Mean Concentration</b>
Industrial Spray Booth 1 – LHS Exhaust	Total Particulate Matter	14-Jan-10	mg/m <sup>3</sup>	0.46
Industrial Spray Booth 1 – RHS Exhaust	Total Particulate Matter	14-Jan-10	mg/m <sup>3</sup>	0.53
Industrial Spray Booth 2 – LHS Exhaust	Total Particulate Matter	13-Jan-10	mg/m <sup>3</sup>	0.40
Industrial Spray Booth 2 – RHS Exhaust	Total Particulate Matter	13-Jan-10	mg/m <sup>3</sup>	0.44
Assembly Shop Spray Booth LHS Exhaust (1)	Total Particulate Matter	11-Jan-10	mg/m <sup>3</sup>	< 0.38
Assembly Shop Spray Booth Middle Exhaust (2)	Total Particulate Matter	12-Jan-10	mg/m <sup>3</sup>	0.48
Assembly Shop Spray Booth RHS Exhaust (3)	Total Particulate Matter	12-Jan-10	mg/m <sup>3</sup>	0.41

*Notes:*

*Reference conditions expressed as 273 K, 101.3 kPa, wet gas without correction for oxygen.*

## Certificates of Analyses



Date 01/02/2010

## Test Certificate

Client	RPS Towcester Grafton Building Caswell Science & Technology Park Caswell, Towcester Northants NN12 8EQ	Order No.	FTBS 10613
		Certificate No.	WK10-0192
		Issue No.	1
Contact	Richard Carter	Date Received	19/01/2010
Description	14 filters and 14 solutions for TPM	Technique	Gravimetric
Sample No.	579085	055966	Method
Total particulate matter	<0.04 mg		D9(U)
Sample No.	579086	T117080	Method
Total particulate matter	<0.5 mg		D9(U)
Sample No.	579087	055962	Method
Total particulate matter	<0.04 mg		D9(U)
Damaged filter			
Sample No.	579088	T117081	Method
Total particulate matter	<0.5 mg		D9(U)
Sample No.	579089	055969	Method
Total particulate matter	0.05 mg		D9(U)
Sample No.	579090	T117084	Method
Total particulate matter	<0.5 mg		D9(U)
Sample No.	579091	055960	Method
Total particulate matter	0.34 mg		D9(U)
Damaged filter			

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RPS Laboratories Ltd, Unit 12, Waters Edge Business Park, Modwen Road, Salford, M5 3EZ

Tel: (0161) 872 2443 Fax: (0161) 877 3559



## Test Certificate

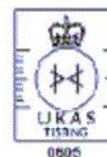
Date 01/02/2010

Client	RPS Towcester		Certificate No.	WK10-0192
			Issue No.	1
Sample No.	579092	T117085	Method	
Total particulate matter	1.5 mg		D9(U)	
Sample No.	579093	055957	Method	
Total particulate matter	0.08 mg		D9(U)	
Sample No.	579094	T117082	Method	
Total particulate matter	<0.5 mg		D9(U)	
Sample No.	579095	055958	Method	
Total particulate matter	1.08 mg		D9(U)	
Sample No.	579096	T117083	Method	
Total particulate matter	2.4 mg		D9(U)	
Sample No.	579097	055965	Method	
Total particulate matter	0.05 mg		D9(U)	
Sample No.	579098	T117086	Method	
Total particulate matter	<0.5 mg		D9(U)	
Sample No.	579099	055961	Method	
Total particulate matter	0.09 mg		D9(U)	
Damaged filter				
Sample No.	579100	T117087	Method	
Total particulate matter	0.5 mg		D9(U)	
Sample No.	579101	055963	Method	
Total particulate matter	0.08 mg		D9(U)	

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RPS Laboratories Ltd. Unit 12. Waters Edge Business Park. Modwen Road. Salford. M5 3EZ

Tel: (0161) 872 2443 Fax: (0161) 877 3959



Test Certificate

Date 01/02/2010

Client	RPS Towcester		Certificate No.	WK10-0192
			Issue No.	1
Sample No.	579102	T117184	Method	
Total particulate matter	<0.5 mg		D9(U)	
Sample No.	579103	055964	Method	
Total particulate matter	1.62 mg		D9(U)	
Sample No.	579104	T117185	Method	
Total particulate matter	1.3 mg		D9(U)	
Sample No.	579105	055968	Method	
Total particulate matter	0.08 mg		D9(U)	
Sample No.	579106	T117186	Method	
Total particulate matter	0.8 mg		D9(U)	
Sample No.	579107	055969	Method	
Total particulate matter	2.07 mg		D9(U)	
Sample No.	579108	T117187	Method	
Total particulate matter	1.5 mg		D9(U)	
Sample No.	579109	055970	Method	
Total particulate matter	0.08 mg		D9(U)	
Sample No.	579110	T117188	Method	
Total particulate matter	<0.5 mg		D9(U)	
Sample No.	579111	055971	Method	
Total particulate matter	0.33 mg		D9(U)	



## Test Certificate

Date 01/02/2010

Client	RPS Towcester		Certificate No.	WK10-0192
			Issue No.	1
Sample No.	579112	T117189		Method
Total particulate matter	0.9 mg			D9(U)

Tested By Simone Rutter Date 01/02/2010

Approved By [Redacted] Date 01/02/2010

Scott W Campbell  
Operations Manager

For and on authority of RPS Laboratories Ltd.

RPS Laboratories terms and conditions apply - a copy is available on request.

Method Symbols (U) Analysis is UKAS Accredited  
(N) Analysis is not UKAS Accredited  
(S) Analysis is Subcontracted

Concentration values ( $\mu\text{g}/\text{m}^3$  and  $\text{ppm}$ ) are provided to assist with interpretation only, they are not covered by the scope of UKAS accreditation.

Analysis carried out on samples as received

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