

Pace Analytical™

Tel: 612-607-1700

Fax: 612-607-6444

Method 8290 Blank Analysis Results

Client - ATC

Lab Sample ID	BLANK-1579	Matrix	WIPE
Filename	F20424B_03	Dilution	NA
Total Amount Extracted	1 m2	Extracted	04/18/2002
ICAL Date	04/12/2002	Analyzed	04/24/2002 21:11
CCal Filename(s)	F20424A_14 & F20424B_14	Injected By	BAL

Native Isomers	Conc ng/m2	EMPC ng/m2	LRL ng/m2	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.00200	2,3,7,8-TCDF-13C	2.00	68
Total TCDF	ND	----	0.00200	2,3,7,8-TCDD-13C	2.00	66
				1,2,3,7,8-PeCDF-13C	2.00	70
2,3,7,8-TCDD	ND	----	0.00200	2,3,4,7,8-PeCDF-13C	2.00	67
Total TCDD	0.013	----	0.00200	1,2,3,7,8-PeCDD-13C	2.00	68
				1,2,3,4,7,8-HxCDF-13C	2.00	95
1,2,3,7,8-PeCDF	ND	----	0.01000	1,2,3,6,7,8-HxCDF-13C	2.00	77
2,3,4,7,8-PeCDF	ND	----	0.01000	2,3,4,6,7,8-HxCDF-13C	2.00	78
Total PeCDF	ND	----	0.01000	1,2,3,7,8,9-HxCDF-13C	2.00	67
				1,2,3,4,7,8-HxCDD-13C	2.00	93
1,2,3,7,8-PeCDD	ND	----	0.01000	1,2,3,6,7,8-HxCDD-13C	2.00	82
Total PeCDD	ND	----	0.01000	1,2,3,4,6,7,8-HpCDF-13C	2.00	74
				1,2,3,4,7,8,9-HpCDF-13C	2.00	53
1,2,3,4,7,8-HxCDF	ND	----	0.01000	1,2,3,4,6,7,8-HpCDD-13C	2.00	62
1,2,3,6,7,8-HxCDF	ND	----	0.01000	OCDD-13C	4.00	49
2,3,4,6,7,8-HxCDF	ND	----	0.01000			
1,2,3,7,8,9-HxCDF	ND	----	0.01000	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	0.01000	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	0.01000	2,3,7,8-TCDD-37Cl4	0.20	74
1,2,3,6,7,8-HxCDD	ND	----	0.01000			
1,2,3,7,8,9-HxCDD	ND	----	0.01000			
Total HxCDD	ND	----	0.01000			
1,2,3,4,6,7,8-HpCDF	ND	----	0.01000	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.01000	Equivalence: 0.00 ng/m2		
Total HpCDF	ND	----	0.01000	(Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD	ND	----	0.01000			
Total HpCDD	ND	----	0.01000			
OCDF	ND	----	0.02000			
OCDD	ND	----	0.02000			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
 EMPC = Estimated Maximum Possible Concentration
 LRL = Lower Reporting Limit
 J = Concentration detected is below the calibration range
 P = Recovery outside of target range
 A = Detection Limit based on signal-to-noise measurement

I = Interference
 E = PCDE Interference
 ND = Not Detected
 NA = Not Applicable
 NC = Not Calculated
 * = See Discussion

Report No.....02-1055822

REPORT OF LABORATORY ANALYSIS

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Pace Analytical™

Tel: 612-607-1700

Fax: 612-607-6444

Method 8290 Analysis Results

Client - ATC

Client's Sample ID	ATC-0330-M833-DX1		
Lab Sample ID	103435509		
Filename	U20425C_09		
Injected By	BAL		
Total Amount Extracted	1 m2	Matrix	WIPE
% Moisture	NA	Dilution	NA
Dry Weight Extracted	NA	Collected	03/30/2002
ICAL Date	04/16/2002	Received	04/02/2002
CCal Filename(s)	U20425C_01 & U20425C_16	Extracted	04/18/2002
Method Blank ID	BLANK-1579	Analyzed	04/26/2002 00:35

Native Isomers	Conc ng/m2	EMPC ng/m2	LRL ng/m2	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	0.0027	----	0.00200 J	2,3,7,8-TCDF-13C	2.00	68
Total TCDF	0.0051	----	0.00200 J	2,3,7,8-TCDD-13C	2.00	75
				1,2,3,7,8-PeCDF-13C	2.00	77
2,3,7,8-TCDD	ND	----	0.00210 A	2,3,4,7,8-PeCDF-13C	2.00	76
Total TCDD	0.0260	----	0.00200 B	1,2,3,7,8-PeCDD-13C	2.00	84
				1,2,3,4,7,8-HxCDF-13C	2.00	84
1,2,3,7,8-PeCDF	ND	----	0.01000	1,2,3,6,7,8-HxCDF-13C	2.00	83
2,3,4,7,8-PeCDF	ND	----	0.01000	2,3,4,6,7,8-HxCDF-13C	2.00	83
Total PeCDF	ND	----	0.01000	1,2,3,7,8,9-HxCDF-13C	2.00	87
				1,2,3,4,7,8-HxCDD-13C	2.00	92
1,2,3,7,8-PeCDD	ND	----	0.01000	1,2,3,6,7,8-HxCDD-13C	2.00	79
Total PeCDD	0.0100	----	0.01000 J	1,2,3,4,6,7,8-HpCDF-13C	2.00	85
				1,2,3,4,7,8,9-HpCDF-13C	2.00	92
1,2,3,4,7,8-HxCDF	ND	----	0.01000	1,2,3,4,6,7,8-HpCDD-13C	2.00	94
1,2,3,6,7,8-HxCDF	ND	----	0.01000	OCDD-13C	4.00	97
2,3,4,6,7,8-HxCDF	ND	----	0.01000			
1,2,3,7,8,9-HxCDF	ND	----	0.01000	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	0.01000	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	0.01000	2,3,7,8-TCDD-37Cl4	0.20	84
1,2,3,6,7,8-HxCDD	ND	----	0.01000			
1,2,3,7,8,9-HxCDD	ND	----	0.01000			
Total HxCDD	0.0110	----	0.01000 J			
1,2,3,4,6,7,8-HpCDF	ND	----	0.01000	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.01000	Equivalence: 0.00031 ng/m2		
Total HpCDF	ND	----	0.01000	(Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD	ND	----	0.01000			
Total HpCDD	ND	----	0.01000			
OCDF	ND	----	0.02000			
OCDD	0.0410	----	0.02000 J			

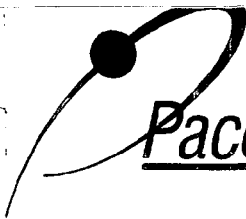
Conc = Concentration (Totals include 2,3,7,8-substituted isomers)
 EMPC = Estimated Maximum Possible Concentration
 A = Detection Limit based on signal-to-noise measurement
 J = Concentration detected is below the calibration range
 B = Less than 10 times higher than method blank level
 P = Recovery outside of target range
 Nn = Value obtained from additional analysis

LRL = Lower Reporting Limit
 I = Interference
 E = PCDE Interference
 S = Saturated signal
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 NA = Not Applicable
 NC = Not Calculated
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Report No.....02-1055822

REPORT OF LABORATORY ANALYSIS

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 **Pace Analytical**TM**Method 8290 Analysis Results**

Client - ATC

Client's Sample ID	ATC-0330-M833-DX2		
Lab Sample ID	103435517		
Filename	U20425C_10		
Injected By	BAL		
Total Amount Extracted	1 m2	Matrix	WIPE
% Moisture	NA	Dilution	NA
Dry Weight Extracted	NA	Collected	03/30/2002
ICAL Date	04/16/2002	Received	04/02/2002
CCal Filename(s)	U20425C_01 & U20425C_16	Extracted	04/18/2002
Method Blank ID	BLANK-1579	Analyzed	04/26/2002 01:24

Native Isomers	Conc ng/m2	EMPC ng/m2	LRL ng/m2	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	0.0024	----	0.0020 J	2,3,7,8-TCDF-13C	2.00	66
Total TCDF	0.0046	----	0.0020 J	2,3,7,8-TCDD-13C	2.00	73
				1,2,3,7,8-PeCDF-13C	2.00	76
2,3,7,8-TCDD	ND	----	0.0023 A	2,3,4,7,8-PeCDF-13C	2.00	74
Total TCDD	0.0380	----	0.0020 B	1,2,3,7,8-PeCDD-13C	2.00	83
				1,2,3,4,7,8-HxCDF-13C	2.00	85
1,2,3,7,8-PeCDF	ND	----	0.0100	1,2,3,6,7,8-HxCDF-13C	2.00	83
2,3,4,7,8-PeCDF	ND	----	0.0100	2,3,4,6,7,8-HxCDF-13C	2.00	81
Total PeCDF	ND	----	0.0100	1,2,3,7,8,9-HxCDF-13C	2.00	86
				1,2,3,4,7,8-HxCDD-13C	2.00	88
1,2,3,7,8-PeCDD	ND	----	0.0100	1,2,3,6,7,8-HxCDD-13C	2.00	79
Total PeCDD	0.0120	----	0.0100 J	1,2,3,4,6,7,8-HpCDF-13C	2.00	85
				1,2,3,4,7,8,9-HpCDF-13C	2.00	92
1,2,3,4,7,8-HxCDF	ND	----	0.0100	1,2,3,4,6,7,8-HpCDD-13C	2.00	92
1,2,3,6,7,8-HxCDF	ND	----	0.0100	OCDD-13C	4.00	96
2,3,4,6,7,8-HxCDF	ND	----	0.0100			
1,2,3,7,8,9-HxCDF	ND	----	0.0100	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	0.0100	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	0.0100	2,3,7,8-TCDD-37Cl4	0.20	83
1,2,3,6,7,8-HxCDD	ND	----	0.0100			
1,2,3,7,8,9-HxCDD	ND	----	0.0100			
Total HxCDD	0.0170	----	0.0100 J			
1,2,3,4,6,7,8-HpCDF	ND	----	0.0100	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.0100	Equivalence: 0.00029 ng/m2		
Total HpCDF	ND	----	0.0100	(Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD	ND	----	0.0100			
Total HpCDD	0.0100	----	0.0100 J			
OCDF	ND	----	0.0200			
OCDD	0.0560	----	0.0200 J			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers)
 EMPC = Estimated Maximum Possible Concentration
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 B = Less than 10 times higher than method blank level
 P = Recovery outside of target range
 Nn = Value obtained from additional analysis

LRL = Lower Reporting Limit
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Pace AnalyticalTMTel: 612-607-1700
Fax: 612-607-6444**Method 8290 Analysis Results**

Client - ATC

Client's Sample ID	ATC-0330-M833-DX3		
Lab Sample ID	103435525		
Filename	U20425C_11		
Injected By	BAL		
Total Amount Extracted	1 m2	Matrix	WIPE
% Moisture	NA	Dilution	NA
Dry Weight Extracted	NA	Collected	03/30/2002
ICAL Date	04/16/2002	Received	04/02/2002
CCal Filename(s)	U20425C_01 & U20425C_16	Extracted	04/18/2002
Method Blank ID	BLANK-1579	Analyzed	04/26/2002 02:12

Native Isomers	Conc ng/m2	EMPC ng/m2	LRL ng/m2	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.00200	2,3,7,8-TCDF-13C	2.00	68
Total TCDF	ND	----	0.00200	2,3,7,8-TCDD-13C	2.00	75
				1,2,3,7,8-PeCDF-13C	2.00	78
2,3,7,8-TCDD	ND	----	0.00200	2,3,4,7,8-PeCDF-13C	2.00	78
Total TCDD	0.014	----	0.00200 B	1,2,3,7,8-PeCDD-13C	2.00	86
				1,2,3,4,7,8-HxCDF-13C	2.00	86
1,2,3,7,8-PeCDF	ND	----	0.01000	1,2,3,6,7,8-HxCDF-13C	2.00	82
2,3,4,7,8-PeCDF	ND	----	0.01000	2,3,4,6,7,8-HxCDF-13C	2.00	83
Total PeCDF	ND	----	0.01000	1,2,3,7,8,9-HxCDF-13C	2.00	88
				1,2,3,4,7,8-HxCDD-13C	2.00	91
1,2,3,7,8-PeCDD	ND	----	0.01000	1,2,3,6,7,8-HxCDD-13C	2.00	81
Total PeCDD	ND	----	0.01000	1,2,3,4,6,7,8-HpCDF-13C	2.00	87
				1,2,3,4,7,8,9-HpCDF-13C	2.00	93
1,2,3,4,7,8-HxCDF	ND	----	0.01000	1,2,3,4,6,7,8-HpCDD-13C	2.00	94
1,2,3,6,7,8-HxCDF	ND	----	0.01000	OCDD-13C	4.00	98
2,3,4,6,7,8-HxCDF	ND	----	0.01000			
1,2,3,7,8,9-HxCDF	ND	----	0.01000	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	0.01000	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	0.01000	2,3,7,8-TCDD-37Cl4	0.20	85
1,2,3,6,7,8-HxCDD	ND	----	0.01000			
1,2,3,7,8,9-HxCDD	ND	----	0.01000			
Total HxCDD	ND	----	0.01000			
1,2,3,4,6,7,8-HpCDF	ND	----	0.01000	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.01000	Equivalence: 0.00 ng/m2		
Total HpCDF	ND	----	0.01000	(Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD	ND	----	0.01000			
Total HpCDD	ND	----	0.01000			
OCDF	ND	----	0.02000			
OCDD	----	0.022	0.02000 I			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers)
 EMPC = Estimated Maximum Possible Concentration
 A = Detection Limit based on signal-to-noise measurement
 J = Concentration detected is below the calibration range
 B = Less than 10 times higher than method blank level
 P = Recovery outside of target range
 Nn = Value obtained from additional analysis

LRL = Lower Reporting Limit
 I = Interference
 E = PCDE Interference
 S = Saturated signal
 ND = Not Detected
 NA = Not Applicable
 NC = Not Calculated
 * = See Discussion

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CITY_21MC100_002898163

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Method 8290 Laboratory Control Spike Results

Client - ATC

Lab Sample ID	SPIKE-1594	Matrix	WIPE
Filename	U20425A_04	Dilution	NA
Total Amount Extracted	1 m2	Extracted	04/18/2002
ICAL Date	04/16/2002	Analyzed	04/24/2002 23:55
CCal Filename(s)	U20425A_01 & U20425A_16	Injected By	BAL
Method Blank ID	BLANK-1579		

Native Isomers	Qs (ng)	Qm (ng)	% Rec.	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	0.20	0.20	102	2,3,7,8-TCDF-13C	2.00	71
				2,3,7,8-TCDD-13C	2.00	77
				1,2,3,7,8-PeCDF-13C	2.00	72
2,3,7,8-TCDD	0.20	0.20	98	2,3,4,7,8-PeCDF-13C	2.00	70
				1,2,3,7,8-PeCDD-13C	2.00	76
				1,2,3,4,7,8-HxCDF-13C	2.00	94
1,2,3,7,8-PeCDF	1.00	0.96	96	1,2,3,6,7,8-HxCDF-13C	2.00	89
2,3,4,7,8-PeCDF	1.00	0.96	96	2,3,4,6,7,8-HxCDF-13C	2.00	90
				1,2,3,7,8,9-HxCDF-13C	2.00	97
				1,2,3,4,7,8-HxCDD-13C	2.00	97
1,2,3,7,8-PeCDD	1.00	1.01	101	1,2,3,6,7,8-HxCDD-13C	2.00	90
				1,2,3,4,6,7,8-HpCDF-13C	2.00	95
1,2,3,4,7,8-HxCDF	1.00	0.95	95	1,2,3,4,7,8,9-HpCDF-13C	2.00	107
1,2,3,6,7,8-HxCDF	1.00	0.97	97	1,2,3,4,6,7,8-HpCDD-13C	2.00	104
2,3,4,6,7,8-HxCDF	1.00	0.95	95	OCDD-13C	4.00	109
1,2,3,7,8,9-HxCDF	1.00	0.92	92	1,2,3,4-TCDD-13C	2.00	NA
				1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	1.00	1.02	102	2,3,7,8-TCDD-37Cl4	0.20	91
1,2,3,6,7,8-HxCDD	1.00	0.93	93			
1,2,3,7,8,9-HxCDD	1.00	1.00	100			
1,2,3,4,6,7,8-HpCDF	1.00	0.97	97			
1,2,3,4,7,8,9-HpCDF	1.00	0.97	97			
1,2,3,4,6,7,8-HpCDD	1.00	0.97	97			
OCDF	2.00	2.08	104			
OCDD	2.00	1.97	98			

Qs = Quantity Spiked

Qm = Quantity Measured

Rec. = Recovery (Expressed as Percent)

P = Recovery outside of target range

X = Background subtracted value

Nn = Value obtained from additional analysis

NA = Not Applicable

* = See Discussion

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Method 8290 Laboratory Control Spike Results

Client - ATC

Lab Sample ID	SPIKE-DUP-1386	Matrix	WIPE
Filename	U20425A_05	Dilution	NA
Total Amount Extracted	1 m2	Extracted	04/18/2002
ICAL Date	04/16/2002	Analyzed	04/25/2002 00:44
CCal Filename(s)	U20425A_01 & U20425A_16	Injected By	BAL
Method Blank ID	BLANK-1579		

Native Isomers	Qs (ng)	Qm (ng)	% Rec.	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	0.20	0.20	98	2,3,7,8-TCDF-13C	2.00	70
				2,3,7,8-TCDD-13C	2.00	75
				1,2,3,7,8-PeCDF-13C	2.00	71
2,3,7,8-TCDD	0.20	0.19	96	2,3,4,7,8-PeCDF-13C	2.00	70
				1,2,3,7,8-PeCDD-13C	2.00	76
				1,2,3,4,7,8-HxCDF-13C	2.00	96
1,2,3,7,8-PeCDF	1.00	0.95	95	1,2,3,6,7,8-HxCDF-13C	2.00	89
2,3,4,7,8-PeCDF	1.00	0.96	96	2,3,4,6,7,8-HxCDF-13C	2.00	91
				1,2,3,7,8,9-HxCDF-13C	2.00	94
				1,2,3,4,7,8-HxCDD-13C	2.00	98
1,2,3,7,8-PeCDD	1.00	0.99	99	1,2,3,6,7,8-HxCDD-13C	2.00	90
				1,2,3,4,6,7,8-HpCDF-13C	2.00	92
				1,2,3,4,7,8,9-HpCDF-13C	2.00	103
1,2,3,4,7,8-HxCDF	1.00	0.93	93	1,2,3,4,6,7,8-HpCDD-13C	2.00	100
1,2,3,6,7,8-HxCDF	1.00	0.98	98	OCDD-13C	4.00	105
2,3,4,6,7,8-HxCDF	1.00	0.94	94			
1,2,3,7,8,9-HxCDF	1.00	0.92	92	1,2,3,4-TCDD-13C	2.00	NA
				1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	1.00	0.97	97	2,3,7,8-TCDD-37Cl4	0.20	83
1,2,3,6,7,8-HxCDD	1.00	0.96	96			
1,2,3,7,8,9-HxCDD	1.00	0.98	98			
1,2,3,4,6,7,8-HpCDF	1.00	0.98	98			
1,2,3,4,7,8,9-HpCDF	1.00	0.97	97			
1,2,3,4,6,7,8-HpCDD	1.00	0.94	94			
OCDF	2.00	2.06	103			
OCDD	2.00	1.90	95			

Qs = Quantity Spiked

Qm = Quantity Measured

Rec. = Recovery (Expressed as Percent)

P = Recovery outside of target range

X = Background subtracted value

Nn = Value obtained from additional analysis

NA = Not Applicable

* = See Discussion

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REPORT OF LABORATORY ANALYSIS

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SPIKE RECOVERY RELATIVE PERCENT DIFFERENCE (RPD) RESULTS

Client.....ATC

SPIKE 1 ID.....SPIKE-1594
SPIKE 1 Filename.....U20425A_04
SPIKE 2 ID.....SPIKE DUP-1386
SPIKE 2 Filename.....U20425A_05

COMPOUND	SPIKE 1 REC,%	SPIKE 2 REC,%	RPD,%
2378-TCDF	102	98	4.0
2378-TCDD	98	96	2.1
12378-PeCDF	96	95	1.0
23478-PeCDF	96	96	0.0
12378-PeCDD	101	99	2.0
123478-HxCDF	95	93	2.1
123678-HxCDF	97	98	1.0
234678-HxCDF	95	94	1.1
123789-HxCDF	92	92	0.0
123478-HxCDD	102	97	5.0
123678-HxCDD	93	96	3.2
123789-HxCDD	100	98	2.0
1234678-HpCDF	97	98	1.0
1234789-HpCDF	97	97	0.0
1234678-HpCDD	97	94	3.1
OCDF	104	103	1.0
OCDD	98	95	3.1

REC = Percent Recovered

RPD = The difference between the two values divided by the average.

NA = Not Applicable

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