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Pace Analytical™

Pace Analytical Services, Inc.
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Minneapolis, MN 55414

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Method 8290 Blank Analysis Results

Client - ATC ASSOCIATES

Lab Sample ID	BLANK-1661	Matrix	WIPE
Filename	F20615A_03	Dilution	NA
Total Amount Extracted	1 m2	Extracted	06/10/2002
ICAL Date	05/04/2002	Analyzed	06/15/2002 17:05
CCal Filename(s)	F20615A_01 & F20615A_16	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	87
Total TCDF	ND	-----	0.00200	2,3,7,8-TCDD-13C	2.00	76
				1,2,3,7,8-PeCDF-13C	2.00	85
2,3,7,8-TCDD	ND	-----	0.00200	2,3,4,7,8-PeCDF-13C	2.00	84
Total TCDD	0.025	-----	0.00200	1,2,3,7,8-PeCDD-13C	2.00	76
				1,2,3,4,7,8-HxCDF-13C	2.00	110
1,2,3,7,8-PeCDF	ND	-----	0.01000	1,2,3,6,7,8-HxCDF-13C	2.00	117
2,3,4,7,8-PeCDF	ND	-----	0.01000	2,3,4,6,7,8-HxCDF-13C	2.00	111
Total PeCDF	ND	-----	0.01000	1,2,3,7,8,9-HxCDF-13C	2.00	109
				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	108
Total PeCDD	ND	-----	0.01000	1,2,3,4,6,7,8-HpCDF-13C	2.00	93
				1,2,3,4,7,8,9-HpCDF-13C	2.00	79
1,2,3,4,7,8-HxCDF	ND	-----	0.01000	1,2,3,4,6,7,8-HpCDD-13C	2.00	75
1,2,3,6,7,8-HxCDF	ND	-----	0.01000	OCDD-13C	4.00	72
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	83
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.....02-1058087

REPORT OF LABORATORY ANALYSIS

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Method 8290 Analysis Results

Client - ATC ASSOCIATES

Client's Sample ID	ATC-0514-234M-DX1		
Lab Sample ID	103579835		
Filename	F20615A_04		
Injected By	BAL		
Total Amount Extracted	1 m2	Matrix	WIPE
% Moisture	NA	Dilution	NA
Dry Weight Extracted	NA	Collected	05/04/2002
ICAL Date	05/04/2002	Received	05/29/2002
CCal Filename(s)	F20615A_01 & F20615A_16	Extracted	06/10/2002
Method Blank ID	BLANK-1661	Analyzed	06/15/2002 17:55

Native Isomers	Conc ng/m2	EMPC ng/m2	LRL ng/m2		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	0.0037	-----	0.0020	J	2,3,7,8-TCDF-13C	2.00	85
Total TCDF	0.0600	-----	0.0020		2,3,7,8-TCDD-13C	2.00	77
					1,2,3,7,8-PeCDF-13C	2.00	74
2,3,7,8-TCDD	ND	-----	0.0026	A	2,3,4,7,8-PeCDF-13C	2.00	74
Total TCDD	0.1000	-----	0.0020	B	1,2,3,7,8-PeCDD-13C	2.00	69
					1,2,3,4,7,8-HxCDF-13C	2.00	97
1,2,3,7,8-PeCDF	ND	-----	0.0100		1,2,3,6,7,8-HxCDF-13C	2.00	117
2,3,4,7,8-PeCDF	ND	-----	0.0100		2,3,4,6,7,8-HxCDF-13C	2.00	105
Total PeCDF	ND	-----	0.0100		1,2,3,7,8,9-HxCDF-13C	2.00	106
					1,2,3,4,7,8-HxCDD-13C	2.00	104
1,2,3,7,8-PeCDD	ND	-----	0.0100		1,2,3,6,7,8-HxCDD-13C	2.00	94
Total PeCDD	0.0190	-----	0.0100	J	1,2,3,4,6,7,8-HpCDF-13C	2.00	83
					1,2,3,4,7,8,9-HpCDF-13C	2.00	58
1,2,3,4,7,8-HxCDF	ND	-----	0.0100		1,2,3,4,6,7,8-HpCDD-13C	2.00	72
1,2,3,6,7,8-HxCDF	ND	-----	0.0100		OCDD-13C *	4.00	59
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	0.0110	-----	0.0100	J	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	86
1,2,3,6,7,8-HxCDD	ND	-----	0.0100				
1,2,3,7,8,9-HxCDD	ND	-----	0.0100				
Total HxCDD	0.0160	-----	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: 0.00086 ng/m2		
Total HpCDF	ND	-----	0.0100		(Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD	0.0230	-----	0.0100	J			
Total HpCDD	0.0510	-----	0.0100	J			
OCDF	ND	-----	0.0200				
OCDD	0.2600	-----	0.0200				

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

Report No.....02-1058087

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Method 8290 Analysis Results

Client - ATC ASSOCIATES

Client's Sample ID	ATC-0514-234M-DX2		
Lab Sample ID	103579843		
Filename	F20615A_05		
Injected By	BAL		
Total Amount Extracted	1 m2	Matrix	WIPE
% Moisture	NA	Dilution	NA
Dry Weight Extracted	NA	Collected	05/04/2002
ICAL Date	05/04/2002	Received	05/29/2002
CCal Filename(s)	F20615A_01 & F20615A_16	Extracted	06/10/2002
Method Blank ID	BLANK-1661	Analyzed	06/15/2002 18:43

Native Isomers	Conc ng/m2	EMPC ng/m2	LRL ng/m2		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	0.0028	A	2,3,7,8-TCDF-13C	2.00	76
Total TCDF	ND	-----	0.0020		2,3,7,8-TCDD-13C	2.00	69
					1,2,3,7,8-PeCDF-13C	2.00	70
2,3,7,8-TCDD	ND	-----	0.0024	A	2,3,4,7,8-PeCDF-13C	2.00	69
Total TCDD	0.025	-----	0.0020	B	1,2,3,7,8-PeCDD-13C	2.00	65
					1,2,3,4,7,8-HxCDF-13C	2.00	93
1,2,3,7,8-PeCDF	ND	-----	0.0100		1,2,3,6,7,8-HxCDF-13C	2.00	108
2,3,4,7,8-PeCDF	ND	-----	0.0100		2,3,4,6,7,8-HxCDF-13C	2.00	101
Total PeCDF	ND	-----	0.0100		1,2,3,7,8,9-HxCDF-13C	2.00	93
					1,2,3,4,7,8-HxCDD-13C	2.00	92
1,2,3,7,8-PeCDD	ND	-----	0.0100		1,2,3,6,7,8-HxCDD-13C	2.00	93
Total PeCDD	ND	-----	0.0100		1,2,3,4,6,7,8-HpCDF-13C	2.00	82
					1,2,3,4,7,8,9-HpCDF-13C	2.00	62
1,2,3,4,7,8-HxCDF	ND	-----	0.0100		1,2,3,4,6,7,8-HpCDD-13C	2.00	70
1,2,3,6,7,8-HxCDF	ND	-----	0.0100		OCDD-13C *	4.00	62
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	75
1,2,3,6,7,8-HxCDD	ND	-----	0.0100				
1,2,3,7,8,9-HxCDD	ND	-----	0.0100				
Total HxCDD	ND	-----	0.0100				
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: 0.00 ng/m2		
Total HpCDF	ND	-----	0.0100		(Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD	ND	-----	0.0100				
Total HpCDD	ND	-----	0.0100				
OCDF	ND	-----	0.0200				
OCDD	ND	-----	0.0200				

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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Method 8290 Laboratory Control Spike Results

Client - ATC ASSOCIATES

Lab Sample ID	SPIKE-1675		
Filename	F20615A_14	Matrix	WIPE
Total Amount Extracted	1 m2	Dilution	NA
ICAL Date	05/04/2002	Extracted	06/10/2002
CCal Filename(s)	F20615A_01 & F20615A_16	Analyzed	06/16/2002 02:05
Method Blank ID	BLANK-1661	Injected By	BAL

Native Isomers	Qs (ng)	Qm (ng)	% Rec.	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	0.20	0.21	104	2,3,7,8-TCDF-13C	2.00	66
				2,3,7,8-TCDD-13C	2.00	60
				1,2,3,7,8-PeCDF-13C	2.00	67
2,3,7,8-TCDD	0.20	0.20	101	2,3,4,7,8-PeCDF-13C	2.00	65
				1,2,3,7,8-PeCDD-13C	2.00	63
				1,2,3,4,7,8-HxCDF-13C	2.00	85
1,2,3,7,8-PeCDF	1.00	1.05	105	1,2,3,6,7,8-HxCDF-13C	2.00	101
2,3,4,7,8-PeCDF	1.00	1.04	104	2,3,4,6,7,8-HxCDF-13C	2.00	84
				1,2,3,7,8,9-HxCDF-13C	2.00	87
				1,2,3,4,7,8-HxCDD-13C	2.00	87
1,2,3,7,8-PeCDD	1.00	1.03	103	1,2,3,6,7,8-HxCDD-13C	2.00	81
				1,2,3,4,6,7,8-HpCDF-13C	2.00	79
				1,2,3,4,7,8,9-HpCDF-13C	2.00	62
1,2,3,4,7,8-HxCDF	1.00	1.10	110	1,2,3,4,6,7,8-HpCDD-13C	2.00	69
1,2,3,6,7,8-HxCDF	1.00	1.01	101	OCDD-13C	4.00	62
2,3,4,6,7,8-HxCDF	1.00	1.10	110			
1,2,3,7,8,9-HxCDF	1.00	1.04	104	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	1.06	106	2,3,7,8-TCDD-37Cl4	0.20	73
1,2,3,6,7,8-HxCDD	1.00	1.10	110			
1,2,3,7,8,9-HxCDD	1.00	1.14	114			
1,2,3,4,6,7,8-HpCDF	1.00	1.01	101			
1,2,3,4,7,8,9-HpCDF	1.00	0.98	98			
1,2,3,4,6,7,8-HpCDD	1.00	1.08	108			
OCDF	2.00	2.15	107			
OCDD	2.00	2.20	110			

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 ASSOCIATES

Lab Sample ID	SPIKE-DUP-1437		
Filename	F20615A_15	Matrix	WIPE
Total Amount Extracted	1 m2	Dilution	NA
ICAL Date	05/04/2002	Extracted	06/10/2002
CCal Filename(s)	F20615A_01 & F20615A_16	Analyzed	06/16/2002 02:54
Method Blank ID	BLANK-1661	Injected By	BAL

Native Isomers	Qs (ng)	Qm (ng)	% Rec.	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	0.20	0.21	107	2,3,7,8-TCDF-13C	2.00	76
				2,3,7,8-TCDD-13C	2.00	69
				1,2,3,7,8-PeCDF-13C	2.00	74
2,3,7,8-TCDD	0.20	0.21	103	2,3,4,7,8-PeCDF-13C	2.00	73
				1,2,3,7,8-PeCDD-13C	2.00	69
				1,2,3,4,7,8-HxCDF-13C	2.00	98
1,2,3,7,8-PeCDF	1.00	1.07	107	1,2,3,6,7,8-HxCDF-13C	2.00	104
2,3,4,7,8-PeCDF	1.00	1.08	108	2,3,4,6,7,8-HxCDF-13C	2.00	93
				1,2,3,7,8,9-HxCDF-13C	2.00	93
				1,2,3,4,7,8-HxCDD-13C	2.00	88
1,2,3,7,8-PeCDD	1.00	1.05	105	1,2,3,6,7,8-HxCDD-13C	2.00	85
				1,2,3,4,6,7,8-HpCDF-13C	2.00	83
				1,2,3,4,7,8,9-HpCDF-13C	2.00	66
1,2,3,4,7,8-HxCDF	1.00	1.02	102	1,2,3,4,6,7,8-HpCDD-13C	2.00	74
1,2,3,6,7,8-HxCDF	1.00	1.05	105	OCDD-13C	4.00	66
2,3,4,6,7,8-HxCDF	1.00	1.07	107			
1,2,3,7,8,9-HxCDF	1.00	1.06	106	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	1.12	112	2,3,7,8-TCDD-37Cl4	0.20	81
1,2,3,6,7,8-HxCDD	1.00	1.13	113			
1,2,3,7,8,9-HxCDD	1.00	1.20	120			
1,2,3,4,6,7,8-HpCDF	1.00	1.02	102			
1,2,3,4,7,8,9-HpCDF	1.00	1.00	100			
1,2,3,4,6,7,8-HpCDD	1.00	1.09	109			
OCDF	2.00	2.11	105			
OCDD	2.00	2.12	106			

Qs = Quantity Spiked
Qm = Quantity Measured
Rec. = Recovery (Expressed as Percent)
P = Recovery outside of target range
X = Background subtracted value
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NA = Not Applicable
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