COVRAD HEAT TRANSFER LTD

Report on Air Emission Monitoring at

Covrad Heat Transfer Ltd

Canley, Coventry

December 2006

Stack Emission Monitoring Report – Executive Summary
Ref. FTA 5889

1709

1709

Report for Periodic Monitoring of Emissions to Atmosphere

Part 1:	**Executive Summary**
Operator:	**Covrad Heat Transfer Ltd**
Installation:	**Canley, Coventry**
Emission Points:	**Red Oxide Booth** **Industrial Spray Booth 1** **Industrial Spray Booth 2** **Assembly Shop Spray Booth**
Monitoring Dates:	**5th – 7th December 2006**

UKAS TESTING
1709

mCERTS
THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME
1709

Contract Reference:	FTA 5889
Operator:	Covrad Heat Transfer Ltd
Address:	Sir Henry Parkes Road Canley Coventry CV5 6BN
Monitoring Organisation:	RPS Health, Safety & Environment
Address:	Steadings Barn, Pury Hill Business Park, nr Alderton, Towcester, Northamptonshire, NN12 7LS
Report Date:	15th January 2007
Report Approved By:	Brett Durden
Position:	Technical Director
MCERTS Registration No.:	MM 03 167
Signature:	[redacted]

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.

CONTENTS

Part 1: Executive Summary

Monitoring Objectives

At the request of Mr R. Holmes of Covrad Heat Transfer Ltd., RPS Health, Safety and Environment conducted air emission monitoring at the Canley site, Coventry in December 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 Points							
	Red Oxide Booth	Industrial Spray Booth 1		Industrial Spray Booth 2		Assembly Shop Spray Booth		
		Left Exhaust	Right Exhaust	Left Exhaust	Right Exhaust	Exhaust #1	Exhaust #2	Exhaust #3
Total Particulate Matter	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*
Specific Requirements	Normal Operating Conditions							

Notes:

4 *Represents the actual parameters monitored*

8 *Represent parameters requested but not actually monitored*

Monitoring Results

Table 2 – Monitoring Results from the Red Oxide Booth Exhaust at Covrad Heat Transfer Ltd., Canley, Coventry in December 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
Total Particulate Matter	50	8.1	mg/m^3	± 0.88	wet gas, without correction for oxygen	5-Dec-06	10:19 – 11:20	BS-EN 13284-1 2002	MCERTS	Normal

Notes:
 # The uncertainty associated with the quoted result is at the 95% confidence interval
¥ Emission Limit Value taken from Secretary of State Process Guidance Note 6/23(04) – Guidance for Coating of Metal and Plastic Processes

Table 3 – Monitoring Results from the Industrial Spray Booth 1 - Left Exhaust at Covrad Heat Transfer Ltd., Canley, Coventry in December 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
Total Particulate Matter	50	1.7	mg/m^3	± 0.19	wet gas, without correction for oxygen	6-Dec-06	10:52 – 11:54	BS-EN 13284-1 2002	MCERTS	Normal

Notes:
 # The uncertainty associated with the quoted result is at the 95% confidence interval
¥ Emission Limit Value taken from Secretary of State Process Guidance Note 6/23(04) – Guidance for Coating of Metal and Plastic Processes

Table 4 – Monitoring Results from the Industrial Spray Booth 1 - Right Exhaust at Covrad Heat Transfer Ltd., Canley, Coventry in December 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
Total Particulate Matter	50	1.8	mg/m^3	± 0.20	wet gas, without correction for oxygen	6-Dec-06	12:03 – 13:05	BS-EN 13284-1 2002	MCERTS	Normal

Notes:
 # The uncertainty associated with the quoted result is at the 95% confidence interval
¥ Emission Limit Value taken from Secretary of State Process Guidance Note 6/23(04) – Guidance for Coating of Metal and Plastic Processes

Table 5 – Monitoring Results from the Industrial Spray Booth 2 - Left Exhaust at Covrad Heat Transfer Ltd., Canley, Coventry in December 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
Total Particulate Matter	50	7.7	mg/m^3	-	wet gas, without correction for oxygen	7-Dec-06	10:22 – 11:22	BS-EN 13284-1 2002	MCERTS	Normal

Notes:
 # The uncertainty associated with the quoted result is at the 95% confidence interval
¥ Emission Limit Value taken from Secretary of State Process Guidance Note 6/23(04) – Guidance for Coating of Metal and Plastic Processes

Table 6 – Monitoring Results from the Industrial Spray Booth 2 - Right Exhaust at Covrad Heat Transfer Ltd., Canley, Coventry in December 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
Total Particulate Matter	50	3.6	mg/m^3	-	wet gas, without correction for oxygen	6-Dec-06	14:50 – 15:50	BS-EN 13284-1 2002	MCERTS	Normal

Notes:
 # The uncertainty associated with the quoted result is at the 95% confidence interval
¥ Emission Limit Value taken from Secretary of State Process Guidance Note 6/23(04) – Guidance for Coating of Metal and Plastic Processes

Table 7 – Monitoring Results from the Assembly Shop Spray Booth Exhaust #1 at Covrad Heat Transfer Ltd., Canley, Coventry in December 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
Total Particulate Matter	50	9.7	mg/m^3	± 1.1	wet gas, without correction for oxygen	5-Dec-06	14:54 – 15:55	BS-EN 13284-1 2002	MCERTS	Normal

Notes:
 # The uncertainty associated with the quoted result is at the 95% confidence interval
¥ Emission Limit Value taken from Secretary of State Process Guidance Note 6/23(04) – Guidance for Coating of Metal and Plastic Processes

Table 8 – Monitoring Results from the Assembly Shop Spray Booth Exhaust #2 at Covrad Heat Transfer Ltd., Canley, Coventry in December 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
Total Particulate Matter	50	1.3	mg/m^3	± 0.14	wet gas, without correction for oxygen	7-Dec-06	14:16 – 15:17	BS-EN 13284-1 2002	MCERTS	Normal

Notes:
 # The uncertainty associated with the quoted result is at the 95% confidence interval
¥ Emission Limit Value taken from Secretary of State Process Guidance Note 6/23(04) – Guidance for Coating of Metal and Plastic Processes

Table 9 – Monitoring Results from the Assembly Shop Spray Booth Exhaust #3 at Covrad Heat Transfer Ltd., Canley, Coventry in December 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
Total Particulate Matter	50	0.89	mg/m^3	± 0.097	wet gas, without correction for oxygen	7-Dec-06	13:39 – 14:41	BS-EN 13284-1 2002	MCERTS	Normal

Notes:
 # The uncertainty associated with the quoted result is at the 95% confidence interval
¥ Emission Limit Value taken from Secretary of State Process Guidance Note 6/23(04) – Guidance for Coating of Metal and Plastic Processes

Operating Information

Table 10 – Operating Information During Monitoring of the Specified Spray Booth Exhausts at Covrad Heat Transfer Ltd., Canley, Coventry in December 2006

Parameter	Red Oxide Booth	Industrial Spray Booth 1		Industrial Spray Booth 2		Assembly Shop Spray Booth		
		Left Exhaust	Right Exhaust	Left Exhaust	Right Exhaust	Exhaust #1	Exhaust #2	Exhaust #3
Sample Date	5-Dec-06	6-Dec-06	6-Dec-06	7-Dec-06	6-Dec-06	5-Dec-06	7-Dec-06	5-Dec-06
Process Type	Manual spraying of red oxide based primer 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	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	Variable depending on size of part	Variable depending on size of part	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	Yes – several parts sprayed during monitoring period
If 'No', give details	-	-	-	-	-	-	-	-
Abatement/Operational?	Filters - Yes	Filters - Yes	Filters - Yes	Filters - Yes	Filters - Yes	Filters - Yes	Filters - Yes	Filters - Yes
Feedstock	Radiator Components and parts	Radiator Components and parts	Radiator Components and parts	Radiator Components and parts	Radiator Components and parts	Radiator Components and parts	Radiator Components and parts	Radiator Components and parts
Throughput	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies

Monitoring Deviations

Table 11 – Monitoring Deviations During Monitoring of the Specified Spray Booth Exhausts at Covrad Heat Transfer Ltd., Canley, Coventry in December 2006

Substance Deviations	Monitoring Deviations	Other Relevant Issues
None	**Industrial Spray Booth 2 Exhausts 1 & 2** – Only one sample line was available for monitoring due to platform and exhaust constraints. BS EN 13284 requires two sample lines be monitored and if not possible then uncertainty cannot be quoted. Time at available sample points was increased accordingly.	

REPORT FOR PERIODIC MONITORING OF THE INDUSTRIAL, NEW, RED OXIDE BOOTHS AND TRIKE BATH.

COVRDAD HEAT TRANSFER LTD, COVENTRY.

FEBRUARY 2006

Report for Periodic Monitoring of Emissions to Atmosphere

Part 1:	**Executive Summary**
Operator:	**Covrad Heat Transfer Ltd**
Installation:	**Covrad Heat Transfer Ltd, Coventry, Warwickshire.**
Emission Point:	**Industrial, New, Redox Booth and Trike bath**
Monitoring Date(s):	**9th – 11th January 2006**

Contract Reference:	FYS3926
Operator:	Covrad Heat Transfer
Address:	Sir Henry Parks Road Canley Coventry CV5 6BN
Monitoring Organisation:	RPS Health, Safety & Environment
Address:	Unit 1, Lowfields Business Park, Old Power Way, Elland, HX5 9DE
Report Date:	February 2006
Report Approved By:	Antony Sumner
Position:	Quality Manager-Stack Emissions
MCERTS Registration Number:	MM 03 233
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.

CONTENTS

Monitoring Objectives

At the request of Mr Bob Holmes of Covrad Heat Transfer ltd, RPS Health, Safety and Environment conducted stack emission monitoring at the Coventry site, Warwickshire in January 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 authorisation for this site, as issued by Warwickshire Council in accordance with process guidance note (PG 6/23) (04) "Coating of metals and plastics"

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

Table 1.1

Parameters Requested to be Monitored	**Emission Point** **Stack 1** **Industrial Spray Booth 1**
Total Particulate Matter	√
High Concentration VOC (as total organic carbon)	√
Specific Requirements	Normal Operating Conditions

Table 1.2

Parameters Requested to be Monitored	**Emission Point** **Stack 2** **Industrial Spray Booth 1**
Total Particulate Matter	√
High Concentration VOC (as total organic carbon)	√
Specific Requirements	Normal Operating Conditions

Notes:
√ *Represents the actual parameters monitored*
X *Required by authorisation but not monitored at this visit (See Section 4)*

Table 1.6

Parameters Requested to be Monitored	Emission Point Stack 2 New Booth 1
Total Particulate Matter	√
High Concentration VOC (as total organic carbon)	√
Specific Requirements	Normal Operating Conditions

Table 1.7

Parameters Requested to be Monitored	Emission Point Stack 3 New Booth 1
Total Particulate Matter	√
High Concentration VOC (as total organic carbon)	√
Specific Requirements	Normal Operating Conditions

Table 1.8

Parameters Requested to be Monitored	Emission Point Red Oxide
Total Particulate Matter	√
High Concentration VOC (as total organic carbon)	√
Specific Requirements	Normal Operating Conditions

Notes:
√ *Represents the actual parameters monitored*
X *Required by authorisation but not monitored at this visit (See Section 4)*

Table 1.9

Parameters Requested to be Monitored	Emission Point
	Large Degreaser (Trike)
High Concentration VOC (as total organic carbon)	√
Specific Requirements	Normal Operating Conditions

Notes:
√ *Represents the actual parameters monitored*
X *Required by authorisation but not monitored at this visit (See Section 4)*

Monitoring Results

Table 2.1 – Monitoring Results from the (Stack 1 Industrial Spray Booth Left Internal)

Substance Monitored	Emission Limit Value	Periodic Monitoring Result	Units	Uncertainty (%) #	Reference Conditions 273K, 101.3kPa	Sampling Date	Sampling Times	Monitoring Reference Method	Accreditation Status	Operating Status
Total Particulate Matter Run 1	50*	0.7	mg/m^3	N/A	Dry, 273K, 101.3 no correction required for O_2.	10/01/2006	13:40-14:12	BS ISO 9096:2003	MCERTS	Normal
	N/A	6	g/hr							
Total Particulate Matter Run 2	50*	4.5	mg/m^3	N/A	Dry, 273K, 101.3 no correction required for O_2.	10/01/2006	14:30-15:32	BS ISO 9096:2003	MCERTS	Normal
	N/A	39	g/hr							
High Concentration VOC (as total organic carbon)	50*	51.97	mg/m^3	4.7	Dry, 273K, 101.3 no correction required for O_2.	10/01/2006	12:00-12:30	BS EN 13526:2002	MCERTS	Normal
	N/A	800	g/hr							

Notes:

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

* ***As 30 minute mean (Stated in PG 6/23(04)) "Coating of Metals and Plastics"***

Table 2.2 – Monitoring Results from the (Stack 2 Industrial Spray Right Internal)

Substance Monitored	Emission Limit Value	Periodic Monitoring Result	Units	Uncertainty (%) #	Reference Conditions 273K, 101.3kPa	Sampling Date	Sampling Times	Monitoring Reference Method	Accreditation Status	Operating Status
Total Particulate Matter Run 1	50*	0.5	mg/m^3	N/A	Dry, 273K, 101.3 no correction required for O_2.	9/01/2006	13:35-14:07	BS ISO 9096:2003	MCERTS	Normal
	N/A	7	g/hr							
Total Particulate Matter Run 2	50*	0.8	mg/m^3	N/A	Dry, 273K, 101.3 no correction required for O_2.	9/01/2006	12:00-12:30	BS ISO 9096:2003	MCERTS	Normal
	N/A	12	g/hr							
High Concentration VOC (as total organic carbon)	50*	10.86	mg/m^3	14.5	Dry, 273K, 101.3 no correction required for O_2.	10/01/2006	12:43-13:13	BS EN 13526:2002	MCERTS	Normal
	N/A	260	g/hr							

Notes:

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

* ***As 30 minute mean (Stated in PG 6/23(04)) "Coating of Metals and Plastics"***

Table 2.3 – Monitoring Results from the (Stack 1 Industrial Spray Left External)

Substance Monitored	Emission Limit Value	Periodic Monitoring Result	Units	Uncertainty (%) #	Reference Conditions 273K, 101.3kPa	Sampling Date	Sampling Times	Monitoring Reference Method	Accreditation Status	Operating Status
Total Particulate Matter Run 1	50*	4.1	mg/m^3	N/A	Dry, 273K, 101.3 no correction required for O_2.	9/01/2006	12:10-12:42	BS ISO 9096:2003	MCERTS	Normal
	N/A	3.6	g/hr							
Total Particulate Matter Run 2	50*	0.6	mg/m^3	N/A	Dry, 273K, 101.3 no correction required for O_2.	9/01/2006	13:35-14:07	BS ISO 9096:2003	MCERTS	Normal
	N/A	5	g/hr							
High Concentration VOC (as total organic carbon)	50*	82.10	mg/m^3	4.2	Dry, 273K, 101.3 no correction required for O_2.	11/01/2006	12:10-12:40	BS EN 13526:2002	MCERTS	Normal
	N/A	1230	g/hr							

Notes:

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

* ***As 30 minute mean (Stated in PG 6/23(04)) "Coating of Metals and Plastics"***

Table 2.4 – Monitoring Results from the (Stack 2 Industrial Spray Right External)

Substance Monitored	Emission Limit Value	Periodic Monitoring Result	Units	Uncertainty (%) #	Reference Conditions 273K, 101.3kPa	Sampling Date	Sampling Times	Monitoring Reference Method	Accreditation Status	Operating Status
Total Particulate Matter Run 1	50*	2.3	mg/m^3	N/A	Dry, 273K, 101.3kPa, no correction required for O_2.	10/9/2004	13:35-14:07	BS ISO 9096:2003	MCERTS	Normal
	N/A	22	g/hr							
Total Particulate Matter Run 2	50*	1.2	mg/m^3	N/A	Dry, 273K, 101.3kPa, no correction required for O_2.	10/9/2004	12:00-12:30	BS ISO 9096:2003	MCERTS	Normal
	N/A	11	g/hr							
High Concentration VOC (as total organic carbon)	50*	184.39	mg/m^3	9.1	Dry, 273K, 101.3kPa, no correction required for O_2.	11/01/2006	12:10-12:40	BS EN 13526:2002	MCERTS	Normal
	N/A	3010	g/hr							

Notes:

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

* ***As 30 minute mean (Stated in PG 6/23(04)) "Coating of Metals and Plastics"***

Table 2.5 – Monitoring Results from the (Stack 1 New Spray Booth)

Substance Monitored	Emission Limit Value	Periodic Monitoring Result	Units	Uncertainty (%) #	Reference Conditions 273K, 101.3kPa	Sampling Date	Sampling Times	Monitoring Reference Method	Accreditation Status	Operating Status
Total Particulate Matter Run 1	50*	19.1	mg/m^3	N/A	Dry, 273K, 101.3kPa, no correction required for O_2.	10/9/2004	13:35-14:07	BS ISO 9096:2003	MCERTS	Normal
	N/A	273	g/hr							
Total Particulate Matter Run 2	50*	4.7	mg/m^3	N/A	Dry, 273K, 101.3kPa, no correction required for O_2..	10/9/2004	12:00-12:30	BS ISO 9096:2003	MCERTS	Normal
	N/A	6.4	g/hr							
High Concentration VOC (as total organic carbon)	50*	12.30	mg/m^3	12.96	Dry, 273K, 101.3kPa, no correction required for O_2.	11/01/2006	11:55-12:25	BS EN 13526:2002	MCERTS	Normal
	N/A	170	g/hr							

Notes:

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

* ***As 30 minute mean (Stated in PG 6/23(04)) "Coating of Metals and Plastics"***

Table 2.6 – Monitoring Results from the (Stack 2 New Spray Booth)

Substance Monitored	Emission Limit Value	Periodic Monitoring Result	Units	Uncertainty (%) #	Reference Conditions 273K, 101.3kPa	Sampling Date	Sampling Times	Monitoring Reference Method	Accreditation Status	Operating Status
Total Particulate Matter Run 1	50*	8.1	mg/m^3	N/A	Dry, 273K, 101.3kPa, no correction required for O_2..	10/9/2004	13:35-14:07	BS ISO 9096:2003	MCERTS	Normal
	N/A	29	g/hr							
Total Particulate Matter Run 2	50*	1.4	mg/m^3	N/A	Dry, 273K, 101.3kPa, no correction required for O_2..	10/9/2004	12:00-12:30	BS ISO 9096:2003	MCERTS	Normal
	N/A	29	g/hr							
High Concentration VOC (as total organic carbon)	50*	4.20	mg/m^3	5.2	Dry, 273K, 101.3kPa, no correction required for O_2..	11/01/2006	10:22-10:52	BS EN 13526:2002	MCERTS	Normal
	N/A	80	g/hr							

Notes:

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

* ***As 30 minute mean (Stated in PG 6/23(04)) "Coating of Metals and Plastics"***

Table 2.7 – Monitoring Results from the (Stack 3 New Spray Booth)

Substance Monitored	Emission Limit Value	Periodic Monitoring Result	Units	Uncertainty (%) #	Reference Conditions 273K, 101.3kPa	Sampling Date	Sampling Times	Monitoring Reference Method	Accreditation Status	Operating Status
Total Particulate Matter Run 1	50*	0.6	mg/m^3	N/A	Dry, 273K, 101.3kPa, no correction required for O_2..	10/9/2004	13:35-14:07	BS ISO 9096:2003	MCERTS	Normal
	N/A	11	g/hr							
Total Particulate Matter Run 2	50*	0.7	mg/m^3	N/A	Dry, 273K, 101.3kPa, no correction required for O_2..	10/9/2004	12:00-12:30	BS ISO 9096:2003	MCERTS	Normal
	N/A	11	g/hr							
High Concentration VOC (as total organic carbon)	50*	16.91	mg/m^3	9.8	Dry, 273K, 101.3kPa, no correction required for O_2..	10/01/2006	11:16-11:46	BS EN 13526:2002	MCERTS	Normal
	N/A	280	g/hr							

Notes:

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

* ***As 30 minute mean (Stated in PG 6/23(04)) "Coating of Metals and Plastics"***

Table 2.9 – Monitoring Results from the (Large degreaser (Trike))

Substance Monitored	Emission Limit Value	Periodic Monitoring Result	Units	Uncertainty (%) #	Reference Conditions 273K, 101.3kPa	Sampling Date	Sampling Times	Monitoring Reference Method	Accreditation Status	Operating Status
High Concentration VOC (as total organic carbon)	50*	123.10	mg/m^3	12.95	Dry, 273K, 101.3kPa, no correction required for O_2.	9/01/2006	14:10-15:10	BS EN 13526:2002	MCERTS	Normal
	N/A	80	g/hr							

Notes:

* ***As 30 minute mean (Stated in PG 6/23(04)) "Coating of Metals and Plastics"***

Monitoring Deviations

Table 3.1 – Monitoring deviations during monitoring of the Stack 1 Industrial Spray Booth 1 , January 2006

Substance Deviations	Monitoring Deviations	Other Relevant Issues
N/A	N/A	Sampling location does not meet requirement as laid down in EA document M1.

Table 3.2 – Monitoring deviations during monitoring of the Stack 2 Industrial Spray Booth 1, January 2006

Substance Deviations	Monitoring Deviations	Other Relevant Issues
N/A	N/A	Sampling location does not meet requirement as laid down in EA document M1.

Table 3.3 – Monitoring deviations during monitoring of the Stack 1 Industrial Spray Booth 2, January 2006

Substance Deviations	Monitoring Deviations	Other Relevant Issues
N/A	N/A	N/A

Table 3.4 – Monitoring deviations during monitoring of the Stack 2 Industrial Spray Booth 2, January 2006

Substance Deviations	Monitoring Deviations	Other Relevant Issues
N/A	N/A	N/A

Table 3.5 – Monitoring deviations during monitoring of the Stack 1, New Spray Booth , January 2006

Substance Deviations	Monitoring Deviations	Other Relevant Issues
N/A	N/A	Sampling location does not meet requirement as laid down in EA document M1.

Table 3.6 – Monitoring deviations during monitoring of the Stack 2, New Spray Booth , January 2006

Substance Deviations	Monitoring Deviations	Other Relevant Issues
N/A	N/A	Sampling location does not meet requirement as laid down in EA document M1.

Table 3.7 – Monitoring deviations during monitoring of the Stack 3, New Spray Booth , January 2006

Substance Deviations	Monitoring Deviations	Other Relevant Issues
N/A	N/A	N/A

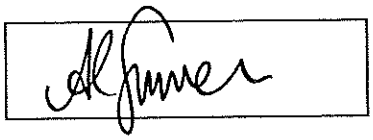
Table 3.8 – Monitoring deviations during monitoring of the Red oxide, January 2006

Substance Deviations	Monitoring Deviations	Other Relevant Issues
N/A	N/A	Sampling location does not meet requirement as laid down in EA document M1.

Table3.9 – Monitoring deviations during monitoring of the large degreaser (Trike), January 2006

Substance Deviations	Monitoring Deviations	Other Relevant Issues
N/A	N/A	N/A

Report for Periodic Monitoring of Emissions to Atmosphere	
Part 2:	**Supporting Information**
Operator:	**Covrad Heat Transfer Ltd**
Installation:	**Covrad Heat Transfer Ltd, Coventry, Warwickshire.**
Emission Point:	**Industrial, New, Redox Booth and Trike bath**
Monitoring Date(s):	**9th – 11th January 2006**

Contract Reference:	FYS3926
Operator:	Covrad Heat Transfer
Address:	Sir Henry Parks Road Canley Coventry CV5 6BN
Monitoring Organisation:	RPS Health, Safety & Environment
Address:	Unit 1, Lowfields Business Park, Old Power Way, Elland, HX5 9DE
Report Date:	February 2006
Report Approved By:	Antony Sumner
Position:	Quality Manager-Stack Emissions
MCERTS Registration Number:	MM 03 233
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.

CONTENTS

APPENDIX 1: General Information

Monitoring Organisation Method Details

Table 5

Emission Parameter	Standard Method	Monitoring Procedure No.	Analysis	Analysis Procedure No.	Analytical Laboratory	Analysis Accreditaton
Practical Considerations Prior to Monitoring	N/A	RPSCE/1/1	N/A	N/A	N/A	N/A
Gas Flows	BS-EN 13284-1:2001	RPSCE/1/2	N/A	N/A	N/A	N/A
Gas Temperatures	BS-EN 13284-1:2001	RPSCE/1/2	N/A	N/A	N/A	N/A
High Concentration TOC (as total organic carbon)	BS EN 13526:2002	RPSCE/1/4c	FID	N/A	N/A	N/A
High Concentration Total Particulate Matter	BS ISO 9096:2003	RPSCE/1/7d	Gravimetric	D9	RPS Laboratories, Manchester	UKAS

Table 6 – Checklist Used

Equipment Checklist Used	File Location Address
FYS3926	FYS3926 Electronic and Work folder

APPENDIX 2: Appendix 2 – Raw Sampling Data, Analysis Data & Uncertainty.

Company Name: Covrad Heat Transfer Ltd
Site Name: Coventry
Sampling Point Ref: Industrial booth left Ext
Job / Report Reference: FYS3926

Date:09/1/06
Run: 1

Stack Diameter (m): 0.6
Stack Area (m2): 0.282744

Stack Static press.mm H_2O: 0.2

Traverse Point No.	Port A			Port B		
	Δ p, mm H_2O	Root Δ p	Stack Temp °C	Δ p, mm H_2O	Root Δ p	Stack Temp °C
1	8.4	2.898	19.5	8	2.828	19.5
2	8	2.828	19.5	7.6	2.757	19.5
3	7.8	2.793	19.5	7.5	2.739	19.5
4	7.4	2.720	19.5	6.6	2.569	19.5
5	6.6	2.569	19.5	6.6	2.569	19.5
6	6.4	2.530	19.5	6.6	2.569	19.5
7	7.6	2.757	19.5	7.9	2.811	19.5
8	7.9	2.811	19.5	8	2.828	19.5
9	8	2.828	19.5	8.4	2.898	19.5
10	8.6	2.933	19.5	8.4	2.898	19.5
Minimum	6.4	2.530	19.5	6.6	2.569	19.5
Maximum	8.6	2.933	19.5	8.4	2.898	19.5
Mean	**7.7**	**2.767**	**19.5**	**7.6**	**2.747**	**19.5**
Sum	76.7	27.667	195	75.6	27.467	195
Total Sum				152.3	55.134	390

Max. pitot press. =	8.6
Min. pitot press. =	6.4
Ratio Max:Min =	1.3 :1

Gas Data

Oxygen %	21.0
CO_2 %	0.04
CO %	

Oxygen Correction

Required Correction Value	0
Actual Oxygen Factor	1
Enter 0 if correction is not required	

BS EN 13284-1 & M1 Sample Point Requirements	Requirement Met?
Duct gas Flow: angle with regard to duct access <15°?	Yes
Duct Gas Flow Negative Velocity: Not Permitted	No
Duct Gas Flow: Ratio of max to min velocity <3:1?	Yes
Working Area > 5m^2?	No
Handrails with removable chains / self closing gates across the top of the ladder?	No
Handrails (approx 0,5 and 1,0 m high) and vertical baseboards (approx 0,25m high)?	Yes
Able to bear 400kg load?	Yes
Handrails not restricting access to ports?	No
Room opposite sampling port equal or greater than the length of the sampling probe plus 1 metre?	No
Sufficient Power (Waterproof 110V BS4343 Standard) close or on the platform?	Yes

Company Name: Covrad Heat Transfer Lt In-stack Filter? No
Site Name: Coventry
Sampling Point Ref: Industrial booth left E Outstack Filter? Yes
Date:09/1/06
Run: 1
Job / Report Reference: FYS3926

Operators GH/SP

Cp

Bws%

Bar. Press.mm Hg 751.53

0.82

2

K Factor 3.02

Dn used 8

Nozzle No. 8

Ambient Temp. 12

Start Time 12:30

Stop Time 12:32

Leak Rate (l/m / %) <2

Leak Rate (start / %) <2

Box/Probe setting 160 +/- 5 °C

Sample Filter Weights

	Reference	Laboratory	Increase, mg
Filter	394106	RPS	1.34
Probe Washings	394599	RPS	2.48

Sample Filter Blank Weighings

	Reference	Laboratory	Increase, mg
Filter	394109	RPS	0.04
Probe Wash	394600	RPS	0.5

Impinger Weights

	Initial	Final	Increase, g
Impinger 1			0.0
Impinger 2			0.0
Impinger 3			0.0
Impinger 4			0.0
Impinger 5			0.0
Silica Gel		Total	0.0

Sample Point	Clock Time min	Pitot Δ p, m/s-1	Stack Temp, °C	Orifice m³/s-1 Desired	Orifice m³/s-1 Actual	Gas Meter Reading m³	Temp at Gas Meter Outlet °C	Condensor Temp, °C	Filter Box Temp °C	Probe Temp °C	Pump Vacuum Inches Hg	Impinger Stem Temp, °C	Root Δ p,
A	0	7.6	20	22.952	23	361808	20	N/A	N/A	N/A	-10	N/A	2.757
	4	7.6	20	22.952	23		20	N/A	N/A	N/A	-10	N/A	2.757
	8	7.6	20	22.952	23		20	N/A	N/A	N/A	-10	N/A	2.757
	12	7.6	20	22.952	23		20	N/A	N/A	N/A	-10	N/A	2.757
	16	8.4	20	25.368	25		20	N/A	N/A	N/A	-10	N/A	2.898
	20	8.4	20	25.368	25		20	N/A	N/A	N/A	-10	N/A	2.896
	24	8.4	20	25.368	25		20	N/A	N/A	N/A	-11	N/A	2.896
	28	8.4	20	25.368	25		20	N/A	N/A	N/A	-12	N/A	2.898
Endpoint	32		20			362811	20	N/A	N/A	N/A		N/A	
	32.00	8.000	20.0	24.2	24.0	1.0	20.0	N/A	N/A	N/A	-10.4	N/A	2.828

Company Name: Covrad Heat Transfer Ltd
Site Name: Coventry
Job / Report Reference: FYS3926

Date:09/1/06
Run: 1

Sampling Point Ref: Industrial booth left Ext	Run: 1
Meter Volume Sampled, acm	1.003
Sample Run Start Time	12:30
Sample Run End Time	12:32
Total Actual Sampling Time, min	32.0
Barometric Pressure, mm Hg	751.53
Stack Pressure, mm Hg	751.54
Average Stack Temp, °C	20.0
Meter Volume at STP, scm	0.926
Meter Volume at Wet STP, scm	0.926
Stack Moisture Content, %	0.0
Average Stack Velocity, m/sec	9.423
Stack Flow Rate, acms	2.664
Stack Flow Rate, scms dry,STP	2.453
Nozzle Diameter, mm	8.00
% Isokinetic Variation	**110.3**
Total Mass of Particulate, mg	3.8
Percentage of Total Particulate Collected on Filter	35.1
Stack Particulate Concentration, mg/m^3	**4.1**
Particulate Mass rate, kg/hour	0.036
Emission Limit value	**50.000**

Sample Train Blank Results	
Sample Blank Particulate Concentration, mg/m^3	0.58
Total Weight Gain, mg (Sample Train Blank)	0.54
Blank Result Less than 10% of Limit Value	Yes

Company Name: Covrad Heat Transfer Ltd
Site Name: Coventry
Sampling Point Ref: Industrial booth left Ext
Job / Report Reference: FYS3926

Date:09/1/06
Run: 2

Stack Static press.mm H_2O:	0.2	Stack Diameter (m)	0.6
		Stack Area (m2):	0.282744

Traverse Point No.	Port A			Port B		
	Δ p, mm H_2O	Root Δ p	Stack Temp °C	Δ p, mm H_2O	Root Δ p	Stack Temp °C
1	10.1	3.178	20	9.8	3.130	20
2	9.9	3.146	20	8.9	2.983	20
3	9.8	3.130	20	8.8	2.966	20
4	9.6	3.098	20	7.5	2.739	20
5	8.8	2.966	20	5.8	2.408	20
6	8.7	2.950	20	6.5	2.550	20
7	8.5	2.915	20	7.4	2.720	20
8	7.2	2.683	20	8	2.828	20
9	6.8	2.608	20	7	2.646	20
10	5.5	2.345	20	6.4	2.530	20
Minimum	5.5	2.345	20	5.8	2.408	20
Maximum	10.1	3.178	20	9.8	3.130	20
Mean	**8.5**	**2.902**	**20.0**	**7.6**	**2.750**	**20.0**
Sum	84.9	29.021	200	76.1	27.501	200
Total Sum				161	56.522	400

Max. pitot press. =	10.1
Min. pitot press. =	5.5
Ratio Max:Min =	1.8 :1

Gas Data

Oxygen %	21.0
CO_2 %	0.04
CO %	

Oxygen Correction

Required Correction Value	0
Actual Oxygen Factor	1
Enter 0 if correction is not required	

BS EN 13284-1 & M1 Sample Point Requirements	Requirement Met?
Duct gas Flow: angle with regard to duct access <15°?	Yes
Duct Gas Flow Negative Velocity: Not Permitted	No
Duct Gas Flow: Ratio of max to min velocity <3:1?	Yes
Working Area > 5m²?	No
Handrails with removable chains / self closing gates across the top of the ladder?	No
Handrails (approx 0,5 and 1,0 m high) and vertical baseboards (approx 0,25m high)?	Yes
Able to bear 400kg load?	Yes
Handrails not restricting access to ports?	No
Room opposite sampling port equal or greater than the length of the sampling probe plus 1 metre?	No
Sufficient Power (Waterproof 110V BS4343 Standard) close or on the platform?	Yes

Company Name: Covrad Heat Transfer Lt In-stack Filter? No
Site Name: Coventry
Sampling Point Ref: Industrial booth left E Outstack Filter? Yes
Date:09/11/06
Run: 2
Job / Report Reference: FYS3926

Operators GH/SP

Bar. Press.mm Hg 751.53
Cp 0.82
Bws% 2

K Factor 3.02
Dn used 8
Nozzle No. 8

Ambient Temp. 12
Start Time 13:40
Stop Time 14:12

Leak Rate (fin / %) <2
Leak Rate (start / %) <2
Box/Probe setting 160 +/- 5 °C

Sample Filter Weights

	Reference	Laboratory	Increase, mg
Filter	394099	RPS	0.04
Probe Washings	394098	RPS	0.5

Sample Filter Blank Weighings

	Reference	Laboratory	Increase, mg
Filter	394109	RPS	0.04
Probe Wash	394600	RPS	0.5

Impinger Weights

	Initial	Final	Increase, g
Impinger 1			0.0
Impinger 2			0.0
Impinger 3			0.0
Impinger 4			0.0
Impinger 5			0.0
Silica Gel		Total	0.0

Sample Point	Clock Time min	Pitot Δ p. m/s-1	Stack Temp. °C	Orifice m/s-1 Desired	Orifice m/s-1 Actual	Gas Meter Reading m^3	Temp at Gas Meter Outlet °C	Condenser Temp. °C	Filter Box Temp °C	Probe Temp °C	Pump Vacuum Inches Hg	Impinger Stem Temp. °C	Root Δ p.
						360627							
A	0	8.9	20	26.878	27		20	N/A	160	160	-10	N/A	2.983
	4	8.9	20	26.878	27		20	N/A	160	160	-10	N/A	2.983
	8	8.9	20	26.878	27		20	N/A	160	160	-10	N/A	2.983
	12	8.9	20	26.878	27		20	N/A	160	160	-10	N/A	2.983
	16	7	20	21.14	21		20	N/A	160	160	-10	N/A	2.646
	20	7	20	21.14	21		20	N/A	160	160	-10	N/A	2.646
	24	7	20	21.14	21		20	N/A	160	160	-11	N/A	2.646
	28	7	20	21.14	21		20	N/A	160	160	-12	N/A	2.646
Endpoint	32		20			361599	20	N/A	160	160		N/A	
	32.00	7.950	20.0	24.0	24.0	1.0	20.0	N/A	160.0	160.0	-10.4	N/A	2.815

Company Name: Covrad Heat Transfer Ltd
Site Name: Coventry
Job / Report Reference: FYS3926

Date:09/1/06
Run: 2

Sampling Point Ref: Industrial booth left Ext	Run: 2
Meter Volume Sampled, acm	0.972
Sample Run Start Time	13:40
Sample Run End Time	14:12
Total Actual Sampling Time, min	32.0
Barometric Pressure, mm Hg	751.53
Stack Pressure, mm Hg	751.54
Average Stack Temp, °C	20.0
Meter Volume at STP, scm	0.897
Meter Volume at Wet STP, scm	0.897
Stack Moisture Content, %	0.0
Average Stack Velocity, m/sec	9.380
Stack Flow Rate, acms	2.652
Stack Flow Rate, scms dry,STP	2.442
Nozzle Diameter, mm	8.00
% Isokinetic Variation	**107.4**
Total Mass of Particulate, mg	0.5
Percentage of Total Particulate Collected on Filter	7.4
Stack Particulate Concentration, mg/m^3	**0.6**
Particulate Mass rate, kg/hour	0.005
Emission Limit value	**50.000**

Sample Train Blank Results	
Sample Blank Particulate Concentration, mg/m^3	0.60
Total Weight Gain, mg (Sample Train Blank)	0.54
Blank Result Less than 10% of Limit Value	Yes

Company Name: Covrad Heat Transfer Date: 09/01/2006
Site Ref: Coventry Run: 1
Stack Ref: Industrial Left EXT

	VOC as C mg/m^3	VOC as C kg/hr	VOC as Toluene mg/m^3	VOC as Toluene kg/hr
Average	**82.10**	1.23	**89.92**	1.35
Max	**262.39**	3.95	**287.38**	4.32
Min	**9.84**	0.15	**10.78**	0.16
Moisture, %				

Time min	VOC, ppm	VOC as C, mg/m^3	VOC as Toluene,mg/m^3	O2 FACTOR
12:10	6	9.84	10.78	1.00
12:11	6	9.84	10.78	1.00
12:12	6	9.84	10.78	1.00
12:13	6	9.84	10.78	1.00
12:14	6	9.84	10.78	1.00
12:15	6	9.84	10.78	1.00
12:16	7	11.48	12.57	1.00
12:17	6	9.84	10.78	1.00
12:18	6	9.84	10.78	1.00
12:19	6	9.84	10.78	1.00
12:20	90	147.59	161.65	1.00
12:21	120	196.79	215.54	1.00
12:22	100	163.99	179.61	1.00
12:23	150	245.99	269.42	1.00
12:24	120	196.79	215.54	1.00
12:25	160	262.39	287.38	1.00
12:26	130	213.19	233.50	1.00
12:27	120	196.79	215.54	1.00
12:28	160	262.39	287.38	1.00
12:29	130	213.19	233.50	1.00
12:30	120	196.79	215.54	1.00
12:31	100	163.99	179.61	1.00
12:32	60	98.40	107.77	1.00
12:33	40	65.60	71.85	1.00
12:34	30	49.20	53.88	1.00
12:35	10	16.40	17.96	1.00
12:36	6	9.84	10.78	1.00
12:37	6	9.84	10.78	1.00
12:38	10	16.40	17.96	1.00
12:39	10	16.40	17.96	1.00
12:40	10	16.40	17.96	1.00

Company Name: Covrad Heat Transfer Ltd
Site Name: Coventry
Sampling Point Ref: Industrial booth Left INT
Job / Report Reference: FYS3926

Date:09/1/06
Run: 1

Stack Static press.mm H_2O:	0.2	Stack Diameter (m)	0.6
		Stack Area (m2):	0.282744

Traverse Point No.	Port A			Port B		
	Δ p, mm H_2O	Root Δ p	Stack Temp °C	Δ p, mm H_2O	Root Δ p	Stack Temp °C
1	10.1	3.178	20	9.8	3.130	20
2	9.9	3.146	20	8.9	2.983	20
3	9.8	3.130	20	8.8	2.966	20
4	9.6	3.098	20	7.5	2.739	20
5	8.8	2.966	20	5.8	2.408	20
6	8.7	2.950	20	6.5	2.550	20
7	8.5	2.915	20	7.4	2.720	20
8	7.2	2.683	20	8	2.828	20
9	6.8	2.608	20	7	2.646	20
10	5.5	2.345	20	6.4	2.530	20
Minimum	5.5	2.345	20	5.8	2.408	20
Maximum	10.1	3.178	20	9.8	3.130	20
Mean	**8.5**	**2.902**	**20.0**	**7.6**	**2.750**	**20.0**
Sum	84.9	29.021	200	76.1	27.501	200
Total Sum				161	56.522	400

Max. pitot press. =	10.1
Min. pitot press. =	5.5
Ratio Max:Min =	1.8 :1

Gas Data

Oxygen %	21.0
CO_2 %	0.04
CO %	

Oxygen Correction

Required Correction Value	0
Actual Oxygen Factor	1
Enter 0 if correction is not required	

BS EN 13284-1 & M1 Sample Point Requirements	Requirement Met?
Duct gas Flow: angle with regard to duct access <15°?	Yes
Duct Gas Flow Negative Velocity: Not Permitted	No
Duct Gas Flow: Ratio of max to min velocity <3:1?	Yes
Working Area > 5m²?	No
Handrails with removable chains / self closing gates across the top of the ladder?	No
Handrails (approx 0,5 and 1,0 m high) and vertical baseboards (approx 0,25m high)?	Yes
Able to bear 400kg load?	Yes
Handrails not restricting access to ports?	No
Room opposite sampling port equal or greater than the length of the sampling probe plus 1 metre?	No
Sufficient Power (Waterproof 110V BS4343 Standard) close or on the platform?	Yes

Company Name: Covrad Heat Transfer Lt In-stack Filter? No | Bar. Press.mm Hg 751.53 | K Factor 3.02 | Ambient Temp. 12 | Leak Rate (lin / %) <2

Site Name: Coventry

Sampling Point Ref: Industrial booth Left I Outstack Filter? Yes | Cp 0.82 | Dn used 8 | Start Time 13:40 | Leak Rate (start / %) <2

Date:09/1/06

Run: 1 | Operators GH/SP | Bws% 2 | Nozzle No. 8 | Stop Time 14:12 | Box/Probe setting 160 +/- 5 °C

Job / Report Reference: FYS3826

Sample Filter Weights

	Reference	Laboratory	Increase, mg
Filter	394099	RPS	0.12
Probe Washings	394098	RPS	0.5

Sample Filter Blank Weighings

	Reference	Laboratory	Increase, mg
Filter	394109	RPS	0.04
Probe Wash	394600	RPS	0.5

Impinger Weights

	Initial	Final	Increase, g
Impinger 1			0.0
Impinger 2			0.0
Impinger 3			0.0
Impinger 4			0.0
Impinger 5			0.0
Silica Gel		Total	0.0

Sample Point	Clock Time min	Pitot Δ p. m/s-1	Stack Temp. °C	Orifice m/s-1 Desired	Orifice m/s-1 Actual	Gas Meter Reading m^3	Temp at Gas Meter Outlet °C	Condenser Temp. °C	Filter Box Temp °C	Probe Temp °C	Pump Vacuum Inches Hg	Impinger Stem Temp. °C	Root Δ p.
A	0	9.9	20	29.898	29.9	359655	20	N/A	160	160	-10	N/A	3.146
	4	9.9	20	29.898	29.9		20	N/A	160	160	-10	N/A	3.146
	8	9.9	20	29.898	29.9		20	N/A	160	160	-10	N/A	3.146
	12	9.9	20	29.898	29.9		20	N/A	160	160	-10	N/A	3.146
	16	6.8	20	20.536	20.5		20	N/A	160	160	-10	N/A	2.608
	20	6.8	20	20.536	20.5		20	N/A	160	180	-10	N/A	2.608
	24	6.8	20	20.536	20.5		20	N/A	160	160	-11	N/A	2.608
	28	6.8	20	20.536	20.5		20	N/A	160	160	-12	N/A	2.608
Endpoint	32		20			360623	20	N/A	160	160		N/A	
	32.00	8.350	20.0	25.2	25.2	1.0	20.0	N/A	160.0	160.0	-10.4	N/A	2.877

Company Name: Covrad Heat Transfer Ltd
Site Name: Coventry
Job / Report Reference: FYS3926

Date:09/1/06
Run: 1

Sampling Point Ref: Industrial booth Left INT	Run: 1
Meter Volume Sampled, acm	0.968
Sample Run Start Time	13:40
Sample Run End Time	14:12
Total Actual Sampling Time, min	32.0
Barometric Pressure, mm Hg	751.53
Stack Pressure, mm Hg	751.54
Average Stack Temp, °C	20.0
Meter Volume at STP, scm	0.894
Meter Volume at Wet STP, scm	0.894
Stack Moisture Content, %	0.0
Average Stack Velocity, m/sec	9.588
Stack Flow Rate, acms	2.711
Stack Flow Rate, scms dry,STP	2.496
Nozzle Diameter, mm	8.00
% Isokinetic Variation	**104.6**
Total Mass of Particulate, mg	0.6
Percentage of Total Particulate Collected on Filter	19.4
Stack Particulate Concentration, mg/m^3	**0.7**
Particulate Mass rate, kg/hour	0.006
Emission Limit value	**50.000**

Sample Train Blank Results	
Sample Blank Particulate Concentration, mg/m^3	0.60
Total Weight Gain, mg (Sample Train Blank)	0.54
Blank Result Less than 10% of Limit Value	Yes

Company Name: Covrad Heat Transfer Ltd
Site Name: Coventry
Sampling Point Ref: Industrial booth Left INT
Job / Report Reference: FYS3926

Date:09/1/06
Run: 2

Stack Static press.mm H_2O:	0.2	Stack Diameter (m)	0.6
		Stack Area (m2):	0.282744

Traverse Point No.	Port A			Port B		
	Δ p, mm H_2O	Root Δ p	Stack Temp °C	Δ p, mm H_2O	Root Δ p	Stack Temp °C
1	8.4	2.898	19.5	8	2.828	19.5
2	8	2.828	19.5	7.6	2.757	19.5
3	7.8	2.793	19.5	7.5	2.739	19.5
4	7.4	2.720	19.5	6.6	2.569	19.5
5	6.6	2.569	19.5	6.6	2.569	19.5
6	6.4	2.530	19.5	6.6	2.569	19.5
7	7.6	2.757	19.5	7.9	2.811	19.5
8	7.9	2.811	19.5	8	2.828	19.5
9	8	2.828	19.5	8.4	2.898	19.5
10	8.6	2.933	19.5	8.4	2.898	19.5
Minimum	6.4	2.530	19.5	6.6	2.569	19.5
Maximum	8.6	2.933	19.5	8.4	2.898	19.5
Mean	**7.7**	**2.767**	**19.5**	**7.6**	**2.747**	**19.5**
Sum	76.7	27.667	195	75.6	27.467	195
Total Sum				152.3	55.134	390

Max. pitot press. =	8.6
Min. pitot press. =	6.4
Ratio Max:Min =	1.3 :1

Gas Data

Oxygen %	21.0
CO_2 %	0.04
CO %	

Oxygen Correction

Required Correction Value	0
Actual Oxygen Factor	1
Enter 0 if correction is not required	

BS EN 13284-1 & M1 Sample Point Requirements	Requirement Met?
Duct gas Flow: angle with regard to duct access <15°?	Yes
Duct Gas Flow Negative Velocity: Not Permitted	No
Duct Gas Flow: Ratio of max to min velocity <3:1?	Yes
Working Area > 5m²?	No
Handrails with removable chains / self closing gates across the top of the ladder?	No
Handrails (approx 0,5 and 1,0 m high) and vertical baseboards (approx 0,25m high)?	Yes
Able to bear 400kg load?	Yes
Handrails not restricting access to ports?	No
Room opposite sampling port equal or greater than the length of the sampling probe plus 1 metre?	No
Sufficient Power (Waterproof 110V BS4343 Standard) close or on the platform?	Yes

Company Name: Covrad Heat Transfer Lt In-stack Filter? No Bar. Press.mm Hg 751.53 K Factor 3.02 Ambient Temp. 12 Leak Rate (fin / %) <2

Site Name: Coventry

Sampling Point Ref: Industrial booth Left I Outstack Filter? Yes Cp 0.82 Dn used 8 Start Time 12:30 Leak Rate (start / %) <2

Date:09/1/06 Operators GH/SP Bws% 2 Nozzle No. 8 Stop Time 12:32 Box/Probe setting 160 +/- 5 °C

Run: 2

Job / Report Reference: FYS3926

Sample Filter Weights

Filter	Reference	Laboratory	Increase, mg
Probe Washings	394105	RPS	1.07
	394599	RPS	2.48

Sample Filter Blank Weighings

Filter	Reference	Laboratory	Increase, mg
Probe Wash	394109	RPS	0.04
	394600	RPS	0.5

Impinger Weights

	Intial	Final	Increase, g
Impinger 1			0.0
Impinger 2			0.0
Impinger 3			0.0
Impinger 4			0.0
Impinger 5			0.0
Silica Gel			0.0
Total			0.0

Sample Point	Clock Time	Pitot Δ p.	Stack Temp.	Orifice m³s-1		Gas Meter Reading	Temp at Gas Meter Outlet	Condenser Temp.	Filter Box Temp	Probe Temp	Pump Vacuum	Impinger Stem Temp.	Root Δ p.
	min	m/s-1	°C	Desired	Actual	m^3	°C	°C	°C	°C	Inches Hg	°C	
A	0	8	20	24.16	24.1	361000	20	N/A	N/A	N/A	-10	N/A	2.828
	4	8	20	24.16	24.1		20	N/A	N/A	N/A	-10	N/A	2.828
	8	8	20	24.16	24.1		20	N/A	N/A	N/A	-10	N/A	2.828
	12	8	20	24.16	24.1		20	N/A	N/A	N/A	-10	N/A	2.828
	16	8	20	24.16	24.1		20	N/A	N/A	N/A	-10	N/A	2.828
	20	8	20	24.16	24.1		20	N/A	N/A	N/A	-10	N/A	2.828
	24	8	20	24.16	24.1		20	N/A	N/A	N/A	-11	N/A	2.828
	28	8	20	24.16	24.1		20	N/A	N/A	N/A	-12	N/A	2.828
Endpoint	32		20			361864	20	N/A	N/A	N/A		N/A	
	32.00	8.000	20.0	24.2	24.1	0.9	20.0	N/A	N/A	N/A	-10.4	N/A	2.828

Company Name: Covrad Heat Transfer Ltd
Site Name: Coventry — Date:09/1/06
Job / Report Reference: FYS3926 — Run: 2

Sampling Point Ref: Industrial booth Left INT	Run: 2
Meter Volume Sampled, acm	0.864
Sample Run Start Time	12:30
Sample Run End Time	12:32
Total Actual Sampling Time, min	32.0
Barometric Pressure, mm Hg	751.53
Stack Pressure, mm Hg	751.54
Average Stack Temp, °C	20.0
Meter Volume at STP, scm	0.797
Meter Volume at Wet STP, scm	0.797
Stack Moisture Content, %	0.0
Average Stack Velocity, m/sec	9.426
Stack Flow Rate, acms	2.665
Stack Flow Rate, scms dry,STP	2.454
Nozzle Diameter, mm	8.00
% Isokinetic Variation	**95.0**
Total Mass of Particulate, mg	3.6
Percentage of Total Particulate Collected on Filter	30.1
Stack Particulate Concentration, mg/m^3	**4.5**
Particulate Mass rate, kg/hour	0.039
Emission Limit value	**50.000**

Sample Train Blank Results	
Sample Blank Particulate Concentration, mg/m^3	0.68
Total Weight Gain, mg (Sample Train Blank)	0.54
Blank Result Less than 10% of Limit Value	Yes

Company Name: Covrad Heat Transfer Date: 09/01/2006
Site Ref: Coventry Run: 1
Stack Ref: Industrial Left INT

	VOC as C mg/m^3	VOC as C kg/hr	VOC as Toluene mg/m^3	VOC as Toluene kg/hr
Average	**51.97**	0.80	**56.91**	0.87
Max	**196.79**	3.01	**215.54**	3.30
Min	**8.20**	0.13	**8.98**	0.14
Moisture, %				

Time min	VOC, ppm	VOC as C, mg/m^3	VOC as Toluene,mg/m^3	O2 FACTOR
14;06	6	9.84	10.78	1.00
14:07	90	147.59	161.65	1.00
14:08	100	163.99	179.61	1.00
14:09	120	196.79	215.54	1.00
14:10	30	49.20	53.88	1.00
14:11	25	41.00	44.90	1.00
14:12	30	49.20	53.88	1.00
14:13	20	32.80	35.92	1.00
14:14	20	32.80	35.92	1.00
14:15	10	16.40	17.96	1.00
14:16	10	16.40	17.96	1.00
14:17	15	24.60	26.94	1.00
14:18	10	16.40	17.96	1.00
14:19	10	16.40	17.96	1.00
14:20	5	8.20	8.98	1.00
14:21	6	9.84	10.78	1.00
14:22	6	9.84	10.78	1.00
14:23	90	147.59	161.65	1.00
14:24	80	131.20	143.69	1.00
14:25	120	196.79	215.54	1.00
14:26	130	213.19	233.50	1.00
14:27	90	147.59	161.65	1.00
14:28	60	98.40	107.77	1.00
14:29	30	49.20	53.88	1.00
14:30	20	32.80	35.92	1.00
14:31	30	49.20	53.88	1.00
14:32	5	8.20	8.98	1.00
14:33	6	9.84	10.78	1.00
14:34	6	9.84	10.78	1.00
14:35	6	9.84	10.78	1.00
14:36	6	9.84	10.78	1.00

Company Name: Covrad Heat Transfer Ltd
Site Name: Coventry
Sampling Point Ref: Industrial booth Right EXT
Job / Report Reference: FYS3926

Date:10/1/06
Run: 1

Stack Static press.mm H_2O:	0.2	Stack Diameter (m)	0.6
		Stack Area (m2):	0.282744

Traverse Point No.	Port A			Port B		
	Δ p, mm H_2O	Root Δ p	Stack Temp °C	Δ p, mm H_2O	Root Δ p	Stack Temp °C
1	11.4	3.376	19.5	11.5	3.391	19.5
2	11.2	3.347	19.5	11.31	3.363	19.5
3	10.9	3.302	19.5	11.1	3.332	19.5
4	10.5	3.240	19.5	10.8	3.286	19.5
5	9.6	3.098	19.5	10.2	3.194	19.5
6	9.4	3.066	19.5	9.9	3.146	19.5
7	8.8	2.966	19.5	9.6	3.098	19.5
8	8.2	2.864	19.5	9.2	3.033	19.5
9	7.8	2.793	19.5	8.8	2.966	19.5
10	7.8	2.793	19.5	8.6	2.933	19.5
Minimum	7.8	2.793	19.5	8.6	2.933	19.5
Maximum	11.4	3.376	19.5	11.5	3.391	19.5
Mean	**9.6**	**3.084**	**19.5**	**10.1**	**3.174**	**19.5**
Sum	95.6	30.845	195	101.01	31.743	195
Total Sum				196.61	62.588	390

Max. pitot press. =	11.5
Min. pitot press. =	7.8
Ratio Max:Min =	1.5 :1

Gas Data

Oxygen %	21.0
CO_2 %	0.04
CO %	

Oxygen Correction

Required Correction Value	0
Actual Oxygen Factor	1
Enter 0 if correction is not required	

BS EN 13284-1 & M1 Sample Point Requirements	Requirement Met?
Duct gas Flow: angle with regard to duct access <15°?	Yes
Duct Gas Flow Negative Velocity: Not Permitted	No
Duct Gas Flow: Ratio of max to min velocity <3:1?	Yes
Working Area > 5m²?	No
Handrails with removable chains / self closing gates across the top of the ladder?	No
Handrails (approx 0,5 and 1,0 m high) and vertical baseboards (approx 0,25m high)?	Yes
Able to bear 400kg load?	Yes
Handrails not restricting access to ports?	No
Room opposite sampling port equal or greater than the length of the sampling probe plus 1 metre?	No
Sufficient Power (Waterproof 110V BS4343 Standard) close or on the platform?	Yes

Company Name: Covrad Heat Transfer Ltd In-stack Filter? No Bar. Press.mm Hg 751.53 K Factor 1.69 Ambient Temp. 13 Leak Rate (l/in / %) <2

Site Name: Coventry

Sampling Point Ref: Industrial booth Right Outstack Filter? Yes Cp 0.82 Dn used 6 Start Time 14:15 Leak Rate (start / %) <2

Date:10/1/06

Run: 1 Operators GH/SP Bwa% 2 Nozzle No. 6 Stop Time 14:47 Box/Probe setting 160 +/- 5 °C

Job / Report Reference: FYS3925

Sample Filter Weights

Filter	Reference	Laboratory	Increase, mg
Probe Washings	394101	RPS	0.83
	394599	RPS	0.5

Sample Filter Blank Weighings

Filter	Reference	Laboratory	Increase, mg
Probe Wash	394108	RPS	0.04
	394600	RPS	0.5

Impinger Weights

	Initial	Final	Increase, g
Impinger 1			0.0
Impinger 2			0.0
Impinger 3			0.0
Impinger 4			0.0
Impinger 5			0.0
Silica Gel		Total	0.0

Sample Point	Clock Time min	Pitot Δ p, m/s-1	Stack Temp, °C	Orifice m/s-1 Desired	Orifice m/s-1 Actual	Gas Meter Reading m^3	Temp at Gas Meter Outlet °C	Condenser Temp, °C	Filter Box Temp °C	Probe Temp °C	Pump Vacuum Inches Hg	Impinger Stem Temp, °C	Root Δ P,
A	0	11.2	20	18.928	18.9	362510	20	N/A	N/A	N/A	-10	N/A	3.347
	4	11.2	20	18.928	18.9		20	N/A	N/A	N/A	-10	N/A	3.347
	8	11.2	20	18.928	18.9		20	N/A	N/A	N/A	-10	N/A	3.347
	12	11.2	20	18.928	18.9		20	N/A	N/A	N/A	-10	N/A	3.347
	16	7.8	20	13.182	13.1		20	N/A	N/A	N/A	-10	N/A	2.793
	20	7.8	20	13.182	13.1		20	N/A	N/A	N/A	-10	N/A	2.793
	24	7.8	20	13.182	13.1		20	N/A	N/A	N/A	-11	N/A	2.793
	28	7.8	20	13.182	13.1	363035	20	N/A	N/A	N/A	-12	N/A	2.783
	Endpoint					0.5							
	32		20				20	N/A	N/A	N/A	-10.4	N/A	
	32.00	9.500	20.0	16.1	16.0		20.0	N/A	N/A	N/A		N/A	3.070

Company Name: Covrad Heat Transfer Ltd
Site Name: Coventry
Job / Report Reference: FYS3926

Date:10/1/06
Run: 1

Sampling Point Ref: Industrial booth Right EXT	Run: 1
Meter Volume Sampled, acm	0.528
Sample Run Start Time	14:15
Sample Run End Time	14:47
Total Actual Sampling Time, min	32.0
Barometric Pressure, mm Hg	751.53
Stack Pressure, mm Hg	751.54
Average Stack Temp, °C	20.0
Meter Volume at STP, scm	0.487
Meter Volume at Wet STP, scm	0.487
Stack Moisture Content, %	0.0
Average Stack Velocity, m/sec	10.231
Stack Flow Rate, acms	2.893
Stack Flow Rate, scms dry,STP	2.664
Nozzle Diameter, mm	6.00
% Isokinetic Variation	**95.0**
Total Mass of Particulate, mg	1.1
Percentage of Total Particulate Collected on Filter	55.8
Stack Particulate Concentration, mg/m^3	**2.3**
Particulate Mass rate, kg/hour	0.022
Emission Limit value	**50.000**

Sample Train Blank Results	
Sample Blank Particulate Concentration, mg/m^3	1.11
Total Weight Gain, mg (Sample Train Blank)	0.54
Blank Result Less than 10% of Limit Value	Yes

Company Name: Covrad Heat Transfer Ltd
Site Name: Coventry
Sampling Point Ref: Industrial booth Right EXT
Job / Report Reference: FYS3926

Date:10/1/06
Run: 2

Stack Static press.mm H_2O:	0.2	Stack Diameter (m)	0.6
		Stack Area (m2):	0.282744

Traverse Point No.	Port A			Port B		
	Δ p, mm H_2O	Root Δ p	Stack Temp °C	Δ p, mm H_2O	Root Δ p	Stack Temp °C
1	11.4	3.376	19.5	11.5	3.391	19.5
2	11.2	3.347	19.5	11.31	3.363	19.5
3	10.9	3.302	19.5	11.1	3.332	19.5
4	10.5	3.240	19.5	10.8	3.286	19.5
5	9.6	3.098	19.5	10.2	3.194	19.5
6	9.4	3.066	19.5	9.9	3.146	19.5
7	8.8	2.966	19.5	9.6	3.098	19.5
8	8.2	2.864	19.5	9.2	3.033	19.5
9	7.8	2.793	19.5	8.8	2.966	19.5
10	7.8	2.793	19.5	8.6	2.933	19.5
Minimum	7.8	2.793	19.5	8.6	2.933	19.5
Maximum	11.4	3.376	19.5	11.5	3.391	19.5
Mean	**9.6**	**3.084**	**19.5**	**10.1**	**3.174**	**19.5**
Sum	95.6	30.845	195	101.01	31.743	195
Total Sum				196.61	62.588	390

Max. pitot press. =	11.5
Min. pitot press. =	7.8
Ratio Max:Min =	1.5 :1

Gas Data

Oxygen %	21.0
CO_2 %	0.04
CO %	

Oxygen Correction

Required Correction Value	0
Actual Oxygen Factor	1
Enter 0 if correction is not required	

BS EN 13284-1 & M1 Sample Point Requirements	Requirement Met?
Duct gas Flow: angle with regard to duct access <15°?	Yes
Duct Gas Flow Negative Velocity: Not Permitted	No
Duct Gas Flow: Ratio of max to min velocity <3:1?	Yes
Working Area > 5m²?	No
Handrails with removable chains / self closing gates across the top of the ladder?	No
Handrails (approx 0,5 and 1,0 m high) and vertical baseboards (approx 0,25m high)?	Yes
Able to bear 400kg load?	Yes
Handrails not restricting access to ports?	No
Room opposite sampling port equal or greater than the length of the sampling probe plus 1 metre?	No
Sufficient Power (Waterproof 110V BS4343 Standard) close or on the platform?	Yes

Company Name: Covrad Heat Transfer Lt In-stack Filter? No Bar. Press.mm Hg 751.53
Site Name: Coventry
Sampling Point Ref: Industrial booth Right Outstack Filter? Yes Cp 0.82
Date:10/1/06
Run: 2
Job / Report Reference: FVS3926 Operators GH/SP Bws% 2

K Factor 1.69
Dn used 6
Nozzle No. 6

Ambient Temp. 13
Start Time 14:15
Stop Time 14:47

Leak Rate (fin / %) <2
Leak Rate (start / %) <2
Box/Probe setting 160 +/- 5 °C

Sample Filter Weights

Filter	Reference	Laboratory	Increase, mg
Probe Washings	394102	RPS	0.09
	394599	RPS	0.5

Sample Filter Blank Weighings

Filter	Reference	Laboratory	Increase, mg
Probe Wash	394108	RPS	0.04
	394600	RPS	0.5

Impinger Weights

	Initial	Final	Increase, g
Impinger 1			0.0
Impinger 2			0.0
Impinger 3			0.0
Impinger 4			0.0
Impinger 5			0.0
Silica Gel		Total	0.0

Sample Point	Clock Time min	Pitot Δ p, m/s-1	Stack Temp, °C	Orifice m/s-1 Desired	Orifice m/s-1 Actual	Gas Meter Reading m^3	Temp at Gas Meter Outlet °C	Condenser Temp, °C	Filter Box Temp °C	Probe Temp °C	Pump Vacuum Inches Hg	Impinger Stem Temp. °C	Root Δ p,
A	0	11.2	20	18.928	18.9	363036	20	N/A	N/A	N/A	-10	N/A	3.347
	4	11.2	20	18.928	18.9		20	N/A	N/A	N/A	-10	N/A	3.347
	8	11.2	20	18.928	18.9		20	N/A	N/A	N/A	-10	N/A	3.347
	12	11.2	20	18.928	18.9		20	N/A	N/A	N/A	-10	N/A	3.347
	16	7.8	20	13.182	13.1		20	N/A	N/A	N/A	-10	N/A	3.347
	20	7.8	20	13.182	13.1		20	N/A	N/A	N/A	-10	N/A	2.793
	24	7.8	20	13.182	13.1		20	N/A	N/A	N/A	-11	N/A	2.793
	28	7.8	20	13.182	13.1		20	N/A	N/A	N/A	-12	N/A	2.793
Endpoint.	32		20			363572	20	N/A	N/A	N/A		N/A	
	32.00	9.500	20.0	16.1	16.0	0.5	20.0	N/A	N/A	N/A	-10.4	N/A	3.070

Company Name: Covrad Heat Transfer Ltd
Site Name: Coventry
Job / Report Reference: FYS3926

Date:10/1/06
Run: 2

Sampling Point Ref: Industrial booth Right EXT	Run: 2
Meter Volume Sampled, acm	0.536
Sample Run Start Time	14:15
Sample Run End Time	14:47
Total Actual Sampling Time, min	32.0
Barometric Pressure, mm Hg	751.53
Stack Pressure, mm Hg	751.54
Average Stack Temp, °C	20.0
Meter Volume at STP, scm	0.494
Meter Volume at Wet STP, scm	0.494
Stack Moisture Content, %	0.0
Average Stack Velocity, m/sec	10.231
Stack Flow Rate, acms	2.893
Stack Flow Rate, scms dry,STP	2.664
Nozzle Diameter, mm	6.00
% Isokinetic Variation	**96.5**
Total Mass of Particulate, mg	0.6
Percentage of Total Particulate Collected on Filter	15.3
Stack Particulate Concentration, mg/m^3	**1.2**
Particulate Mass rate, kg/hour	0.011
Emission Limit value	**50.000**

Sample Train Blank Results	
Sample Blank Particulate Concentration, mg/m^3	1.09
Total Weight Gain, mg (Sample Train Blank)	0.54
Blank Result Less than 10% of Limit Value	Yes

Company Name: Covrad Heat Transfer Date: 10/01/2006
Site Ref: Coventry Run: 1
Stack Ref: Industrial right EXT

	VOC as C mg/m^3	VOC as C kg/hr	VOC as Toluene mg/m^3	VOC as Toluene kg/hr
Average	**184.39**	3.01	**201.95**	3.30
Max	**409.99**	6.69	**449.03**	7.33
Min	**9.84**	0.16	**10.78**	0.18
Moisture, %				

Time min	VOC, ppm	VOC as C, mg/m^3	VOC as Toluene,mg/m^3	O2 FACTOR
14:38	6	9.84	10.78	1.00
14:39	6	9.84	10.78	1.00
14:40	7	11.48	12.57	1.00
14:41	60	98.40	107.77	1.00
14:42	100	163.99	179.61	1.00
14:43	150	245.99	269.42	1.00
14:44	250	409.99	449.03	1.00
14:45	250	409.99	449.03	1.00
14:46	250	409.99	449.03	1.00
14:47	200	327.99	359.23	1.00
14:48	100	163.99	179.61	1.00
14:49	100	163.99	179.61	1.00
14:50	80	131.20	143.69	1.00
14:51	100	163.99	179.61	1.00
14:52	60	98.40	107.77	1.00
14:53	80	131.20	143.69	1.00
14:54	20	32.80	35.92	1.00
14:55	10	16.40	17.96	1.00
14:56	10	16.40	17.96	1.00
14:57	10	16.40	17.96	1.00
14:58	10	16.40	17.96	1.00
14:59	10	16.40	17.96	1.00
15:00	10	16.40	17.96	1.00
15:01	8	13.12	14.37	1.00
15:02	8	13.12	14.37	1.00
15:03	8	13.12	14.37	1.00
15:04	8	13.12	14.37	1.00
15:05	8	13.12	14.37	1.00
15:06	8	13.12	14.37	1.00
15:07	8	13.12	14.37	1.00
15:08	8	13.12	14.37	1.00

Company Name: Covrad Heat Transfer Ltd
Site Name: Coventry
Sampling Point Ref: Industrial booth right INT
Job / Report Reference: FYS3926

Date:09/1/06
Run: 1

Stack Static press.mm H_2O:	0.2	Stack Diameter (m)	0.6
		Stack Area (m2):	0.282744

Traverse Point No.	Port A			Port B		
	Δ p, mm H_2O	Root Δ p	Stack Temp °C	Δ p, mm H_2O	Root Δ p	Stack Temp °C
1	9.1	3.017	20	7.1	2.665	20
2	8.8	2.966	20	9.8	3.130	20
3	7.2	2.683	20	9.1	3.017	20
4	5	2.236	20	8.5	2.915	20
5	3.7	1.924	20	8.2	2.864	20
6	4.6	2.145	20	7.1	2.665	20
7	3.4	1.844	20	6.5	2.550	20
8	5.2	2.280	20	6.6	2.569	20
9	5.3	2.302	20	7.8	2.793	20
10	8.6	2.933	20	8.4	2.898	20
Minimum	3.4	1.844	20	6.5	2.550	20
Maximum	9.1	3.017	20	9.8	3.130	20
Mean	**6.1**	**2.433**	**20.0**	**7.9**	**2.807**	**20.0**
Sum	60.9	24.330	200	79.1	28.065	200
Total Sum				140	52.395	400

Max. pitot press. =	9.8
Min. pitot press. =	3.4
Ratio Max:Min =	2.9 :1

Gas Data

Oxygen %	21.0
CO_2 %	0.04
CO %	

Oxygen Correction

Required Correction Value	0
Actual Oxygen Factor	1
Enter 0 if correction is not required	

BS EN 13284-1 & M1 Sample Point Requirements	Requirement Met?
Duct gas Flow: angle with regard to duct access <15°?	Yes
Duct Gas Flow Negative Velocity: Not Permitted	No
Duct Gas Flow: Ratio of max to min velocity <3:1?	Yes
Working Area > 5m²?	No
Handrails with removable chains / self closing gates across the top of the ladder?	No
Handrails (approx 0,5 and 1,0 m high) and vertical baseboards (approx 0,25m high)?	Yes
Able to bear 400kg load?	Yes
Handrails not restricting access to ports?	No
Room opposite sampling port equal or greater than the length of the sampling probe plus 1 metre?	No
Sufficient Power (Waterproof 110V BS4343 Standard) close or on the platform?	Yes

Company Name: Covrad Heat Transfer Lt In-stack Filter? No | Bar. Press.mm Hg 751.53 | K Factor 3.02 | Ambient Temp. 12 | Leak Rate (fin / %) <2

Site Name: Coventry
Sampling Point Ref: Industrial booth right Outstack Filter? Yes | Cp 0.82 | Dn used 8 | Start Time 13:35 | Leak Rate (start / %) <2

Date:09/1/06
Run: 1 Operators GH/SP | Bws% 2 | Nozzle No. 8 | Stop Time 14:07 | Box/Probe setting 180 +/- 5 °C

Job / Report Reference: FYS3926

Sample Filter Weights

Filter	Reference	Laboratory	Increase, mg
Probe Washings	394103	RPS	0.15
	394599	RPS	0.5

Sample Filter Blank Weightings

Filter	Reference	Laboratory	Increase, mg
Probe Wash	394108	RPS	0.04
	394600	RPS	0.5

Impinger Weights

Weights	Initial	Final	Increase, g
Impinger 1			0.0
Impinger 2			0.0
Impinger 3			0.0
Impinger 4			0.0
Impinger 5			0.0
Silica Gel		Total	0.0

Sample Point	Clock Time min	Pitot Δ p. m/s-1	Stack Temp. °C	Orifice m/s-1 Desired	Orifice m/s-1 Actual	Gas Meter Reading m^3	Temp at Gas Meter Outlet °C	Condenser Temp. °C	Filter Box Temp °C	Probe Temp °C	Pump Vacuum Inches Hg	Impinger Stem Temp. °C	Root Δ p.
A	0	26.5	20	80.03	80	356822	20	N/A	N/A	N/A	-10	N/A	5.148
	4	26.5	20	80.03	80		20	N/A	N/A	N/A	-10	N/A	5.148
	8	26.5	20	80.03	80		20	N/A	N/A	N/A	-10	N/A	5.148
	12	26.5	20	80.03	80		20	N/A	N/A	N/A	-10	N/A	5.148
	16	16	20	48.32	48		20	N/A	N/A	N/A	-10	N/A	4.000
	20	16	20	48.32	48		20	N/A	N/A	N/A	-10	N/A	4.000
	24	16	20	48.32	48		20	N/A	N/A	N/A	-11	N/A	4.000
	28	16	20	48.32	48		20	N/A	N/A	N/A	-12	N/A	4.000
Endpoint:	32		20			358255	20	N/A	N/A	N/A	-10.4	N/A	4.574
	32.00	21.250	20.0	64.2	64.0	1.4	20.0	N/A	N/A	N/A	-10.4	N/A	4.574

Company Name: Covrad Heat Transfer Ltd
Site Name: Coventry
Job / Report Reference: FYS3926

Date:09/1/06
Run: 1

Sampling Point Ref: Industrial booth right INT	Run: 1
Meter Volume Sampled, acm	1.433
Sample Run Start Time	13:35
Sample Run End Time	14:07
Total Actual Sampling Time, min	32.0
Barometric Pressure, mm Hg	751.53
Stack Pressure, mm Hg	751.54
Average Stack Temp, °C	20.0
Meter Volume at STP, scm	1.328
Meter Volume at Wet STP, scm	1.328
Stack Moisture Content, %	0.0
Average Stack Velocity, m/sec	15.243
Stack Flow Rate, acms	4.310
Stack Flow Rate, scms dry,STP	3.969
Nozzle Diameter, mm	8.00
% Isokinetic Variation	**97.8**
Total Mass of Particulate, mg	0.7
Percentage of Total Particulate Collected on Filter	23.1
Stack Particulate Concentration, mg/m^3	**0.5**
Particulate Mass rate, kg/hour	0.007
Emission Limit value	**50.000**

Sample Train Blank Results	
Sample Blank Particulate Concentration, mg/m^3	0.41
Total Weight Gain, mg (Sample Train Blank)	0.54
Blank Result Less than 10% of Limit Value	Yes

Company Name: Covrad Heat Transfer Ltd
Site Name: Coventry
Sampling Point Ref: Industrial booth right INT
Job / Report Reference: FYS3926

Date:09/1/06
Run: 2

Stack Static press.mm H_2O:	0.2	Stack Diameter (m)	0.6
		Stack Area (m2):	0.282744

Traverse Point No.	Port A			Port B		
	Δ p, mm H_2O	Root Δ p	Stack Temp °C	Δ p, mm H_2O	Root Δ p	Stack Temp °C
1	9.1	3.017	20	7.1	2.665	20
2	8.8	2.966	20	9.8	3.130	20
3	7.2	2.683	20	9.1	3.017	20
4	5	2.236	20	8.5	2.915	20
5	3.7	1.924	20	8.2	2.864	20
6	4.6	2.145	20	7.1	2.665	20
7	3.4	1.844	20	6.5	2.550	20
8	5.2	2.280	20	6.6	2.569	20
9	5.3	2.302	20	7.8	2.793	20
10	8.6	2.933	20	8.4	2.898	20
Minimum	3.4	1.844	20	6.5	2.550	20
Maximum	9.1	3.017	20	9.8	3.130	20
Mean	**6.1**	**2.433**	**20.0**	**7.9**	**2.807**	**20.0**
Sum	60.9	24.330	200	79.1	28.065	200
Total Sum				140	52.395	400

Max. pitot press. =	9.8
Min. pitot press. =	3.4
Ratio Max:Min =	2.9 :1

Gas Data

Oxygen %	21.0
CO_2 %	0.04
CO %	

Oxygen Correction

Required Correction Value	0
Actual Oxygen Factor	1
Enter 0 if correction is not required	

BS EN 13284-1 & M1 Sample Point Requirements	Requirement Met?
Duct gas Flow: angle with regard to duct access <15°?	Yes
Duct Gas Flow Negative Velocity: Not Permitted	No
Duct Gas Flow: Ratio of max to min velocity <3:1?	Yes
Working Area > 5m²?	No
Handrails with removable chains / self closing gates across the top of the ladder?	No
Handrails (approx 0,5 and 1,0 m high) and vertical baseboards (approx 0,25m high)?	Yes
Able to bear 400kg load?	Yes
Handrails not restricting access to ports?	No
Room opposite sampling port equal or greater than the length of the sampling probe plus 1 metre?	No
Sufficient Power (Waterproof 110V BS4343 Standard) close or on the platform?	Yes

Company Name: Covrad Heat Transfer Lt In-stack Filter? No Bar. Press.mm Hg 751.53 K Factor 3.02 Ambient Temp. 12 Leak Rate (fin / %) <2
Site Name: Coventry
Sampling Point Ref: Industrial booth right Outstack Filter? Yes Cp 0.82 Dn used 8 Start Time 13:35 Leak Rate (start / %) <2
Date:09/1/06
Run: 2 Operators GH/SP Bws% 2 Nozzle No. 8 Stop Time 14:07 Box/Probe setting 160 +/- 5 °C
Job / Report Reference: FYS3926

Sample Filter Weights

	Reference	Laboratory	Increase, mg
Filter	394104	RPS	0.6
Probe Washings	394599	RPS	0.5

Sample Filter Blank Weighings

	Reference	Laboratory	Increase, mg
Filter	394108	RPS	0.04
Probe Wash	394600	RPS	0.5

Impinger Weights

	Initial	Final	Increase, g
Impinger 1			0.0
Impinger 2			0.0
Impinger 3			0.0
Impinger 4			0.0
Impinger 5			0.0
Silica Gel		Total	0.0

Sample Point	Clock Time min	Pitot Δ p. m/s-1	Stack Temp. °C	Orifice m/s-1 Desired	Orifice m/s-1 Actual	Gas Meter Reading m^3	Temp at Gas Meter Outlet °C	Condenser Temp. °C	Filter Box Temp °C	Probe Temp °C	Pump Vacuum Inches Hg	Impinger Stem Temp. °C	Root Δ p.
						358255							
A	0	25.5	20	80.03	80		20	N/A	N/A	N/A	-10	N/A	5.148
	4	26.5	20	80.03	80		20	N/A	N/A	N/A	-10	N/A	5.148
	8	26.5	20	80.03	80		20	N/A	N/A	N/A	-10	N/A	5.148
	12	26.5	20	80.03	80		20	N/A	N/A	N/A	-10	N/A	5.148
	16	16	20	48.32	48		20	N/A	N/A	N/A	-10	N/A	4.000
	20	16	20	48.32	48		20	N/A	N/A	N/A	-10	N/A	4.000
	24	16	20	48.32	48		20	N/A	N/A	N/A	-11	N/A	4.000
	28	16	20	48.32	48		20	N/A	N/A	N/A	-12	N/A	4.000
Endpoint	32		20			359655	20	N/A	N/A	N/A		N/A	
	32.00	21.250	20.0	64.2	64.0	1.4	20.0	N/A	N/A	N/A	-10.4	N/A	4.574

Company Name: Covrad Heat Transfer Ltd
Site Name: Coventry
Job / Report Reference: FYS3926

Date:09/1/06
Run: 2

Sampling Point Ref: Industrial booth right INT	Run: 2
Meter Volume Sampled, acm	1.400
Sample Run Start Time	13:35
Sample Run End Time	14:07
Total Actual Sampling Time, min	32.0
Barometric Pressure, mm Hg	751.53
Stack Pressure, mm Hg	751.54
Average Stack Temp, °C	20.0
Meter Volume at STP, scm	1.297
Meter Volume at Wet STP, scm	1.297
Stack Moisture Content, %	0.0
Average Stack Velocity, m/sec	15.243
Stack Flow Rate, acms	4.310
Stack Flow Rate, scms dry,STP	3.969
Nozzle Diameter, mm	8.00
% Isokinetic Variation	**95.6**
Total Mass of Particulate, mg	1.1
Percentage of Total Particulate Collected on Filter	54.5
Stack Particulate Concentration, mg/m^3	**0.8**
Particulate Mass rate, kg/hour	0.012
Emission Limit value	**50.000**

Sample Train Blank Results	
Sample Blank Particulate Concentration, mg/m^3	0.42
Total Weight Gain, mg (Sample Train Blank)	0.54
Blank Result Less than 10% of Limit Value	Yes

Company Name: Covrad Heat Transfer Date: 10/01/2006
Site Ref: Coventry Run: 1
Stack Ref: Industrial right INT

	VOC as C mg/m^3	VOC as C kg/hr	VOC as Toluene mg/m^3	VOC as Toluene kg/hr
Average	**10.86**	0.26	**11.90**	0.29
Max	**16.40**	0.40	**17.96**	0.44
Min	**8.20**	0.20	**8.98**	0.22
Moisture, %				

Time min	VOC, ppm	VOC as C, mg/m^3	VOC as Toluene,mg/m^3	O2 FACTOR
12:43	5	8.20	8.98	1.00
12:44	5	8.20	8.98	1.00
12:45	6	9.84	10.78	1.00
12:46	6	9.84	10.78	1.00
12:47	7	11.48	12.57	1.00
12:48	7	11.48	12.57	1.00
12:49	8	13.12	14.37	1.00
12:50	7	11.48	12.57	1.00
12:51	7	11.48	12.57	1.00
12:52	6	9.84	10.78	1.00
12:53	6	9.84	10.78	1.00
12:54	6	9.84	10.78	1.00
12:55	5	8.20	8.98	1.00
12:56	9	14.76	16.17	1.00
12:57	10	16.40	17.96	1.00
12:58	6	9.84	10.78	1.00
12:59	5	8.20	8.98	1.00
13:00	5	8.20	8.98	1.00
13:01	5	8.20	8.98	1.00
13:02	6	9.84	10.78	1.00
13:03	6	9.84	10.78	1.00
13:04	6	9.84	10.78	1.00
13:05	6	9.84	10.78	1.00
13:06	7	11.48	12.57	1.00
13:07	7	11.48	12.57	1.00
13:08	6	9.84	10.78	1.00
13:09	6	9.84	10.78	1.00
13:10	6	9.84	10.78	1.00
13:11	6	9.84	10.78	1.00
13:12	6	9.84	10.78	1.00
13:13	6	9.84	10.78	1.00

Company Name: Covrad Heat Transfer Ltd
Site Name: Coventry
Sampling Point Ref: Industrial booth Left INT
Job / Report Reference: FYS3926

Date:09/1/06
Run: 1

Stack Static press.mm H_2O:	0.2	Stack Diameter (m)	0.6
		Stack Area (m2):	0.282744

Traverse Point No.	Port A			Port B		
	Δ p, mm H_2O	Root Δ p	Stack Temp °C	Δ p, mm H_2O	Root Δ p	Stack Temp °C
1	10.1	3.178	20	9.8	3.130	20
2	9.9	3.146	20	8.9	2.983	20
3	9.8	3.130	20	8.8	2.966	20
4	9.6	3.098	20	7.5	2.739	20
5	8.8	2.966	20	5.8	2.408	20
6	8.7	2.950	20	6.5	2.550	20
7	8.5	2.915	20	7.4	2.720	20
8	7.2	2.683	20	8	2.828	20
9	6.8	2.608	20	7	2.646	20
10	5.5	2.345	20	6.4	2.530	20
Minimum	5.5	2.345	20	5.8	2.408	20
Maximum	10.1	3.178	20	9.8	3.130	20
Mean	**8.5**	**2.902**	**20.0**	**7.6**	**2.750**	**20.0**
Sum	84.9	29.021	200	76.1	27.501	200
Total Sum				161	56.522	400

Max. pitot press. =	10.1
Min. pitot press. =	5.5
Ratio Max:Min =	1.8 :1

Gas Data

Oxygen %	21.0
CO_2 %	0.04
CO %	

Oxygen Correction

Required Correction Value	0
Actual Oxygen Factor	1
Enter 0 if correction is not required	

BS EN 13284-1 & M1 Sample Point Requirements	Requirement Met?
Duct gas Flow: angle with regard to duct access <15°?	Yes
Duct Gas Flow Negative Velocity: Not Permitted	No
Duct Gas Flow: Ratio of max to min velocity <3:1?	Yes
Working Area > 5m²?	No
Handrails with removable chains / self closing gates across the top of the ladder?	No
Handrails (approx 0,5 and 1,0 m high) and vertical baseboards (approx 0,25m high)?	Yes
Able to bear 400kg load?	Yes
Handrails not restricting access to ports?	No
Room opposite sampling port equal or greater than the length of the sampling probe plus 1 metre?	No
Sufficient Power (Waterproof 110V BS4343 Standard) close or on the platform?	Yes

Company Name: Covrad Heat Transfer Lt In-stack Filter? No | Bar. Press.mm Hg 751.53 | K Factor 3.02 | Ambient Temp. 12 | Leak Rate (l/n / %) <2

Site Name: Coventry
Sampling Point Ref: Industrial booth Left | Outstack Filter? Yes | Cp 0.82 | Dn used 8 | Start Time 13:40 | Leak Rate (start / %) <2

Date:09/1/06
Run: 1 | Operators GH/SP | Bws% 2 | Nozzle No. 8 | Stop Time 14:12 | Box/Probe setting 160 +/- 5 °C

Job / Report Reference: FYS3926

Sample Filter Weights

	Reference	Laboratory	Increase, mg
Filter	394099	RPS	0.12
Probe Washings	394098	RPS	0.5

Sample Filter Blank Weighings

	Reference	Laboratory	Increase, mg
Filter	394109	RPS	0.04
Probe Wash	394600	RPS	0.5

Impinger Weights

	Initial	Final	Increase, g
Impinger 1			0.0
Impinger 2			0.0
Impinger 3			0.0
Impinger 4			0.0
Impinger 5			0.0
Silica Gel		Total	0.0

Sample Point	Clock Time min	Pitot Δ p. m/s-1	Stack Temp. °C	Orifice m³/s-1 Desired	Orifice m³/s-1 Actual	Gas Meter Reading m^3	Temp at Gas Meter Outlet °C	Condenser Temp. °C	Filter Box Temp °C	Probe Temp °C	Pump Vacuum Inches Hg	Impinger Stem Temp. °C	Root Δ p.
						359655							
A	0	9.8	20	29.898	29.9		20	N/A	160	160	-10	N/A	3.146
	4	9.9	20	29.898	29.9		20	N/A	160	160	-10	N/A	3.146
	8	9.9	20	29.898	29.9		20	N/A	160	160	-10	N/A	3.146
	12	9.9	20	29.898	29.9		20	N/A	160	160	-10	N/A	3.146
	16	6.8	20	20.536	20.5		20	N/A	160	160	-10	N/A	2.608
	20	6.8	20	20.536	20.5		20	N/A	160	160	-10	N/A	2.608
	24	6.8	20	20.536	20.5		20	N/A	160	160	-11	N/A	2.608
	28	6.8	20	20.536	20.5		20	N/A	160	160	-12	N/A	2.608
						360623							
Endpoint	32		20			1.0	20	N/A	160	160		N/A	
	32.00	8.350	20.0	25.2	25.2		20.0	N/A	160.0	160.0	-10.4	N/A	2.877

Company Name: Covrad Heat Transfer Ltd
Site Name: Coventry
Job / Report Reference: FYS3926

Date:09/1/06
Run: 1

Sampling Point Ref: Industrial booth Left INT	Run: 1
Meter Volume Sampled, acm	0.968
Sample Run Start Time	13:40
Sample Run End Time	14:12
Total Actual Sampling Time, min	32.0
Barometric Pressure, mm Hg	751.53
Stack Pressure, mm Hg	751.54
Average Stack Temp, °C	20.0
Meter Volume at STP, scm	0.894
Meter Volume at Wet STP, scm	0.894
Stack Moisture Content, %	0.0
Average Stack Velocity, m/sec	9.588
Stack Flow Rate, acms	2.711
Stack Flow Rate, scms dry,STP	2.496
Nozzle Diameter, mm	8.00
% Isokinetic Variation	**104.6**
Total Mass of Particulate, mg	0.6
Percentage of Total Particulate Collected on Filter	19.4
Stack Particulate Concentration, mg/m^3	**0.7**
Particulate Mass rate, kg/hour	0.006
Emission Limit value	**50.000**

Sample Train Blank Results	
Sample Blank Particulate Concentration, mg/m^3	0.60
Total Weight Gain, mg (Sample Train Blank)	0.54
Blank Result Less than 10% of Limit Value	Yes

Company Name: Covrad Heat Transfer Ltd
Site Name: Coventry
Sampling Point Ref: New booth 1
Job / Report Reference: FYS3926

Date:10/1/06
Run: 2

Stack Static press.mm H_2O:	0.2	Stack Diameter (m)	0.79
		Stack Area (m2):	0.49016814

Traverse Point No.	Port A			Port B		
	Δ p, mm H_2O	Root Δ p	Stack Temp °C	Δ p, mm H_2O	Root Δ p	Stack Temp °C
1	9.1	3.017	20	7.1	2.665	20
2	8.8	2.966	20	9.8	3.130	20
3	7.2	2.683	20	9.1	3.017	20
4	5	2.236	20	8.5	2.915	20
5	3.7	1.924	20	8.2	2.864	20
6	4.6	2.145	20	7.1	2.665	20
7	3.4	1.844	20	6.5	2.550	20
8	5.2	2.280	20	6.6	2.569	20
9	5.3	2.302	20	7.8	2.793	20
10	8.6	2.933	20	8.4	2.898	20
Minimum	3.4	1.844	20	6.5	2.550	20
Maximum	9.1	3.017	20	9.8	3.130	20
Mean	**6.1**	**2.433**	**20.0**	**7.9**	**2.807**	**20.0**
Sum	60.9	24.330	200	79.1	28.065	200
Total Sum				140	52.395	400

Max. pitot press. =	9.8
Min. pitot press. =	3.4
Ratio Max:Min =	2.9 :1

Gas Data

Oxygen %	21.0
CO_2 %	0.04
CO %	

Oxygen Correction

Required Correction Value	0
Actual Oxygen Factor	1
Enter 0 if correction is not required	

BS EN 13284-1 & M1 Sample Point Requirements	Requirement Met?
Duct gas Flow: angle with regard to duct access <15°?	Yes
Duct Gas Flow Negative Velocity: Not Permitted	No
Duct Gas Flow: Ratio of max to min velocity <3:1?	Yes
Working Area > 5m²?	No
Handrails with removable chains / self closing gates across the top of the ladder?	No
Handrails (approx 0,5 and 1,0 m high) and vertical baseboards (approx 0,25m high)?	Yes
Able to bear 400kg load?	Yes
Handrails not restricting access to ports?	No
Room opposite sampling port equal or greater than the length of the sampling probe plus 1 metre?	No
Sufficient Power (Waterproof 110V BS4343 Standard) close or on the platform?	Yes

Company Name: Covrad Heat Transfer Lt In-stack Filter? No Bar. Press.mm Hg 751.53 K Factor 8.31 Ambient Temp. 12 Leak Rate (in / %) <2

Site Name: Coventry

Sampling Point Ref: New booth 1 Outstack Filter? Yes Cp 0.82 Dn used 8 Start Time 14:02 Leak Rate (start / %) <2

Date:10/1/06 Operators GHISP Bws% 2 Nozzle No. 8 Stop Time 14:34 Box/Probe setting 160 +/- 5 °C

Run: 2

Job / Report Reference: FYS3926

Sample Filter Weights

	Reference	Laboratory	Increase, mg
Filter	394087	RPS	0.1
Probe Washings	394569	RPS	3.23

Sample Filter Blank Weighings

	Reference	Laboratory	Increase, mg
Filter	394597	RPS	0.1
Probe Wash	394600	RPS	0.5

Impinger Weights

	Initial	Final	Increase, g
Impinger 1			0.0
Impinger 2			0.0
Impinger 3			0.0
Impinger 4			0.0
Impinger 5			0.0
Silica Gel		Total	0.0

Sample Point	Clock Time min	Pitot Δ p, m/s-1	Stack Temp. °C	Orifice m/s-1 Desired	Orifice m/s-1 Actual	Gas Meter Reading m^3	Temp at Gas Meter Outlet °C	Condenser Temp. °C	Filter Box Temp °C	Probe Temp °C	Pump Vacuum Inches Hg	Impinger Stem Temp. °C	Root Δ p.
1	0	7	19	58.17	58	420884	19	N/A	160	160	-11	N/A	2.646
	4	7	19	58.17	58		19	N/A	160	160	-11	N/A	2.646
2	8	7.8	19	64.818	65		21	N/A	160	160	-9	N/A	2.793
	12	7.8	19	64.818	65		21	N/A	160	160	-9	N/A	2.793
3	16	7.8	19	64.818	65		21	N/A	160	160	-9	N/A	2.793
	20	7.8	19	64.818	65		21	N/A	160	160	-9	N/A	2.793
4	24	9	19	74.79	75		22	N/A	160	160	-9	N/A	3.000
	28	9	19	74.79			22	N/A	160	160	-10	N/A	3.000
Endpoint.	32		18			421649	22	N/A	160	160		N/A	0.000
	32.00	7.900	18.9	65.6	65.8	0.8	20.9	N/A	160.0	160.0	-9.6	N/A	2.496

Company Name: Covrad Heat Transfer Ltd
Site Name: Coventry
Job / Report Reference: FYS3926

Date:10/1/06
Run: 2

Sampling Point Ref: New booth 1	Run: 2
Meter Volume Sampled, acm	0.765
Sample Run Start Time	14:02
Sample Run End Time	14:34
Total Actual Sampling Time, min	32.0
Barometric Pressure, mm Hg	751.53
Stack Pressure, mm Hg	751.54
Average Stack Temp, °C	18.9
Meter Volume at STP, scm	0.707
Meter Volume at Wet STP, scm	0.707
Stack Moisture Content, %	0.0
Average Stack Velocity, m/sec	8.302
Stack Flow Rate, acms	4.069
Stack Flow Rate, scms dry,STP	3.762
Nozzle Diameter, mm	8.00
% Isokinetic Variation	**95.2**
Total Mass of Particulate, mg	3.3
Percentage of Total Particulate Collected on Filter	3.0
Stack Particulate Concentration, mg/m^3	**4.7**
Particulate Mass rate, kg/hour	0.064
Emission Limit value	**50.000**

Sample Train Blank Results	
Sample Blank Particulate Concentration, mg/m^3	0.85
Total Weight Gain, mg (Sample Train Blank)	0.6
Blank Result Less than 10% of Limit Value	Yes

Company Name: Covrad Heat Transfer Date: 10/01/2006
Site Ref: Coventry Run: 1
Stack Ref: New Booth 1

	VOC as C mg/m^3	VOC as C kg/hr	VOC as Toluene mg/m^3	VOC as Toluene kg/hr
Average	**12.30**	0.17	**13.47**	0.19
Max	**22.96**	0.32	**25.15**	0.35
Min	**0.00**	0.00	**0.00**	0.00
Moisture, %				

Time min	VOC, ppm	VOC as C, mg/m^3	VOC as Toluene,mg/m^3	O2 FACTOR
11:55	12	19.68	21.55	1.00
11:56	14	22.96	25.15	1.00
11:57	10	16.40	17.96	1.00
11:58	8	13.12	14.37	1.00
11:59	6	9.84	10.78	1.00
12:00	6	9.84	10.78	1.00
12:01	8	13.12	14.37	1.00
12:02	10	16.40	17.96	1.00
12:03	6	9.84	10.78	1.00
12:04	6	9.84	10.78	1.00
12:05	6	9.84	10.78	1.00
12:06	4	6.56	7.18	1.00
12:07	4	6.56	7.18	1.00
12:08	0	0.00	0.00	1.00
12:09	8	13.12	14.37	1.00
12:10	12	19.68	21.55	1.00
12:11	22	36.08	39.51	1.00
12:12	26	42.64	46.70	1.00
12:13	20	32.80	35.92	1.00
12:14	14	22.96	25.15	1.00
12:15	8	13.12	14.37	1.00
12:16	4	6.56	7.18	1.00
12:17	12	19.68	21.55	1.00
12:18	10	16.40	17.96	1.00
12:19	8	13.12	14.37	1.00
12:20	4	6.56	7.18	1.00
12:21	4	6.56	7.18	1.00
12:22	4	6.56	7.18	1.00
12:23	4	6.56	7.18	1.00
12:24	8	13.12	14.37	1.00
12:25	2	3.28	3.59	1.00

Company Name: Covrad Heat Transfer Ltd
Site Name: Coventry
Sampling Point Ref: New booth 2
Job / Report Reference: FYS3926

Date:09/1/06
Run: 1

Stack Static press.mm H_2O:	0.2	Stack Diameter (m)	0.79
		Stack Area (m2):	0.49016814

Traverse Point No.	Port A			Port B		
	Δ p, mm H_2O	Root Δ p	Stack Temp °C	Δ p, mm H_2O	Root Δ p	Stack Temp °C
1	9.1	3.017	20	7.1	2.665	20
2	8.8	2.966	20	9.8	3.130	20
3	7.2	2.683	20	9.1	3.017	20
4	5	2.236	20	8.5	2.915	20
5	3.7	1.924	20	8.2	2.864	20
6	4.6	2.145	20	7.1	2.665	20
7	3.4	1.844	20	6.5	2.550	20
8	5.2	2.280	20	6.6	2.569	20
9	5.3	2.302	20	7.8	2.793	20
10	8.6	2.933	20	8.4	2.898	20
Minimum	3.4	1.844	20	6.5	2.550	20
Maximum	9.1	3.017	20	9.8	3.130	20
Mean	**6.1**	**2.433**	**20.0**	**7.9**	**2.807**	**20.0**
Sum	60.9	24.330	200	79.1	28.065	200
Total Sum				140	52.395	400

Max. pitot press. =	9.8
Min. pitot press. =	3.4
Ratio Max:Min =	2.9 :1

Gas Data

Oxygen %	21.0
CO_2 %	0.04
CO %	

Oxygen Correction

Required Correction Value	0
Actual Oxygen Factor	1
Enter 0 if correction is not required	

BS EN 13284-1 & M1 Sample Point Requirements	Requirement Met?
Duct gas Flow: angle with regard to duct access <15°?	Yes
Duct Gas Flow Negative Velocity: Not Permitted	No
Duct Gas Flow: Ratio of max to min velocity <3:1?	Yes
Working Area > 5m²?	No
Handrails with removable chains / self closing gates across the top of the ladder?	No
Handrails (approx 0,5 and 1,0 m high) and vertical baseboards (approx 0,25m high)?	Yes
Able to bear 400kg load?	Yes
Handrails not restricting access to ports?	No
Room opposite sampling port equal or greater than the length of the sampling probe plus 1 metre?	No
Sufficient Power (Waterproof 110V BS4343 Standard) close or on the platform?	Yes

Company Name: Covrad Heat Transfer Lt In-stack Filter? No Bar. Press.mm Hg 751.53 K Factor 5.38 Ambient Temp. 12 Leak Rate (fin / %) <2

Site Name: Coventry

Sampling Point Ref: New booth 2 Outstack Filter? Yes Cp 0.82 Dn used 7 Start Time 09:38 Leak Rate (start / %) <2

Date:09/1/06

Run: 1 Operators GH/SP Bws% 2 Nozzle No. 7 Stop Time 02:38 Box/Probe setting 160 +/- 5 °C

Job / Report Reference: FVS3926

Sample Filter Weights

	Reference	Laboratory	Increase, mg
Filter	394089	RPS	0.1
Probe Washings	394599	RPS	1.13

Sample Filter Blank Weighings

	Reference	Laboratory	Increase, mg
Filter	394108	RPS	0.04
Probe Wash	394600	RPS	0.5

Impinger Weights

	Initial	Final	Increase, g
Impinger 1			0.0
Impinger 2			0.0
Impinger 3			0.0
Impinger 4			0.0
Impinger 5			0.0
Silica Gel			0.0
Total			0.0

Sample Point	Clock Time	Pitot Δ p.	Stack Temp.	Orifice m/s-1		Gas Meter Reading	Temp at Gas Meter Outlet	Condenser Temp.	Filter Box Temp	Probe Temp	Pump Vacuum	Impingor Stem Temp.	Root Δ p.
	min	m/s-1	°C	Desired	Actual	m^3	°C	°C	°C	°C	Inches Hg	°C	
1	0	20	18	107.6	107	416731	19	N/A	160	160	-11	N/A	4.472
	4	17	18	91.46	92		19	N/A	160	160	-11	N/A	4.123
2	8	17	18	91.46	92		19	N/A	160	160	-9	N/A	4.123
	12	13.8	17	74.244	74		19	N/A	160	160	-9	N/A	3.715
3	16	13.8	17	74.244	74		19	N/A	160	160	-9	N/A	3.715
	20	13.2	17	71.016	71		19	N/A	160	160	-9	N/A	3.633
4	24	13.2	17	71.016	71		19	N/A	160	160	-9	N/A	3.633
	28	8.3	17	44.654	45		19	N/A	160	160	-10	N/A	2.881
Endpoint	32	8.3	17		45	417630	20	N/A	160	160	-9.6	N/A	2.881
	32.00	13.844	17.3	78.2	78.3	0.9	19.1	N/A	160.0	160.0	-9.6	N/A	3.686

Company Name: Covrad Heat Transfer Ltd
Site Name: Coventry — Date:09/1/06
Job / Report Reference: FYS3926 — Run: 1

Sampling Point Ref: New booth 2	Run: 1
Meter Volume Sampled, acm	0.899
Sample Run Start Time	9:38
Sample Run End Time	2:38
Total Actual Sampling Time, min	32.0
Barometric Pressure, mm Hg	751.53
Stack Pressure, mm Hg	751.54
Average Stack Temp, °C	17.3
Meter Volume at STP, scm	0.837
Meter Volume at Wet STP, scm	0.837
Stack Moisture Content, %	0.0
Average Stack Velocity, m/sec	12.229
Stack Flow Rate, acms	5.994
Stack Flow Rate, scms dry,STP	5.570
Nozzle Diameter, mm	7.00
% Isokinetic Variation	**99.4**
Total Mass of Particulate, mg	1.2
Percentage of Total Particulate Collected on Filter	8.1
Stack Particulate Concentration, mg/m^3	**1.5**
Particulate Mass rate, kg/hour	0.029
Emission Limit value	**50.000**

Sample Train Blank Results	
Sample Blank Particulate Concentration, mg/m^3	0.65
Total Weight Gain, mg (Sample Train Blank)	0.54
Blank Result Less than 10% of Limit Value	Yes

Company Name: Covrad Heat Transfer Ltd
Site Name: Coventry
Sampling Point Ref: New booth 2
Job / Report Reference: FYS3926

Date:09/1/06
Run: 2

Stack Static press.mm H_2O:	0.2	Stack Diameter (m)	0.79
		Stack Area (m2):	0.49016814

Traverse Point No.	Port A			Port B		
	Δ p, mm H_2O	Root Δ p	Stack Temp °C	Δ p, mm H_2O	Root Δ p	Stack Temp °C
1	9.1	3.017	20	7.1	2.665	20
2	8.8	2.966	20	9.8	3.130	20
3	7.2	2.683	20	9.1	3.017	20
4	5	2.236	20	8.5	2.915	20
5	3.7	1.924	20	8.2	2.864	20
6	4.6	2.145	20	7.1	2.665	20
7	3.4	1.844	20	6.5	2.550	20
8	5.2	2.280	20	6.6	2.569	20
9	5.3	2.302	20	7.8	2.793	20
10	8.6	2.933	20	8.4	2.898	20
Minimum	3.4	1.844	20	6.5	2.550	20
Maximum	9.1	3.017	20	9.8	3.130	20
Mean	**6.1**	**2.433**	**20.0**	**7.9**	**2.807**	**20.0**
Sum	60.9	24.330	200	79.1	28.065	200
Total Sum				140	52.395	400

Max. pitot press. =	9.8
Min. pitot press. =	3.4
Ratio Max:Min =	2.9 :1

Gas Data

Oxygen %	21.0
CO_2 %	0.04
CO %	

Oxygen Correction

Required Correction Value	0
Actual Oxygen Factor	1
Enter 0 if correction is not required	

BS EN 13284-1 & M1 Sample Point Requirements	Requirement Met?
Duct gas Flow: angle with regard to duct access <15°?	Yes
Duct Gas Flow Negative Velocity: Not Permitted	No
Duct Gas Flow: Ratio of max to min velocity <3:1?	Yes
Working Area > 5m²?	No
Handrails with removable chains / self closing gates across the top of the ladder?	No
Handrails (approx 0,5 and 1,0 m high) and vertical baseboards (approx 0,25m high)?	Yes
Able to bear 400kg load?	Yes
Handrails not restricting access to ports?	No
Room opposite sampling port equal or greater than the length of the sampling probe plus 1 metre?	No
Sufficient Power (Waterproof 110V BS4343 Standard) close or on the platform?	Yes

Company Name: Covrad Heat Transfer Lt In-stack Filter? No Bar. Press.mm Hg 751.53 K Factor 5.38 Ambient Temp. 12 Leak Rate (fin / %) <2

Site Name: Coventry

Sampling Point Ref: New booth 2 Outstack Filter? Yes Cp 0.82 Dn used 7 Start Time 10:40 Leak Rate (start / %) <2

Date:09/1/06 Operators GH/SP Bws% 2 Nozzle No. 7 Stop Time 11:12 Box/Probe setting 160 +/- 5 °C

Run: 2

Job / Report Reference: FYS3926

Sample Filter Weights

	Reference	Laboratory	Increase, mg
Filter	394090	RPS	0.1
Probe Washings	394599	RPS	1.13

Sample Filter Blank Weighings

	Reference	Laboratory	Increase, mg
Filter	394108	RPS	0.04
Probe Wash	394600	RPS	0.5

Impinger Weights

	Initial	Final	Increase, g
Impinger 1			0.0
Impinger 2			0.0
Impinger 3			0.0
Impinger 4			0.0
Impinger 5			0.0
Silica Gel		Total:	0.0

Sample Point	Clock Time min	Pitot Δ P, m/s^-1	Stack Temp, °C	Orifice m/s-1 Desired	Orifice m/s-1 Actual	Gas Meter Reading m³	Temp at Gas Meter Outlet °C	Condenser Temp, °C	Filter Box Temp °C	Probe Temp °C	Pump Vacuum Inches Hg	Impingor Stem Temp, °C	Root Δ P,
1	0	9.8	18	52.724	52	417930	19	N/A	160	160	-11	N/A	3.130
	4	9.8	18	52.724	52		19	N/A	160	160	-11	N/A	3.130
2	8	19.2	18	103.296	103		19	N/A	160	160	-9	N/A	4.382
	12	19.2	17	103.296	103		19	N/A	160	160	-9	N/A	4.382
3	16	16.3	17	87.694	88		19	N/A	160	160	-9	N/A	4.037
	20	16.2	17	87.156	88		19	N/A	160	160	-9	N/A	4.025
4	24	20	17	107.6	108		19	N/A	160	160	-9	N/A	4.472
	28	20	17	107.6	108		19	N/A	160	160	-10	N/A	4.472
Endpoint:	32	8.3	17			418600	20	N/A	160	160		N/A	2.881
	32.00	15.422	17.3	87.8	87.8	1.0	19.1	N/A	160.0	160.0	-9.6	N/A	3.879

Company Name: Covrad Heat Transfer Ltd
Site Name: Coventry
Job / Report Reference: FYS3926

Date:09/1/06
Run: 2

Sampling Point Ref: New booth 2	Run: 2
Meter Volume Sampled, acm	0.970
Sample Run Start Time	10:40
Sample Run End Time	11:12
Total Actual Sampling Time, min	32.0
Barometric Pressure, mm Hg	751.53
Stack Pressure, mm Hg	751.54
Average Stack Temp, °C	17.3
Meter Volume at STP, scm	0.904
Meter Volume at Wet STP, scm	0.904
Stack Moisture Content, %	0.0
Average Stack Velocity, m/sec	12.869
Stack Flow Rate, acms	6.308
Stack Flow Rate, scms dry,STP	5.862
Nozzle Diameter, mm	7.00
% Isokinetic Variation	**102.0**
Total Mass of Particulate, mg	1.2
Percentage of Total Particulate Collected on Filter	8.1
Stack Particulate Concentration, mg/m^3	**1.4**
Particulate Mass rate, kg/hour	0.029
Emission Limit value	**50.000**

Sample Train Blank Results	
Sample Blank Particulate Concentration, mg/m^3	0.60
Total Weight Gain, mg (Sample Train Blank)	0.54
Blank Result Less than 10% of Limit Value	Yes

Company Name: Covrad Heat Transfer Date: 10/01/2006
Site Ref: Coventry Run: 1
Stack Ref: New Booth 2

	VOC as C mg/m^3	VOC as C kg/hr	VOC as Toluene mg/m^3	VOC as Toluene kg/hr
Average	**4.20**	0.08	**4.60**	0.09
Max	**14.76**	0.29	**16.17**	0.31
Min	**0.00**	0.00	**0.00**	0.00
Moisture, %				

Time min	VOC, ppm	VOC as C, mg/m^3	VOC as Toluene,mg/m^3	O2 FACTOR
10:22	0	0.00	0.00	1.00
10:23	0	0.00	0.00	1.00
10:24	4	6.56	7.18	1.00
10:25	9	14.76	16.17	1.00
10:26	7	11.48	12.57	1.00
10:27	7	11.48	12.57	1.00
10:28	8	13.12	14.37	1.00
10:29	2	3.28	3.59	1.00
10:30	0	0.00	0.00	1.00
10:31	0	0.00	0.00	1.00
10:32	0	0.00	0.00	1.00
10:33	0	0.00	0.00	1.00
10:34	1	1.64	1.80	1.00
10:35	0	0.00	0.00	1.00
10:36	0	0.00	0.00	1.00
10:37	3	4.92	5.39	1.00
10:38	5	8.20	8.98	1.00
10:39	6	9.84	10.78	1.00
10:40	5	8.20	8.98	1.00
10:41	2	3.28	3.59	1.00
10:42	0	0.00	0.00	1.00
10:43	0	0.00	0.00	1.00
10:44	0	0.00	0.00	1.00
10:45	0	0.00	0.00	1.00
10:46	4	6.56	7.18	1.00
10:47	8	13.12	14.37	1.00
10:48	10	16.40	17.96	1.00
10:49	8	13.12	14.37	1.00
10:50	3	4.92	5.39	1.00
10:51	0	0.00	0.00	1.00
10:52	0	0.00	0.00	1.00

Company Name: Covrad Heat Transfer Ltd
Site Name: Coventry
Sampling Point Ref: New booth 3
Job / Report Reference: FYS3926

Date:10/1/06
Run: 1

Stack Static press.mm H_2O:	0.2	Stack Diameter (m)	0.79
		Stack Area (m2):	0.49016814

Traverse Point No.	Port A			Port B		
	Δ p, mm H_2O	Root Δ p	Stack Temp °C	Δ p, mm H_2O	Root Δ p	Stack Temp °C
1	9.1	3.017	20	7.1	2.665	20
2	8.8	2.966	20	9.8	3.130	20
3	7.2	2.683	20	9.1	3.017	20
4	5	2.236	20	8.5	2.915	20
5	3.7	1.924	20	8.2	2.864	20
6	4.6	2.145	20	7.1	2.665	20
7	3.4	1.844	20	6.5	2.550	20
8	5.2	2.280	20	6.6	2.569	20
9	5.3	2.302	20	7.8	2.793	20
10	8.6	2.933	20	8.4	2.898	20
Minimum	3.4	1.844	20	6.5	2.550	20
Maximum	9.1	3.017	20	9.8	3.130	20
Mean	**6.1**	**2.433**	**20.0**	**7.9**	**2.807**	**20.0**
Sum	60.9	24.330	200	79.1	28.065	200
Total Sum				140	52.395	400

Max. pitot press. =	9.8
Min. pitot press. =	3.4
Ratio Max:Min =	2.9 :1

Gas Data

Oxygen %	21.0
CO_2 %	0.04
CO %	

Oxygen Correction

Required Correction Value	0
Actual Oxygen Factor	1
Enter 0 if correction is not required	

BS EN 13284-1 & M1 Sample Point Requirements	Requirement Met?
Duct gas Flow: angle with regard to duct access <15°?	Yes
Duct Gas Flow Negative Velocity: Not Permitted	No
Duct Gas Flow: Ratio of max to min velocity <3:1?	Yes
Working Area > 5m²?	No
Handrails with removable chains / self closing gates across the top of the ladder?	No
Handrails (approx 0,5 and 1,0 m high) and vertical baseboards (approx 0,25m high)?	Yes
Able to bear 400kg load?	Yes
Handrails not restricting access to ports?	No
Room opposite sampling port equal or greater than the length of the sampling probe plus 1 metre?	No
Sufficient Power (Waterproof 110V BS4343 Standard) close or on the platform?	Yes

Company Name: Covrad Heat Transfer Lt In-stack Filter? No Bar. Press.mm Hg 751.53 K Factor 8.31 Ambient Temp. 12 Leak Rate (fin / %) <2
Site Name: Coventry Outstack Filter? Yes Cp 0.82 Dn used 8 Start Time 11:20 Leak Rate (start / %) <2
Sampling Point Ref: New booth 3 Operators GH/SP Bws% 2 Nozzle No. 8 Stop Time 11:52 Box/Probe setting 160 +/- 5 °C
Date:10/1/06
Run: 1
Job / Report Reference: FYS3926

Sample Filter Weights

	Reference	Laboratory	Increase, mg
Filter	394091	RPS	0.1
Probe Washings	394598	RPS	0.5

Sample Filter Blank Weighings

	Reference	Laboratory	Increase, mg
Filter	394597	RPS	0.1
Probe Wash	394600	RPS	0.5

Impinger Weights

	Initial	Final	Increase, g
Impinger 1			0.0
Impinger 2			0.0
Impinger 3			0.0
Impinger 4			0.0
Impinger 5			0.0
Silica Gel		Total	0.0

Sample Point	Clock Time min	Pitot Δ p, m/s-1	Stack Temp. °C	Orifice m/s-1 Desired	Orifice m/s-1 Actual	Gas Meter Reading m^3	Temp at Gas Meter Outlet °C	Condenser Temp. °C	Filter Box Temp °C	Probe Temp °C	Pump Vacuum Inches Hg	Impinger Stem Temp. °C	Root Δ p.
						418830							
1	0	14	17	116.34	117		19	N/A	160	160	-11	N/A	3.742
	4	14	17	116.34	117		19	N/A	160	160	-11	N/A	3.742
2	8	9.8	17	81.438	82		19	N/A	160	160	-9	N/A	3.130
	12	9.8	17	81.438	82		19	N/A	160	160	-9	N/A	3.130
3	16	12.8	17	106.368	106		19	N/A	160	160	-9	N/A	3.578
	20	12.8	17	106.368	106		19	N/A	160	160	-9	N/A	3.578
4	24	14.2	17	118.002	118		19	N/A	160	160	-9	N/A	3.768
	28	14.2	17	118.002	118		19	N/A	160	160	-10	N/A	3.768
Endpoint	32		17			419860	20	N/A	160	160		N/A	0.000
	32.00	12.700	17.0	105.5	105.8	1.0	19.1	N/A	160.0	160.0	-9.6	N/A	3.160

Company Name: Covrad Heat Transfer Ltd
Site Name: Coventry
Job / Report Reference: FYS3926

Date:10/1/06
Run: 1

Sampling Point Ref: New booth 3	Run: 1
Meter Volume Sampled, acm	1.030
Sample Run Start Time	11:20
Sample Run End Time	11:52
Total Actual Sampling Time, min	32.0
Barometric Pressure, mm Hg	751.53
Stack Pressure, mm Hg	751.54
Average Stack Temp, °C	17.0
Meter Volume at STP, scm	0.961
Meter Volume at Wet STP, scm	0.961
Stack Moisture Content, %	0.0
Average Stack Velocity, m/sec	10.476
Stack Flow Rate, acms	5.135
Stack Flow Rate, scms dry,STP	4.777
Nozzle Diameter, mm	8.00
% Isokinetic Variation	**102.0**
Total Mass of Particulate, mg	0.6
Percentage of Total Particulate Collected on Filter	16.7
Stack Particulate Concentration, mg/m^3	**0.6**
Particulate Mass rate, kg/hour	0.011
Emission Limit value	**50.000**

Sample Train Blank Results	
Sample Blank Particulate Concentration, mg/m^3	0.62
Total Weight Gain, mg (Sample Train Blank)	0.6
Blank Result Less than 10% of Limit Value	Yes

Company Name: Covrad Heat Transfer Ltd
Site Name: Coventry
Sampling Point Ref: New booth 3
Job / Report Reference: FYS3926

Date:10/1/06
Run: 2

Stack Diameter (m)	0.79
Stack Area (m2):	0.49016814

Stack Static press.mm H_2O: 0.2

Traverse Point No.	Port A			Port B		
	Δ p, mm H_2O	Root Δ p	Stack Temp °C	Δ p, mm H_2O	Root Δ p	Stack Temp °C
1	9.1	3.017	20	7.1	2.665	20
2	8.8	2.966	20	9.8	3.130	20
3	7.2	2.683	20	9.1	3.017	20
4	5	2.236	20	8.5	2.915	20
5	3.7	1.924	20	8.2	2.864	20
6	4.6	2.145	20	7.1	2.665	20
7	3.4	1.844	20	6.5	2.550	20
8	5.2	2.280	20	6.6	2.569	20
9	5.3	2.302	20	7.8	2.793	20
10	8.6	2.933	20	8.4	2.898	20
Minimum	3.4	1.844	20	6.5	2.550	20
Maximum	9.1	3.017	20	9.8	3.130	20
Mean	**6.1**	**2.433**	**20.0**	**7.9**	**2.807**	**20.0**
Sum	60.9	24.330	200	79.1	28.065	200
Total Sum				140	52.395	400

Max. pitot press. =	9.8
Min. pitot press. =	3.4
Ratio Max:Min =	2.9 :1

Gas Data

Oxygen %	21.0
CO_2 %	0.04
CO %	

Oxygen Correction

Required Correction Value	0
Actual Oxygen Factor	1
Enter 0 if correction is not required	

BS EN 13284-1 & M1 Sample Point Requirements	Requirement Met?
Duct gas Flow: angle with regard to duct access <15°?	Yes
Duct Gas Flow Negative Velocity: Not Permitted	No
Duct Gas Flow: Ratio of max to min velocity <3:1?	Yes
Working Area > 5m²?	No
Handrails with removable chains / self closing gates across the top of the ladder?	No
Handrails (approx 0,5 and 1,0 m high) and vertical baseboards (approx 0,25m high)?	Yes
Able to bear 400kg load?	Yes
Handrails not restricting access to ports?	No
Room opposite sampling port equal or greater than the length of the sampling probe plus 1 metre?	No
Sufficient Power (Waterproof 110V BS4343 Standard) close or on the platform?	Yes

Company Name: Covrad Heat Transfer Ltd
Site Name: Coventry
Job / Report Reference: FYS3926

Date:10/1/06
Run: 2

Sampling Point Ref: New booth 3	Run: 2
Meter Volume Sampled, acm	0.984
Sample Run Start Time	11:20
Sample Run End Time	11:52
Total Actual Sampling Time, min	32.0
Barometric Pressure, mm Hg	751.53
Stack Pressure, mm Hg	751.54
Average Stack Temp, °C	18.0
Meter Volume at STP, scm	0.918
Meter Volume at Wet STP, scm	0.918
Stack Moisture Content, %	0.0
Average Stack Velocity, m/sec	10.524
Stack Flow Rate, acms	5.158
Stack Flow Rate, scms dry,STP	4.783
Nozzle Diameter, mm	8.00
% Isokinetic Variation	**97.3**
Total Mass of Particulate, mg	0.6
Percentage of Total Particulate Collected on Filter	16.7
Stack Particulate Concentration, mg/m^3	**0.7**
Particulate Mass rate, kg/hour	0.011
Emission Limit value	**50.000**

Sample Train Blank Results	
Sample Blank Particulate Concentration, mg/m^3	0.65
Total Weight Gain, mg (Sample Train Blank)	0.6
Blank Result Less than 10% of Limit Value	Yes

Company Name: Covrad Heat Transfer Date: 10/01/2006
Site Ref: Coventry Run: 1
Stack Ref: New Booth 3

	VOC as C mg/m^3	VOC as C kg/hr	VOC as Toluene mg/m^3	VOC as Toluene kg/hr
Average	**16.91**	0.28	**18.52**	0.31
Max	**36.08**	0.60	**39.51**	0.66
Min	**4.92**	0.08	**5.39**	0.09
Moisture, %				

Time min	VOC, ppm	VOC as C, mg/m^3	VOC as Toluene,mg/m^3	O2 FACTOR
11:16	7	11.48	12.57	1.00
11:17	7	11.48	12.57	1.00
11:18	7	11.48	12.57	1.00
11:19	5	8.20	8.98	1.00
11:20	12	19.68	21.55	1.00
11:21	15	24.60	26.94	1.00
11:22	22	36.08	39.51	1.00
11:23	12	19.68	21.55	1.00
11:24	7	11.48	12.57	1.00
11:25	3	4.92	5.39	1.00
11:26	16	26.24	28.74	1.00
11:27	10	16.40	17.96	1.00
11:28	14	22.96	25.15	1.00
11:29	14	22.96	25.15	1.00
11:30	6	9.84	10.78	1.00
11:31	8	13.12	14.37	1.00
11:32	6	9.84	10.78	1.00
11:33	6	9.84	10.78	1.00
11:34	34	55.76	61.07	1.00
11:35	22	36.08	39.51	1.00
11:36	11	18.04	19.76	1.00
11:37	10	16.40	17.96	1.00
11:38	8	13.12	14.37	1.00
11:39	8	13.12	14.37	1.00
11:40	6	9.84	10.78	1.00
11:41	6	9.84	10.78	1.00
11:42	6	9.84	10.78	1.00
11:43	10	16.40	17.96	1.00
11:44	6	9.84	10.78	1.00
11:45	4	6.56	7.18	1.00
11:46	4	6.56	7.18	1.00

Company Name: Covrad Heat Transfer Ltd
Site Name: Coventry
Sampling Point Ref: Red Oxide
Job / Report Reference: FYS3926

Date:10/1/06
Run: 1

Stack Static press.mm H_2O:	0.2	Stack Diameter (m)	0.79
		Stack Area (m2):	0.49016814

Traverse Point No.	Port A			Port B		
	Δ p, mm H_2O	Root Δ p	Stack Temp °C	Δ p, mm H_2O	Root Δ p	Stack Temp °C
1	9.8	3.130	19			
2	10.2	3.194	19			
3	10.4	3.225	19			
4	9.8	3.130	19			
5	9.8	3.130	19			
6	8.8	2.966	19			
7	8.2	2.864	19			
8	7.6	2.757	19			
9	7.8	2.793	19			
10	7.8	2.793	19			
Minimum	7.6	2.757	19	0.0	0.000	0
Maximum	10.4	3.225	19	0.0	0.000	0
Mean	**9.0**	**2.998**	**19.0**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**
Sum	90.2	29.983	190	0	0.000	0
Total Sum				90.2	29.983	190

Max. pitot press. =	10.4
Min. pitot press. =	7.6
Ratio Max:Min =	1.4 :1

Gas Data

Oxygen %	21.0
CO_2 %	0.04
CO %	

Oxygen Correction

Required Correction Value	0
Actual Oxygen Factor	1
Enter 0 if correction is not required	

BS EN 13284-1 & M1 Sample Point Requirements	Requirement Met?
Duct gas Flow: angle with regard to duct access <15°?	Yes
Duct Gas Flow Negative Velocity: Not Permitted	No
Duct Gas Flow: Ratio of max to min velocity <3:1?	Yes
Working Area > 5m²?	No
Handrails with removable chains / self closing gates across the top of the ladder?	No
Handrails (approx 0,5 and 1,0 m high) and vertical baseboards (approx 0,25m high)?	Yes
Able to bear 400kg load?	Yes
Handrails not restricting access to ports?	No
Room opposite sampling port equal or greater than the length of the sampling probe plus 1 metre?	No
Sufficient Power (Waterproof 110V BS4343 Standard) close or on the platform?	Yes

Company Name: Covrad Heat Transfer Lt In-stack Filter? No Bar. Press.mm Hg 751.53 K Factor 10.35 Ambient Temp. 12 Leak Rate (lin / %) <2

Site Name: Coventry Outstack Filter? Yes Cp 0.82 Dn used 8 Start Time 13:40 Leak Rate (start / %) <2

Sampling Point Ref: Red Oxide Operators GH/SP Bws% 2 Nozzle No. 8 Stop Time 14:12 Box/Probe setting 160 +/- 5 °C

Date:10/1/06

Run: 1

Job / Report Reference: FYS3926

Sample Filter Weights

	Reference	Laboratory	Increase, mg
Filter	394096	RPS	0.99
Probe Washings	394098	RPS	0.5

Sample Filter Blank Weighings

	Reference	Laboratory	Increase, mg
Filter	394600	RPS	0.1
Probe Wash	394600	RPS	0.5

Impinger Weights

	Initial	Final	Increase, g
Impinger 1			0.0
Impinger 2			0.0
Impinger 3			0.0
Impinger 4			0.0
Impinger 5			0.0
Silica Gel			0.0
		Total	0.0

Sample Point	Clock Time min	Pitot Δ p, mm H_2O	Stack Temp, °C	Orifice Δ H, mm H_2O Desired	Orifice Δ H, mm H_2O Actual	Gas Meter Reading m^3	Temp at Gas Meter Outlet °C	Condenser Temp, °C	Filter Box Temp °C	Probe Temp °C	Pump Vacuum Inches Hg	Impinger Stem Temp. °C	Root Δ p.
						39460							
A	0	10.2	19	105.876	106		20	N/A	160	160	-10		3.194
	4	10	19	103.8	104		20	N/A	160	160	-10		3.162
	8	10.2	19	105.876	106		20	N/A	160	160	-10		3.194
	12	10.2	19	105.876	106		20	N/A	160	160	-10		3.194
	16	10	19	103.8	104		20	N/A	160	160	-10		3.162
	20	8.8	19	91.344	91.3		20	N/A	160	160	-10		2.966
	24	10.2	19	105.876	106		20	N/A	160	160	-11		3.194
	28	10.1	19	104.838	106		20	N/A	160	160	-12		3.178
	Endpoint					40464							
	32.00	9.963	19.0	103.4	103.7	1.0	20.0	N/A	160.0	160.0	-10.4	#DIV/0!	3.156
	32		19				20	N/A	160	160			

Company Name: Covrad Heat Transfer Ltd
Site Name: Coventry
Job / Report Reference: FYS3926

Date:10/1/06
Run: 1

Sampling Point Ref: Red Oxide	Run: 1
Meter Volume Sampled, acm	1.004
Sample Run Start Time	13:40
Sample Run End Time	14:12
Total Actual Sampling Time, min	32.0
Barometric Pressure, mm Hg	751.53
Stack Pressure, mm Hg	751.54
Average Stack Temp, °C	19.0
Meter Volume at STP, scm	0.934
Meter Volume at Wet STP, scm	0.934
Stack Moisture Content, %	0.0
Average Stack Velocity, m/sec	10.498
Stack Flow Rate, acms	5.146
Stack Flow Rate, scms dry,STP	4.755
Nozzle Diameter, mm	8.00
% Isokinetic Variation	**99.5**
Total Mass of Particulate, mg	1.5
Percentage of Total Particulate Collected on Filter	66.4
Stack Particulate Concentration, mg/m^3	**1.6**
Particulate Mass rate, kg/hour	0.027
Emission Limit value	**50.000**

Sample Train Blank Results	
Sample Blank Particulate Concentration, mg/m^3	0.64
Total Weight Gain, mg (Sample Train Blank)	0.6
Blank Result Less than 10% of Limit Value	Yes

Company Name: Covrad Heat Transfer Ltd
Site Name: Coventry
Sampling Point Ref: Red Oxide
Job / Report Reference: FYS3926

Date:10/1/06
Run: 2

Stack Static press.mm H_2O:	0.2	Stack Diameter (m)	0.79
		Stack Area (m2):	0.49016814

Traverse Point No.	Port A			Port B		
	Δ p, mm H_2O	Root Δ p	Stack Temp °C	Δ p, mm H_2O	Root Δ p	Stack Temp °C
1	9.8	3.130	19			
2	10.2	3.194	19			
3	10.4	3.225	19			
4	9.8	3.130	19			
5	9.8	3.130	19			
6	8.8	2.966	19			
7	8.2	2.864	19			
8	7.6	2.757	19			
9	7.8	2.793	19			
10	7.8	2.793	19			
Minimum	7.6	2.757	19	0.0	0.000	0
Maximum	10.4	3.225	19	0.0	0.000	0
Mean	**9.0**	**2.998**	**19.0**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**
Sum	90.2	29.983	190	0	0.000	0
Total Sum				90.2	29.983	190

Max. pitot press. =	10.4
Min. pitot press. =	7.6
Ratio Max:Min =	1.4 :1

Gas Data

Oxygen %	21.0
CO_2 %	0.04
CO %	

Oxygen Correction

Required Correction Value	0
Actual Oxygen Factor	1
Enter 0 if correction is not required	

BS EN 13284-1 & M1 Sample Point Requirements	Requirement Met?
Duct gas Flow: angle with regard to duct access <15°?	Yes
Duct Gas Flow Negative Velocity: Not Permitted	No
Duct Gas Flow: Ratio of max to min velocity <3:1?	Yes
Working Area > 5m²?	No
Handrails with removable chains / self closing gates across the top of the ladder?	No
Handrails (approx 0,5 and 1,0 m high) and vertical baseboards (approx 0,25m high)?	Yes
Able to bear 400kg load?	Yes
Handrails not restricting access to ports?	No
Room opposite sampling port equal or greater than the length of the sampling probe plus 1 metre?	No
Sufficient Power (Waterproof 110V BS4343 Standard) close or on the platform?	Yes

Company Name: Covrad Heat Transfer Ltd
Site Name: Coventry
Job / Report Reference: FYS3926

Date:10/1/06
Run: 1

Sampling Point Ref: New booth 1	Run: 1
Meter Volume Sampled, acm	0.929
Sample Run Start Time	14:40
Sample Run End Time	14:12
Total Actual Sampling Time, min	32.0
Barometric Pressure, mm Hg	751.53
Stack Pressure, mm Hg	751.54
Average Stack Temp, °C	18.9
Meter Volume at STP, scm	0.882
Meter Volume at Wet STP, scm	0.882
Stack Moisture Content, %	0.0
Average Stack Velocity, m/sec	8.771
Stack Flow Rate, acms	4.299
Stack Flow Rate, scms dry,STP	3.974
Nozzle Diameter, mm	8.00
% Isokinetic Variation	**112.5**
Total Mass of Particulate, mg	16.8
Percentage of Total Particulate Collected on Filter	79.6
Stack Particulate Concentration, mg/m^3	**19.1**
Particulate Mass rate, kg/hour	0.273
Emission Limit value	**50.000**

Sample Train Blank Results	
Sample Blank Particulate Concentration, mg/m^3	0.68
Total Weight Gain, mg (Sample Train Blank)	0.6
Blank Result Less than 10% of Limit Value	Yes

Company Name: Covrad Heat Transfer Date: 09/01/2006
Site Ref: Coventry Run: 1
Stack Ref: Red Oxide

	VOC as C mg/m^3	VOC as C kg/hr	VOC as Toluene mg/m^3	VOC as Toluene kg/hr
Average	**22.34**	0.37	**24.47**	0.41
Max	**39.36**	0.66	**43.11**	0.72
Min	**11.48**	0.19	**12.57**	0.21

Time min	VOC, ppm	VOC as C, mg/m^3	VOC as Toluene,mg/m^3	O2 FACTOR
14:30	11	18.04	19.76	1.00
14:31	8	13.12	14.37	1.00
14:32	10	16.40	17.96	1.00
14:33	12	19.68	21.55	1.00
14:34	22	36.08	39.51	1.00
14:35	14	22.96	25.15	1.00
14:36	16	26.24	28.74	1.00
14:37	22	36.08	39.51	1.00
14:38	15	24.60	26.94	1.00
14:39	24	39.36	43.11	1.00
14:40	16	26.24	28.74	1.00
14:41	11	18.04	19.76	1.00
14:42	7	11.48	12.57	1.00
14:43	12	19.68	21.55	1.00
14:44	10	16.40	17.96	1.00
14:45	8	13.12	14.37	1.00
14:46	11	18.04	19.76	1.00
14:47	10	16.40	17.96	1.00
14:48	22	36.08	39.51	1.00
14:49	16	26.24	28.74	1.00
14:50	15	24.60	26.94	1.00
14:51	16	26.24	28.74	1.00
14:52	7	11.48	12.57	1.00
14:53	8	13.12	14.37	1.00
14:54	10	16.40	17.96	1.00
14:55	12	19.68	21.55	1.00
14:56	11	18.04	19.76	1.00
14:57	24	39.36	43.11	1.00
14:58	22	36.08	39.51	1.00
14:59	14	22.96	25.15	1.00
15:00	12	19.68	21.55	1.00
15:01	8	13.12	14.37	1.00

Company Name: Covrad Heat Transfer Date: 09/01/2006
Site Ref: Coventry Run: 1
Stack Ref: Trike Bath

	VOC as C mg/m^3	VOC as C kg/hr	VOC as Toluene mg/m^3	VOC as Toluene kg/hr
Average	123.10	0.08	134.82	0.08
Max	229.59	0.14	251.46	0.16
Min	72.16	0.05	79.03	0.05
Moisture, %				

Time min	VOC, ppm	VOC as C, mg/m^3	VOC as Toluene,mg/m^3	O2 FACTOR
14:10	140	229.59	251.46	1.00
14:11	100	163.99	179.61	1.00
14:12	62	101.68	111.36	1.00
14:13	44	72.16	79.03	1.00
14:14	52	85.28	93.40	1.00
14:15	62	101.68	111.36	1.00
14:16	44	72.16	79.03	1.00
14:17	70	114.80	125.73	1.00
14:18	52	85.28	93.40	1.00
14:19	46	75.44	82.62	1.00
14:20	46	75.44	82.62	1.00
14:21	130	213.19	233.50	1.00
14:22	110	180.39	197.57	1.00
14:23	100	163.99	179.61	1.00
14:24	68	111.52	122.14	1.00
14:25	75	123.00	134.71	1.00
14:26	82	134.48	147.28	1.00
14:27	61	100.04	109.56	1.00
14:28	45	73.80	80.83	1.00
14:29	61	100.04	109.56	1.00
14:30	60	98.40	107.77	1.00
14:31	65	106.60	116.75	1.00
14:32	60	98.40	107.77	1.00
14:33	40	65.60	71 85	1.00
14:34	33	54.12	59.27	1.00
14:35	78	127.92	140.10	1.00
14:36	50	82.00	89.81	1.00
14:37	54	88.56	96.99	1.00
14:38	48	78.72	86.21	1.00
14:39	44	72.16	79.03	1.00
14:40	25	41.00	44.90	1.00
14:41	38	62.32	68.25	1.00
14:42	32	52.48	57.48	1.00
14:43	45	73.80	80.83	1.00
14:44	50	82.00	89.81	1.00
14:45	32	52.48	57.48	1.00
14:46	38	62.32	68.25	1.00
14:47	45	73.80	80.83	1.00
14:48	52	85.28	93.40	1.00
14:49	50	82.00	89.81	1.00
14:50	30	49.20	53.88	1.00
14:51	50	82.00	89.81	1.00
14:52	40	65.60	71.85	1.00
14:53	40	65.60	71.85	1.00
14:54	40	65.60	71.85	1.00
14:55	35	57.40	62.86	1.00
14:56	36	59.04	64.66	1.00
14:57	28	45.92	50.29	1.00
14:58	32	52.48	57.48	1.00
14:59	32	52.48	57.48	1.00
15:00	34	55.76	61.07	1.00
15:01	30	49.20	53.88	1.00
15:02	22	36.08	39.51	1.00
15:03	84	137.76	150.87	1.00
15:04	34	55.76	61.07	1.00
15:05	38	62.32	68.25	1.00
15:06	42	68.88	75.44	1.00
15:07	46	75.44	82.62	1.00
15:08	50	82.00	89.81	1.00
15:09	54	88.56	96.99	1.00
15:10	58	95.12	104.18	1.00

TRICHLOROETHYLENE SAMPLING DATA

Client	**Covrad**		Job Number	FYS3926	
Site	**Coventry**		Date	09-Jan-06	
Stack	**Large Degreaser**		Operators	SP/GH	
Pollutant	**Trichloroethylene**		Sample Method	BS EN 13649	
Absorbent(s)	2 x SKC 226-09 Charcoal Tube		Analysis Method	GC	
Gas Velocity	3.90	m/s	Duct dimensions.	0.25	m
Gas Temp	21	°C	Duct Area	0.05	m^2
Act. Vol. Flow	0.19	m^3/s	S.t.p. Volume Flow	0.18	m^3/s

Run	**Short Term**	Start	Finish		Sample	
Leak Check OK?		Y	Y			
Time		14:18	14:28			
Sample Flow Rate (ml/min)		200	200	Net Total Analyte (mg)	0.850	
DGM Temp (°C)		20	20	Atmos Pressure (kPa)	100.9	
Volume Gas Sampled (l)		0.0022		S.t.p. Volume sampled (m^3)	0.0021	
No. mins sampling (mins)		11		DGM / Flowmeter error (%)	****	
		As solvent (Trike)	**As total carbon**		**As solvent (Trike)**	**As total carbon**
Mass Emission Rate (g/hr)		**263.3**	**48.1**	**S.t.p. Emission Conc. (mg/m^3)**	**413.0**	**75.5**

Run	**Long Term**	Start	Finish		Sample	
Leak Check OK?		Y	Y			
Time		13.38	14.32			
Sample Flow Rate (ml/min)		200	200	Net Total Analyte (mg)	3.0	
DGM Temp (°C)		20	20	Atmos. Pressure (kPa)	100.9	
Volume Gas Sampled (l)		10.8		S.t.p. Volume sampled (m^3)	0.01	
No. mins sampling (mins)		54		DGM / Flowmeter error (%)	****	
		As solvent (Trike)	**As total carbon**		**As solvent (Trike)**	**As total carbon**
Mass Emission Rate (g/hr)		**189.3**	**34.6**	**S.t.p. Emission Conc. (mg/m^3)**	**297.0**	**54.3**

Table 2.8 – Monitoring Results from the (Red Oxide)

Substance Monitored	Emission Limit Value	Periodic Monitoring Result	Units	Uncertainty (%) #	Reference Conditions 273K, 101.3kPa	Sampling Date	Sampling Times	Monitoring Reference Method	Accreditation Status	Operating Status
Total Particulate Matter Run 1	50*	1.6	mg/m^3	N/A	Dry, 273K, 101.3kPa, no correction required for O_2..	10/9/2004	13:35-14:07	BS ISO 9096:2003	MCERTS	Normal
	N/A	27	g/hr							
Total Particulate Matter Run 2	50*	1.5	mg/m^3	N/A	Dry, 273K, 101.3kPa, no correction required for O_2..	10/9/2004	12:00-12:30	BS ISO 9096:2003	MCERTS	Normal
	N/A	25	g/hr							
High Concentration VOC (as total organic carbon)	50*	16.91	mg/m^3	9..8	Dry, 273K, 101.3kPa, no correction required for O_2.	10/01/2006	11:16-11:46	BS EN 13526:2002	MCERTS	Normal
	N/A	280	g/hr							

Notes:

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

* ***As 30 minute mean (Stated in PG 6/23(04)) "Coating of Metals and Plastics"***