

SERVICE Engineering Group

05017-0207 Onondaga Lake

Odor Evaluation Report

Report No. 531903 11/15/05

Data Release Authorization:

melossa melinty

Melissa McGinley Laboratory Associate Reviewed and Approved:

Charles M. McGinley, P.E Technical Director

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3549 Lake Elmo Avenue North P.O. Box 313 Lake Elmo, Minnesota 55042 U.S.A.

> Tel: 800-879-9231 Fax: 651-439-1065

Email: stcroix@fivesenses.com

St. Croix Sensory, Inc. Odor Evaluation Report

Client: SERVICE Engineering Group Report No.: 531903

Project: 05017-0207 Onondaga Lake Evaluation Date: 11/15/05

			ASTM E679	& EN13725	ASTM E544	PERSISTENCY			
#	Field No.	Sample Description	Detection Threshold	Recognition Threshold	Intensity	Dose-Response Slope	Hedonic Tone	Principal Odor Descriptors	Comments
1	10029-In-(0-2)	0-2 Hour Samples from Wind Tunnel	95	55	19	-0.28			
2	10029-In-(2-6)	2-6 Hour Sample	100	55	40	-0.51			
3	10029-In-(6-22)	6-22 Hour Wind Tunnel Sample	40	23	19	-0.30			

St. Croix Sensory, Inc.

Odor Evaluation Report

 Client:
 SERVICE Engineering Group
 Report No.:
 531903

 Project:
 05017-0207 Onondaga Lake
 Evaluation Date:
 11/15/05

			ASTM E679	& EN13725	ASTM E544	PERSISTENCY		CHARACTERIZATION	
			Detection	Recognition		Dose-Response	Hedonic		
#	Field No.	Sample Description	Threshold	Threshold	Intensity	Slope	Tone	Principal Odor Descriptors	Comments
1									

CHAIN OF CUSTODY RECORD FOR ODOR SAMPLES

					•						
Client	Client: S'ERVICE Engr Group	igr Group	Sampled By:	R.C.M	Z	Odor Ev	Odor Evaluations Requested: (X)	Requeste	ed: (X)	Page_Lof_	Jo
Projec	Project Name: 05017 - 0207	705017-0207	Sampling Date: **	18/5/09		uc			1	For Laboratory use Onl	y use Onl
Comments:						Zoncentratio	r Intensity (PPM)	iaracterizat one & Descrip	Persistency e-Response")	Odor Evaluation Report No.	luation No.
Line	- IN FIRST			Sample	Field H ₂ S					Laboratory Sample No.	ample No.
No.	Field INO.	74 6 20	Sample Description	Time	(mdd)					Z	E
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2	10029-IN-(2-6)	6 2.6 hour sample	mple	11/14/05		×	×		X		
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4											
5											
9											
7					48						
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6											
10											
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St. Croix Sensory, Inc. * 3549 Lake Elmo Avenue North * Lake Elmo, MN 55042 U.S.A. * Tel:800-879-9231 * Fax:651-439-1065 * Email:stcroix@fivesenses.com * Web:www.fivesenses.com

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CLIENT COPY PINK

CHAIN OF CUSTODY RECORD FOR ODOR SAMPLES

(X) Pageof	For Laboratory use Only	(,,;	Report No.			×										Comments & Exceptions Noted
Odor Evaluations Requested: (X)	tors)	162	r Intensii (PPM) naracteriz one & Desc one & Desc	Or Ch	эН)	×										Time
Odor E	u	oiti	oncentra		O	\times										Date
Sampled By: Will Caff	Sampling Date: 11/15/05 12:30				$\begin{array}{c c} \text{Sample} & \text{Field H}_2S \\ \text{Time} & \text{(ppm)} \end{array}$	50/51/11										Date Time Accepted By (15:50)
Client: SERVICE Engr Group Sai					Field No. Sample Description	10029-IN-(6.22) 6-22 hour wind tunnel										Transfer & Shipping Relinqished By Information
Client: SE	Project Nam	,	Comments:		Line No.		2	3	4	5	9	7	∞	6	10	Transfer &

St. Croix Sensory, Inc. + 3549 Lake Elmo Avenue North + Lake Elmo, MN 55042 U.S.A. + Tel:800-879-9231 + Fax:651-439-1065 + Email:stcroix@fivesenses.com + Web:www.fivesenses.com Received at St. Croix Sensory Laboratory Number of "Air-Pacs"/ Shipping Boxes_

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Comments Key:

- A Sample bag was received without sample.
- **B** Insufficient sample volume to complete evaluation.
- **C** Sample bag was received with condensation in the bag.
- **D** Sample description was not provided.
- **E** Assessors did not observe the sample at full stregth for Intensity, Characterization, or Persistency evaluations.
 - **E1** Sample was observed at a maximum of 50% dilution.
 - **E2** Only Persistency evaluation was conducted.
- **F** Assessors did not observe the sample for Intensity, Characterization, or Persistency evaluations.
- G By client request, the IITRI Dynamic Dilution Triangle Olfactometer, with a sample presentation flow rate of 0.5-lpm and a Method Detection Limit for Detection and Recognition Threshold of '4', was used to determine the thresholds for this odor evaluation

If you have any questions regarding the comments for this evaluation, please contact our lab at +800-879-9231 ext.12.



SERVICE Engineering Group

05017-0207

Odor Evaluation Report

Report No. 532003 11/16/05

Data Release Authorization:

melossa melinty

Melissa McGinley Laboratory Associate Reviewed and Approved:

Charles M. McGinley, P.E Technical Director

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Email: stcroix@fivesenses.com

St. Croix Sensory, Inc. Odor Evaluation Report

Client:	SERVICE Engineering Group	Report No.:	532003
Project:	05017-0207	Evaluation Date:	11/16/05

			ASTM E679	& EN13725	ASTM E544	PERSISTENCY			
#	Field No.	Sample Description	Detection Threshold	Recognition Threshold	Intensity	Dose-Response Slope	Hedonic Tone	Principal Odor Descriptors	Comments
1	10029-10M-(0-2)	0-2 Hour Wind Tunnel Odor Sample	65	40	13	-0.18			
2	10029-10M-(2-6)	2-6 Hour Odor Sample	45	30	15	-0.21			
3	10029-10M-(6-22)	6-22 Hour Odor Sample	50	30	14	-0.21			

 Client:
 SERVICE Engineering Group
 Report No.:
 532003

 Project:
 05017-0207
 Evaluation Date:
 11/16/05

Odor Evaluation Report

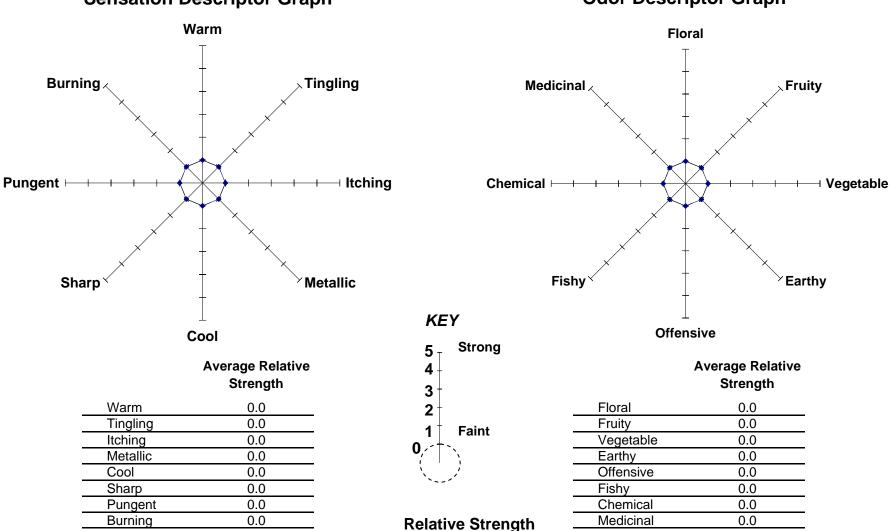
			ASTM E679	& EN13725	ASTM E544	PERSISTENCY		CHARACTERIZATION	1
			Detection	Recognition			Hedonic		
#	Field No.	Sample Description	Threshold	Threshold	Intensity	Slope	Tone	Principal Odor Descriptors	Comments
_									

Client: SERVICE Engineering Group Field No.: 10029-10M-(0-2) Report No.: 532003

Project: 05017-0207 Description: 0-2 Hour Wind Tunnel Odor Sample Evaluation Date: 11/16/05

Sensation Descriptor Graph

Odor Descriptor Graph



Odor Evaluation Report

 Client:
 SERVICE Engineering Group
 Field No.:
 10029-10M-(0-2)
 Report No.:
 532003

 Project:
 05017-0207
 Description:
 0-2 Hour Wind Tunnel Odor Sample
 Evaluation Date:
 11/16/05

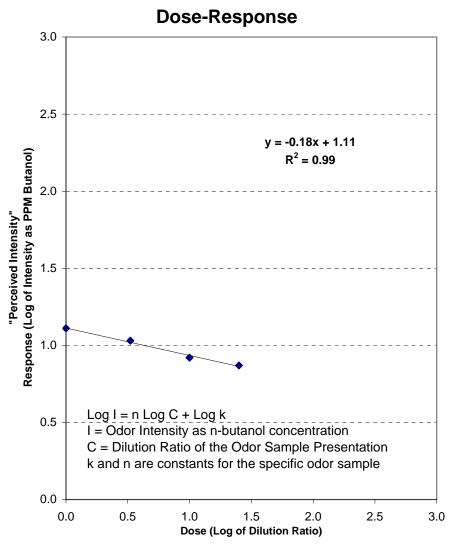
Client: SERVICE Engineering Group
Project: 05017-0207

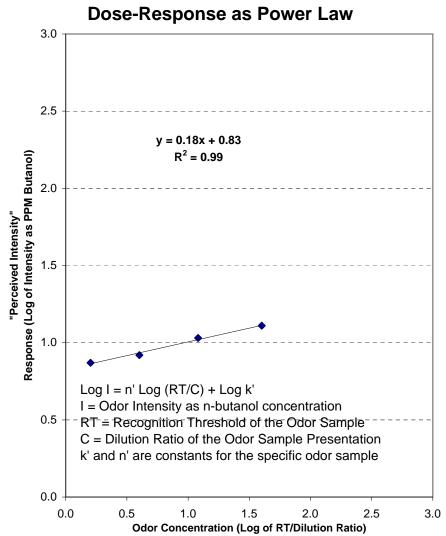
Field No.: 10029-10M-(0-2)

Description: 0-2 Hour Wind Tunnel Odor Sample

Report No.: 532003

Evaluation Date: 11/16/05

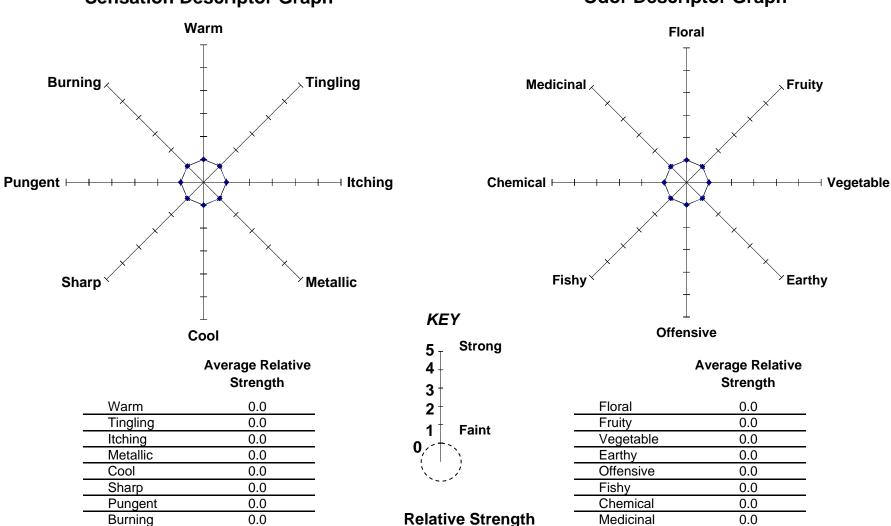




Client:SERVICE Engineering GroupField No.:10029-10M-(2-6)Report No.:532003Project:05017-0207Description:2-6 Hour Odor SampleEvaluation Date:11/16/05

Sensation Descriptor Graph

Odor Descriptor Graph



Odor Evaluation Report

 Client:
 SERVICE Engineering Group
 Field No.:
 10029-10M-(2-6)
 Report No.:
 532003

 Project:
 05017-0207
 Description:
 2-6 Hour Odor Sample
 Evaluation Date:
 11/16/05

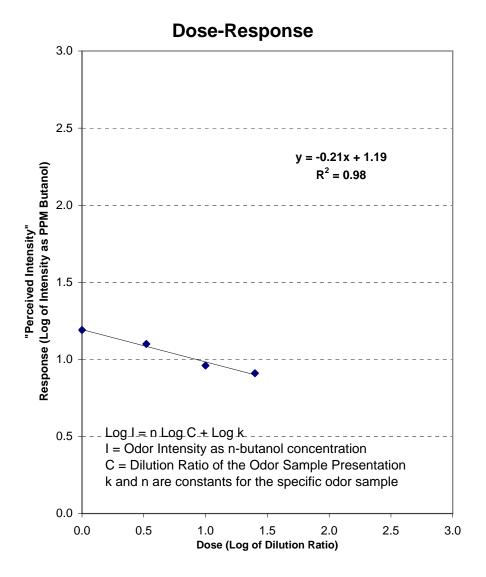
Client: SERVICE Engineering Group
Project: 05017-0207

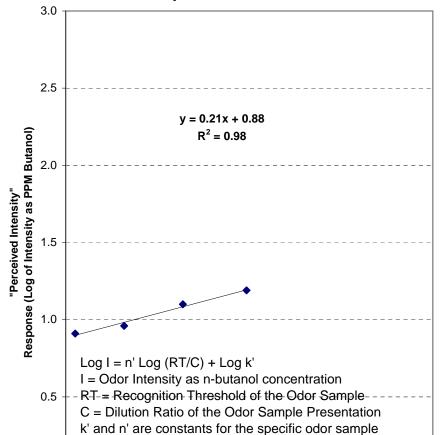
Field No.: 10029-10M-(2-6)

Description: 2-6 Hour Odor Sample

Report No.: 532003

Evaluation Date: 11/16/05





Dose-Response as Power Law

0.0

0.0

0.5

1.0

1.5

Odor Concentration (Log of RT/Dilution Ratio)

2.0

2.5

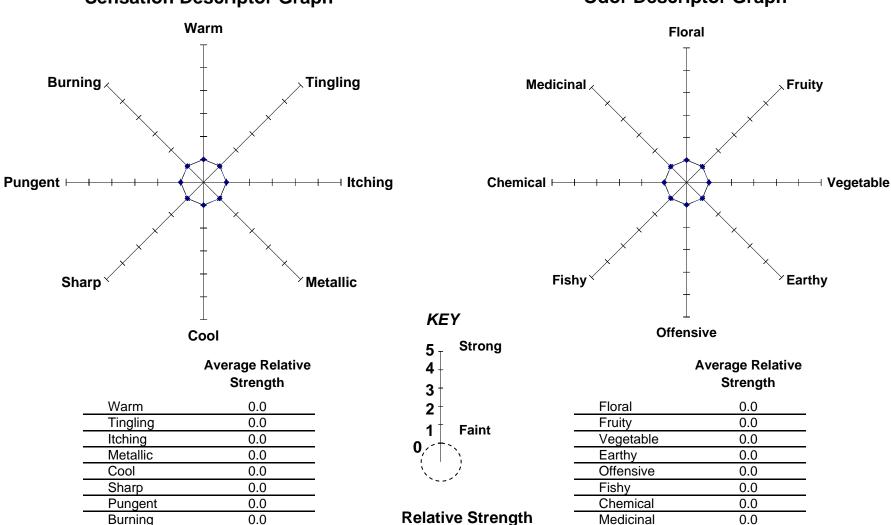
3.0

Client: SERVICE Engineering Group Field No.: 10029-10M-(6-22) Report No.: 532003

Project: 05017-0207 Description: 6-22 Hour Odor Sample Evaluation Date: 11/16/05

Sensation Descriptor Graph

Odor Descriptor Graph



Odor Evaluation Report

 Client:
 SERVICE Engineering Group
 Field No.:
 10029-10M-(6-22)
 Report No.:
 532003

 Project:
 05017-0207
 Description:
 6-22 Hour Odor Sample
 Evaluation Date:
 11/16/05

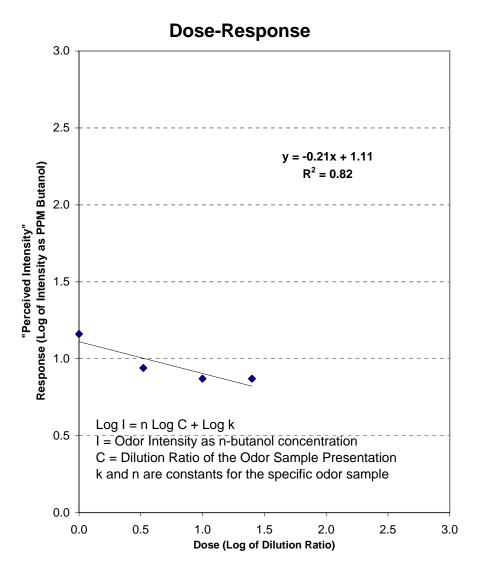
Client: SERVICE Engineering Group
Project: 05017-0207

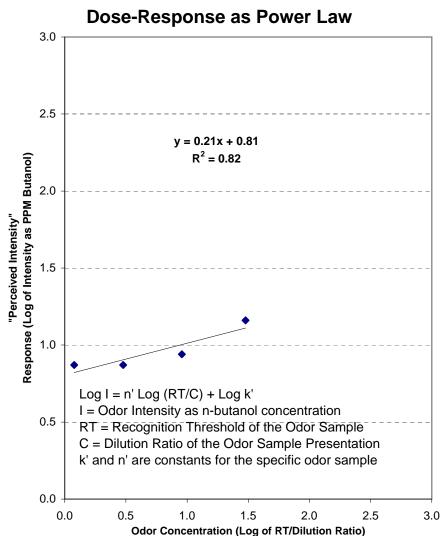
Field No.: 10029-10M-(6-22)

Description: 6-22 Hour Odor Sample

Report No.: 532003

Evaluation Date: 11/16/05





CHAIN OF CUSTODY RECORD FOR ODOR SAMPLES

Comments: Line Field No. Line Field No. 1 10029-10m-(2-6) 2 10029-10m-(2-6) 3 10029-10m-(6-22) 4 4 5 6 9 9	Creation Commission Commission Contractions Requested: (X)	Sampled by: Will L. Ry	Sampling Date: 11/15 - 11/16 1/05	oncentration oncentration oncentration oncentration oncentration oncentration once & Descripone	Odor Tolor Tolor Tolor	po DeH)	G-2 hour windtunnel oder 11/15/05 Sample	2-6 hour odor sample	6-22 hour oder sample				
RVICE Enc 79.10m-(0-2) 19.10m-(2-6) 29.10m-(6-22)						Sample Description		hour odor	6-22 hour oder sample				
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Transfer & Shipping Information

Number of "Air-Pacs"/ Shipping Boxes (

Comments & Exceptions Noted 830 Date Work Mood Accepted By Time Received at St. Croix Sensory Laboratory Date

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Comments Key:

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- **E** Assessors did not observe the sample at full stregth for Intensity, Characterization, or Persistency evaluations.
 - **E1** Sample was observed at a maximum of 50% dilution.
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- **F** Assessors did not observe the sample for Intensity, Characterization, or Persistency evaluations.
- G By client request, the IITRI Dynamic Dilution Triangle Olfactometer, with a sample presentation flow rate of 0.5-lpm and a Method Detection Limit for Detection and Recognition Threshold of '4', was used to determine the thresholds for this odor evaluation

If you have any questions regarding the comments for this evaluation, please contact our lab at +800-879-9231 ext.12.



Service Engineering Group 05017-0207

> **Odor Evaluation Report** Report No. 532102 11/17/05

Data Release Authorization:

Melosci Mchirly

Melissa McGinley Laboratory Associate

Reviewed and Approved: Charles mmay

Charles M. McGinley, P.E.

Technical Director

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> Tel: 800-879-9231 Fax: 651-439-1065

Email: stcroix@fivesenses.com

Client:

Report No.:	532102

Odor Evaluation Report

Service Engineering Group 05017-0207 Evaluation Date: 11/17/05 Project:

			ASTM E679	& EN13725	ASTM E544	PERSISTENCY		CHARACTERIZATION	
			Detection	Recognition		Dose-Response	Hedonic		
#	Field No.	Sample Description	Threshold	Threshold	Intensity	Slope	Tone	Principal Odor Descriptors	Comments
1	10029-10Q-(0-2)	0-2 hour odor sample	65	35	17	-0.20			
2	10029-10Q-(2-6)	2-6 hour odor sample	90	50	17	-0.23			
3	10029-10Q-(6-22)	6-22 odor sample	60	45	13	-0.14			

St. Croix Sensory, Inc.

Odor Evaluation Report

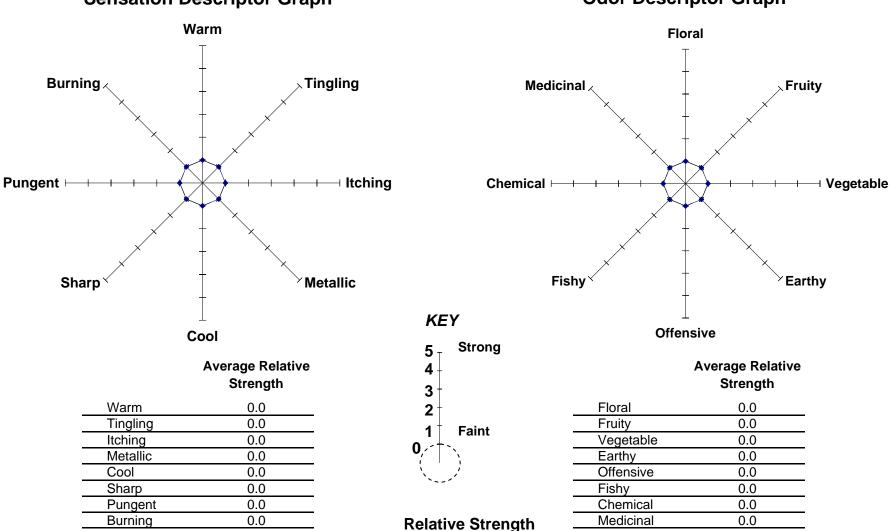
Client:	Service Engineering Group	Report No.:	532102
Project:	05017-0207	Evaluation Date:	11/17/05

			ASTM E679	& EN13725	ASTM E544	PERSISTENCY			
#	Field No.	Sample Description	Detection Threshold	Recognition Threshold	Intensity	Dose-Response Slope	Hedonic Tone	Principal Odor Descriptors	Comments
							#REF!		
							#REF!		
							#REF!		
							#REF!		
							#REF!		
							#REF!		

Client:Service Engineering GroupField No.:10029-10Q-(0-2)Report No.:532102Project:05017-0207Description:0-2 hour odor sampleEvaluation Date:11/17/05

Sensation Descriptor Graph

Odor Descriptor Graph

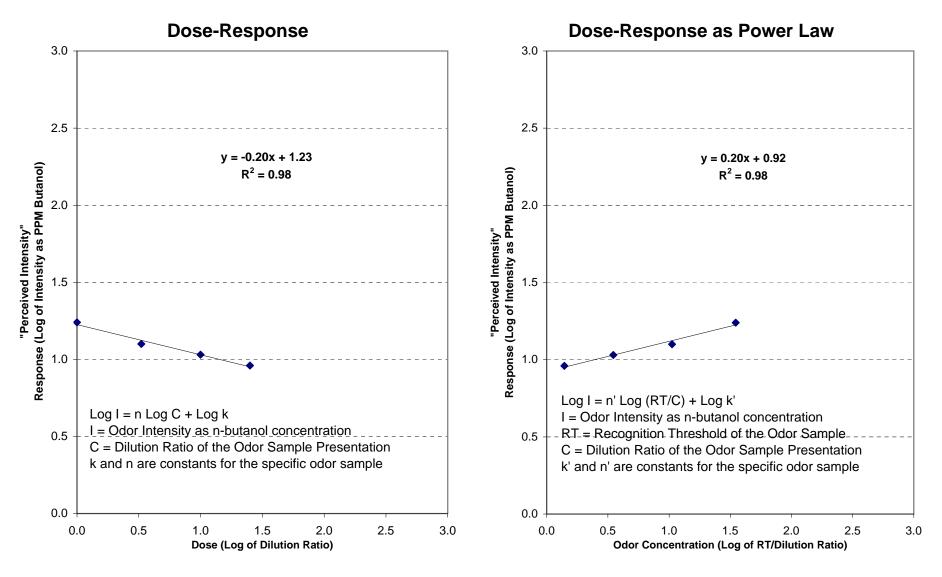


Odor Evaluation Report

 Client:
 Service Engineering Group
 Field No.:
 10029-10Q-(0-2)
 Report No.:
 532102

 Project:
 05017-0207
 Description:
 0-2 hour odor sample
 Evaluation Date:
 11/17/05

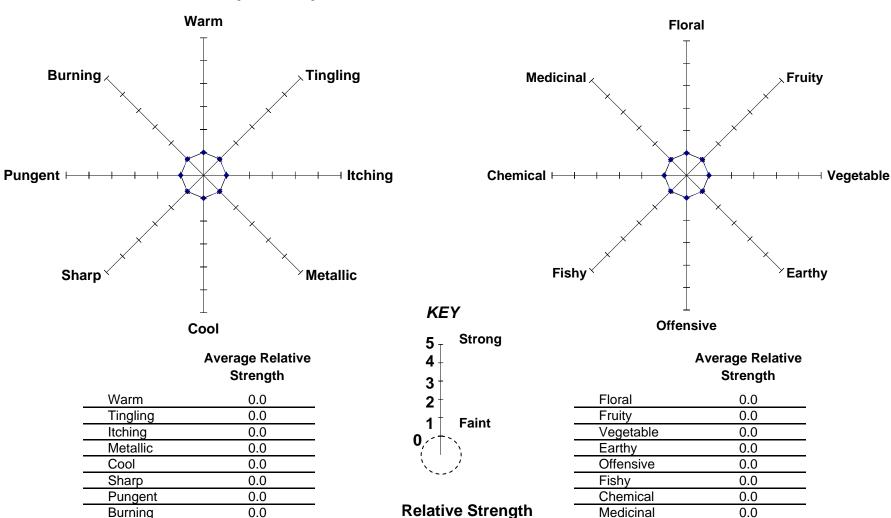
Client:Service Engineering GroupField No.:10029-10Q-(0-2)Report No.:532102Project:05017-0207Description:0-2 hour odor sampleEvaluation Date:11/17/05



Client:Service Engineering GroupField No.:10029-10Q-(2-6)Report No.:532102Project:05017-0207Description:2-6 hour odor sampleEvaluation Date:11/17/05

Sensation Descriptor Graph

Odor Descriptor Graph

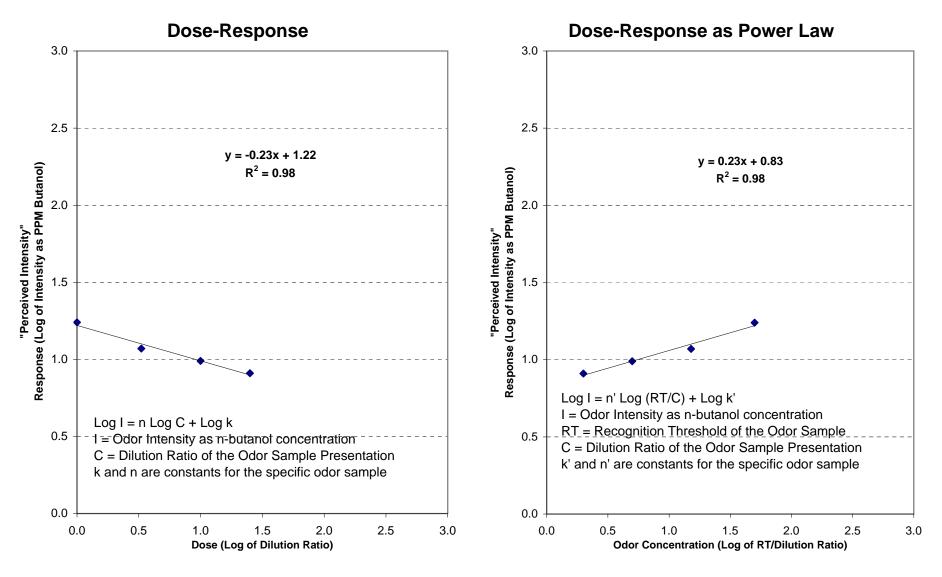


Odor Evaluation Report

 Client:
 Service Engineering Group
 Field No.:
 10029-10Q-(2-6)
 Report No.:
 532102

 Project:
 05017-0207
 Description:
 2-6 hour odor sample
 Evaluation Date:
 11/17/05

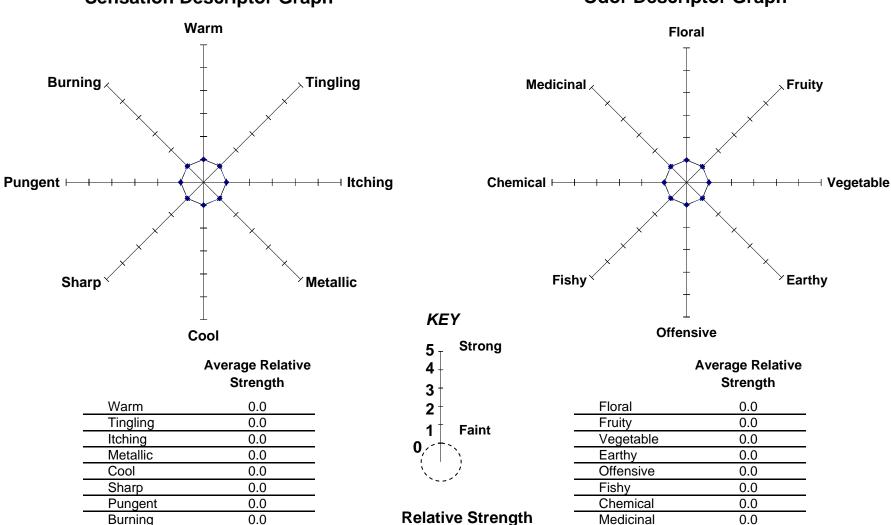
Client:Service Engineering GroupField No.:10029-10Q-(2-6)Report No.:532102Project:05017-0207Description:2-6 hour odor sampleEvaluation Date:11/17/05



Client:Service Engineering GroupField No.:10029-10Q-(6-22)Report No.:532102Project:05017-0207Description:6-22 odor sampleEvaluation Date:11/17/05

Sensation Descriptor Graph

Odor Descriptor Graph

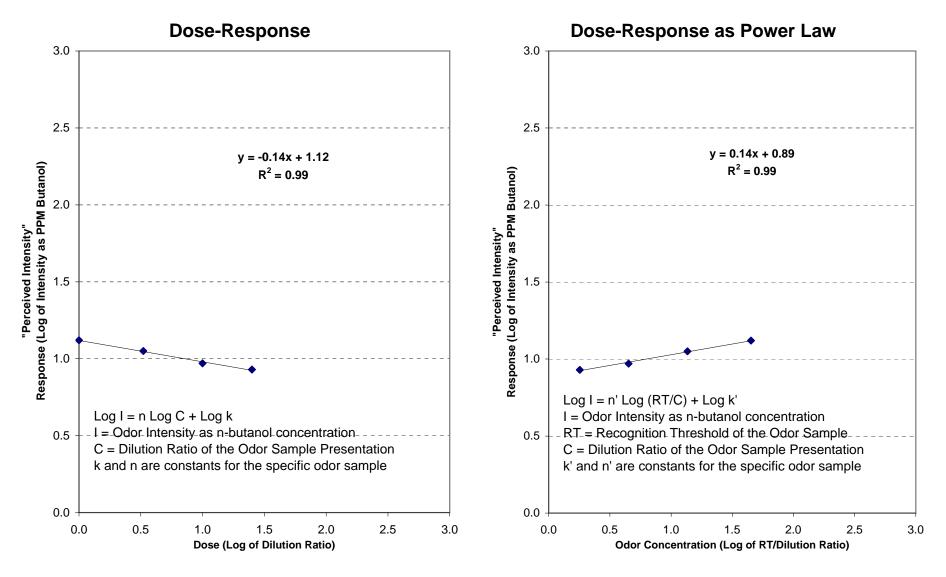


Odor Evaluation Report

 Client:
 Service Engineering Group
 Field No.:
 10029-10Q-(6-22)
 Report No.:
 532102

 Project:
 05017-0207
 Description:
 6-22 odor sample
 Evaluation Date:
 11/17/05

Client:Service Engineering GroupField No.:10029-10Q-(6-22)Report No.:532102Project:05017-0207Description:6-22 odor sampleEvaluation Date:11/17/05



CHAIN OF CUSTODY RECORD FOR ODOR SAMPLES

	1: (X) Pageof	For Laboratory use Only	Persistency Odor Evaluation Report No.			×	×								Comments & Exceptions Noted
	Odor Evaluations Requested: (X)	(PPM) Odor Characterization (Hedonic Tone & Descriptors)			×	×	×								Time
	Odor Evalu	uc	oncentrationT, RT)	I)	X	×	×								Date
O TO COLUMN TO THE TOTAL	6.24	50ft1/11-		Sample Field H ₂ S Time (ppm)	20 00	19/10/05	50/11/10								Accepted By
TO NEO T	Sampled By: Life	Sampling Date: 11/16 - 11/17/05		Sample Description		sample	sample "								Date Time
	fr Grp	+020+		Sample D	0-2 hour adorsample	2-6 hour ador	6-22 hour odor								Relingished By
	Client: SERVICE Engr Grp	Project Name: 05017 - 0207	ents:	Field No.	(2-0)-001-62001	(9-2)-001-62001	(22-9)-001-62001								Transfer & Shipping Information
	Client:	Project	Comments:	Line No.	1	2	3	4	5	9	7	8	6	10	Transf

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Information	WRAG	20/41/11	0
Number of	1/		
"Air-Pacs"/			
Shipping Boxes	Received at St. Croix Sensory Labor	x Sensory Labo	rato

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Comments Key:

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 - **E2** Only Persistency evaluation was conducted.
- **F** Assessors did not observe the sample for Intensity, Characterization, or Persistency evaluations.
- G By client request, the IITRI Dynamic Dilution Triangle Olfactometer, with a sample presentation flow rate of 0.5-lpm and a Method Detection Limit for Detection and Recognition Threshold of '4', was used to determine the thresholds for this odor evaluation

If you have any questions regarding the comments for this evaluation, please contact our lab at +800-879-9231 ext.12.



Service Engineering Group 05017-0207

Odor Evaluation Report Report No. 532201 11/18/05

Data Release Authorization:

Natasha Kaslow Laboratory Associate

nataha Kaslow

Reviewed and Approved:

Charles M. McGinley, P.E. Technical Director

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Email: stcroix@fivesenses.com

 Client:
 Service Engineering Group
 Report No.:
 532201

 Project:
 05017-0207
 Evaluation Date:
 11/18/05

Odor Evaluation Report

			ASTM E679 & EN13725		ASTM E544	PERSISTENCY	CHARACTERIZATION		
#	Field No.	Sample Description	Detection Threshold	Recognition Threshold	Intensity	Dose-Response Slope	Hedonic Tone	Principal Odor Descriptors	Comments
1	10029-1M-(0-2)	0-2 hour odor sample	45	30	16	-0.25			
2	10029-1M-(2-6)	2-6 hour odor sample	60	35	11	-0.18			
3	10029-1M-(6-22)	6-22 hour odor sample	30	25	13	-0.23			

St. Croix Sensory, Inc.

Odor Evaluation Report

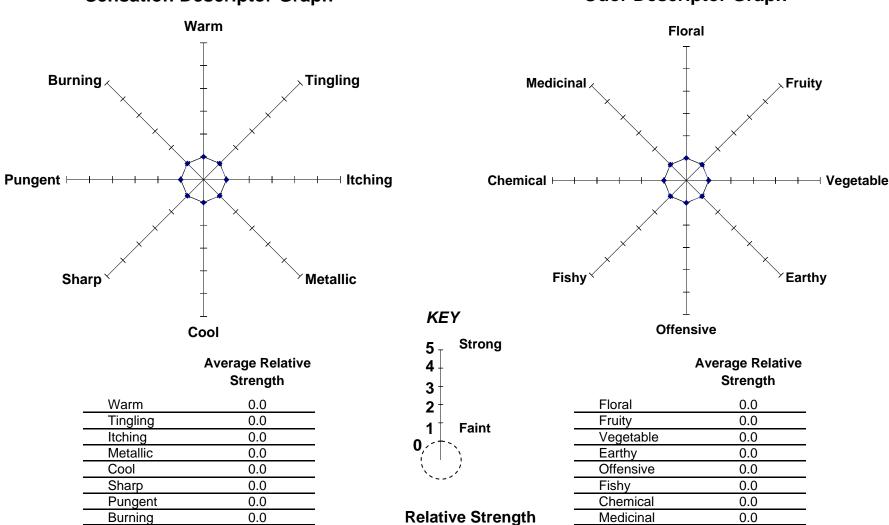
Client:	Service Engineering Group	Report No.:	532201
Project:	05017-0207	Evaluation Date:	11/18/05

			ASTM E679	& EN13725	ASTM E544	PERSISTENCY		CHARACTERIZATION	1
			Detection	Recognition			Hedonic		
#	Field No.	Sample Description	Threshold	Threshold	Intensity	Slope	Tone	Principal Odor Descriptors	Comments
_									

Client:Service Engineering GroupField No.:10029-1M-(0-2)Report No.:532201Project:05017-0207Description:0-2 hour odor sampleEvaluation Date:11/18/05

Sensation Descriptor Graph

Odor Descriptor Graph

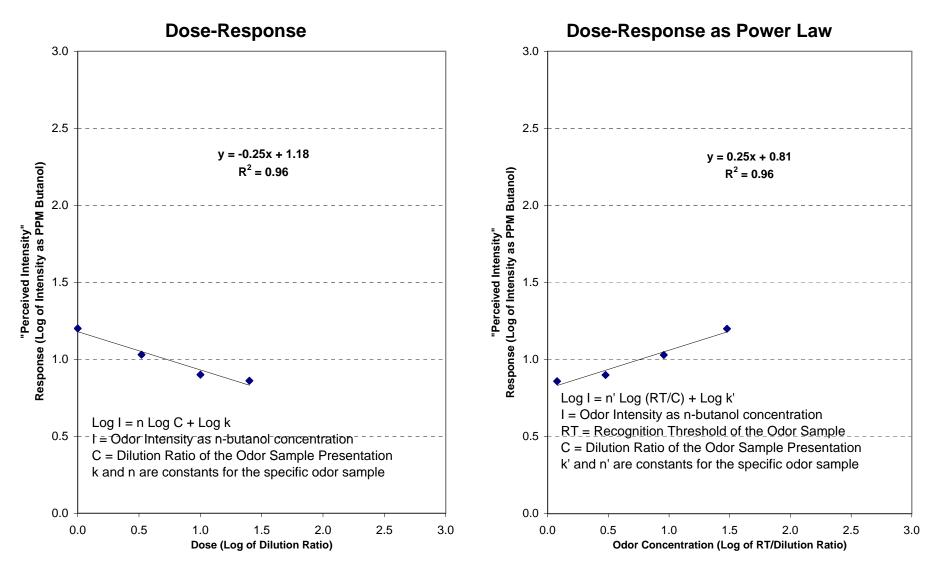


Odor Evaluation Report

 Client:
 Service Engineering Group
 Field No.:
 10029-1M-(0-2)
 Report No.:
 532201

 Project:
 05017-0207
 Description:
 0-2 hour odor sample
 Evaluation Date:
 11/18/05

Client:Service Engineering GroupField No.:10029-1M-(0-2)Report No.:532201Project:05017-0207Description:0-2 hour odor sampleEvaluation Date:11/18/05



Client: Service Engineering Group Field No.: 10029-1M-(2-6) Report No.: 532201

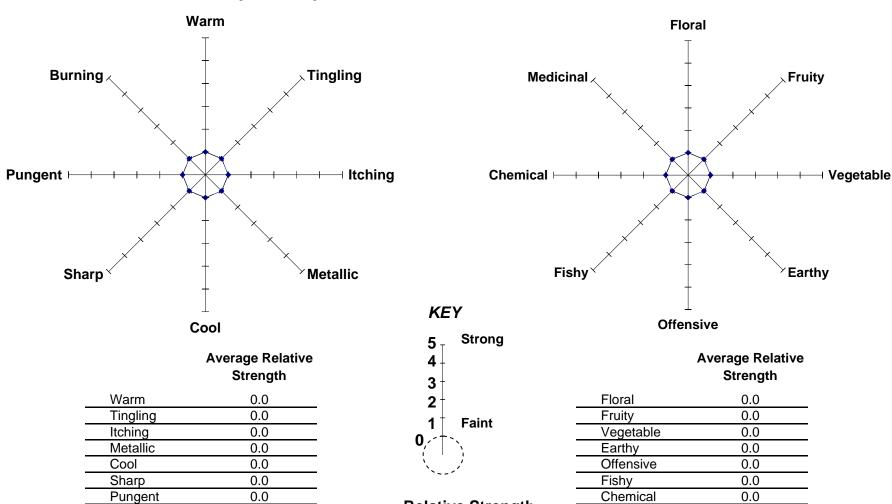
Project: 05017-0207 Description: 2-6 hour odor sample Evaluation Date: 11/18/05

Sensation Descriptor Graph

0.0

Burning

Odor Descriptor Graph



Relative Strength

Medicinal

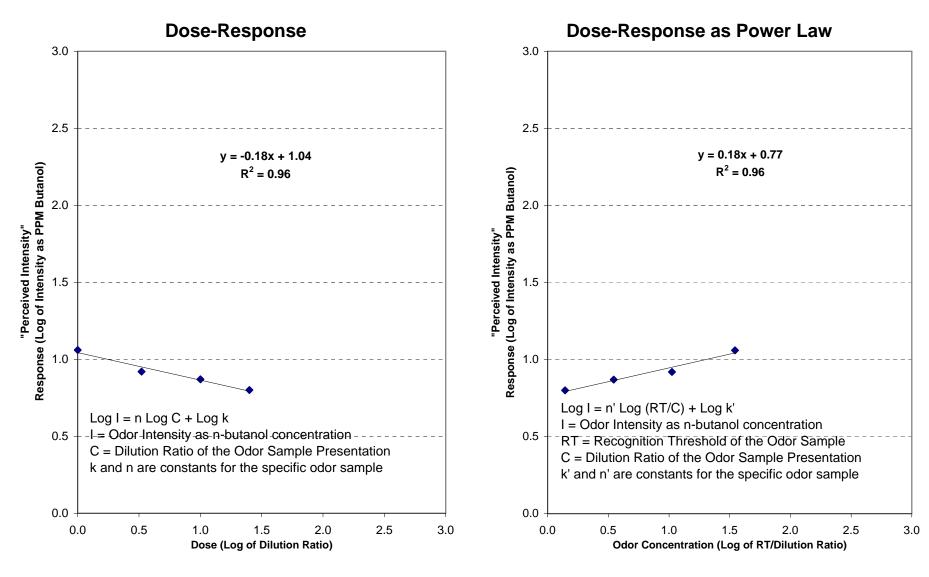
0.0

Odor Evaluation Report

 Client:
 Service Engineering Group
 Field No.:
 10029-1M-(2-6)
 Report No.:
 532201

 Project:
 05017-0207
 Description:
 2-6 hour odor sample
 Evaluation Date:
 11/18/05

Client:Service Engineering GroupField No.:10029-1M-(2-6)Report No.:532201Project:05017-0207Description:2-6 hour odor sampleEvaluation Date:11/18/05

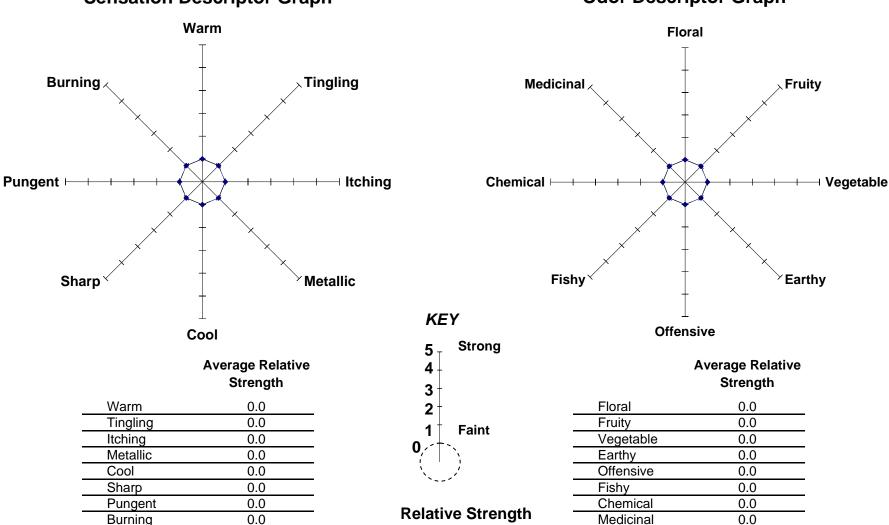


Client: Service Engineering Group Field No.: 10029-1M-(6-22) Report No.: 532201

Project: 05017-0207 Description: 6-22 hour odor sample Evaluation Date: 11/18/05

Sensation Descriptor Graph

Odor Descriptor Graph

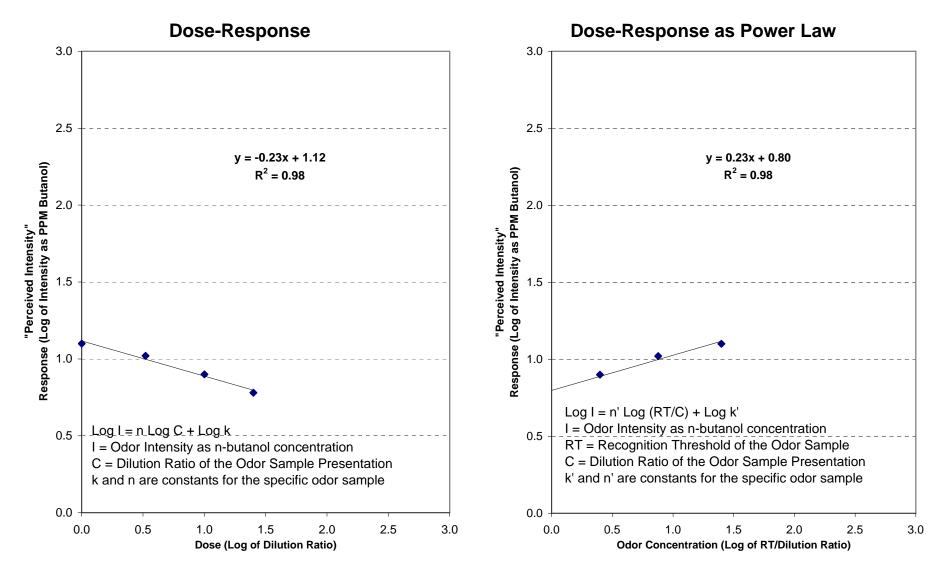


Odor Evaluation Report

 Client:
 Service Engineering Group
 Field No.:
 10029-1M-(6-22)
 Report No.:
 532201

 Project:
 05017-0207
 Description:
 6-22 hour odor sample
 Evaluation Date:
 11/18/05

Client:Service Engineering GroupField No.:10029-1M-(6-22)Report No.:532201Project:05017-0207Description:6-22 hour odor sampleEvaluation Date:11/18/05



CHAIN OF CUSTODY RECORD FOR ODOR SAMPLES

Project Name: 050 i 7 - 020 7 Sampling Date: 11/17 - 11/18/05 Odor University	Client:	Client: S'ERVICE Engr GrP	r Grp	Sampled By: Lill C. H	JH: 5.1		Odor Ev	aluations	Odor Evaluations Requested: (X)	ed: (X)	Page_Lof_
Field No. Sample Description Time (ppm) Odor Concentration (Hedonic Tone & Description (Hed	Projec	t Name: 05017-	+020+	Sampling Date: 11/1	181/11- +	50,	uo			1	For Laboratory use Only
Field No. Sample Description Sample Field H ₂ S O - Z hour odor sample # Field H ₂ S O - D	Comn	nents:									Odor Evaluation Report No.
10029-Im.(6-2) 0-2 hour odor sample 11/19/05 10029-Im.(6-2) 6-22 hour odor sample 11/19/05 10029-Im.(6-2) 6-22 hour odor sample 11/19/05 10029-Im.(6-2) 6-22 hour odor sample 11/19/05 11/19/05 10029-Im.(6-2) 6-22 hour odor sample 11/19/05	Line No.	Field No.	Sample D	escription	Sample	Field H ₂ S (ppm)	robO	0			Laboratory Sample No.
10029-IM-(6-22) 6-22 hour odor sample 1/18/05 10029-Im-(6-22) 6-22 hour odor sample 07:50 10029-Im-(6-22) 6-22 hour odor sample 1/18/05	-	10029-IM. (0-2)	opo may 2-0	r Sample	12:52		×	X		X	
10029-Im-(6-22 hour odor sample "1/18/05 o7:50	2	10029-IM-(2-6)		sample	16:55		×	X		×	
4 5 6 7 8 9 9 9 10	3	10029-Im-(6-22)		sample	60/81/11		×	X		X	
5 6 7 8 9 9 10	4										
6 8 9 9 10	5										
7 8 9 10	9										
9 01	7										
10	∞										
10	6										
	10										

Transfer & Shipping	/ Relinqished By	Date	Tim
Information	410.C. H.C.	11/18/05	1:80
Number of	1/		
"Air-Pacs"/			
Shipping Boxes	Received at St. Croix Sensor	ix Sensory Laborator	ratory

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(is thus) Moose

058 -50/8/11

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CLIENT COPY PINK

Comments & Exceptions Noted

Time

Date

Accepted By

Time 41:80

Comments Key:

- A Sample bag was received without sample.
- **B** Insufficient sample volume to complete evaluation.
- **C** Sample bag was received with condensation in the bag.
- **D** Sample description was not provided.
- **E** Assessors did not observe the sample at full stregth for Intensity, Characterization, or Persistency evaluations.
 - **E1** Sample was observed at a maximum of 50% dilution.
 - **E2** Only Persistency evaluation was conducted.
- **F** Assessors did not observe the sample for Intensity, Characterization, or Persistency evaluations.
- G By client request, the IITRI Dynamic Dilution Triangle Olfactometer, with a sample presentation flow rate of 0.5-lpm and a Method Detection Limit for Detection and Recognition Threshold of '4', was used to determine the thresholds for this odor evaluation

If you have any questions regarding the comments for this evaluation, please contact our lab at +800-879-9231 ext.12.



SERVICE Engineering Group

05017-0207

Odor Evaluation Report

Report No. 532301 11/19/05

Data Release Authorization:

melosa machinly

Melissa McGinley Laboratory Associate Reviewed and Approved:

Charles M. McGinley, P.E

Technical Director

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> Tel: 800-879-9231 Fax: 651-439-1065

Email: stcroix@fivesenses.com

St. Croix Sensory, Inc. Odor Evaluation Report

Client:	SERVICE Engineering Group	Report No.:	532301
Project:	05017-0207	Evaluation Date:	11/19/05

			ASTM E679	& EN13725	ASTM E544	PERSISTENCY		CHARACTERIZATION	
#	Field No.	Sample Description	Detection Threshold	Recognition Threshold	Intensity	Dose-Response Slope	Hedonic Tone	Principal Odor Descriptors	Comments
1	10029-1Q-(0-2)	0-2 Hour Odor Sample	45	30	18	-0.28			
2	10029-1Q-(2-6)	2-6 Hour Odor Sample	45	30	21	-0.32			
3	10029-1Q-(6-22)	6-22 Hour Odor Sample	25	15	21	-0.24			

 Client:
 SERVICE Engineering Group
 Report No.:
 532301

 Project:
 05017-0207
 Evaluation Date:
 11/19/05

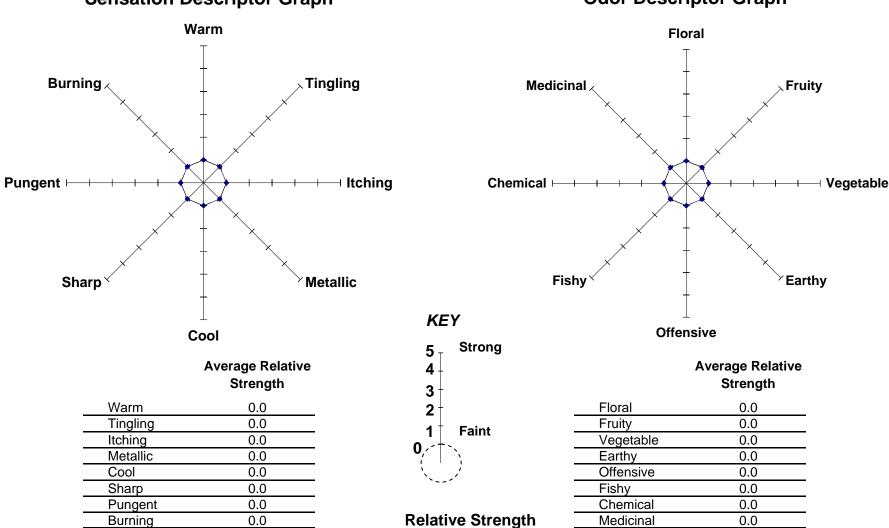
Odor Evaluation Report

			ASTM E679	& EN13725	ASTM E544	PERSISTENCY		CHARACTERIZATION	1
			Detection	Recognition			Hedonic		
#	Field No.	Sample Description	Threshold	Threshold	Intensity	Slope	Tone	Principal Odor Descriptors	Comments
_									

Client:SERVICE Engineering GroupField No.:10029-1Q-(0-2)Report No.:532301Project:05017-0207Description:0-2 Hour Odor SampleEvaluation Date:11/19/05

Sensation Descriptor Graph

Odor Descriptor Graph



Odor Evaluation Report

 Client:
 SERVICE Engineering Group
 Field No.:
 10029-1Q-(0-2)
 Report No.:
 532301

 Project:
 05017-0207
 Description:
 0-2 Hour Odor Sample
 Evaluation Date:
 11/19/05

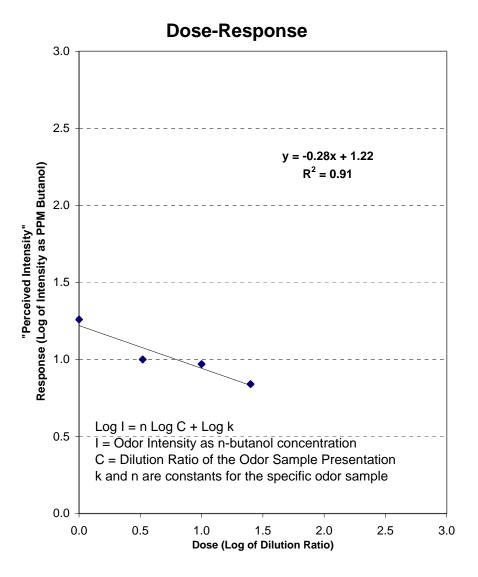
532301

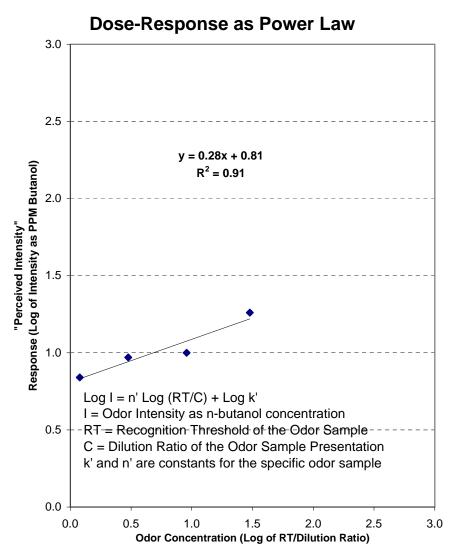
Client: SERVICE Engineering Group Field No.: 10029-1Q-(0-2)

Project: 05017-0207 Description: 0-2 Hour Odor Sample

Evaluation Date: 11/19/05

Report No.:

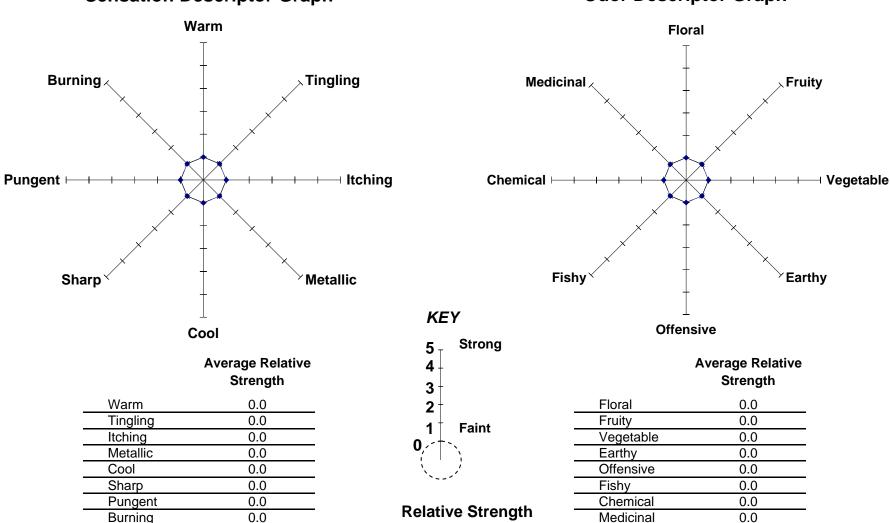




Client:SERVICE Engineering GroupField No.:10029-1Q-(2-6)Report No.:532301Project:05017-0207Description:2-6 Hour Odor SampleEvaluation Date:11/19/05

Sensation Descriptor Graph

Odor Descriptor Graph



Odor Evaluation Report

 Client:
 SERVICE Engineering Group
 Field No.:
 10029-1Q-(2-6)
 Report No.:
 532301

 Project:
 05017-0207
 Description:
 2-6 Hour Odor Sample
 Evaluation Date:
 11/19/05

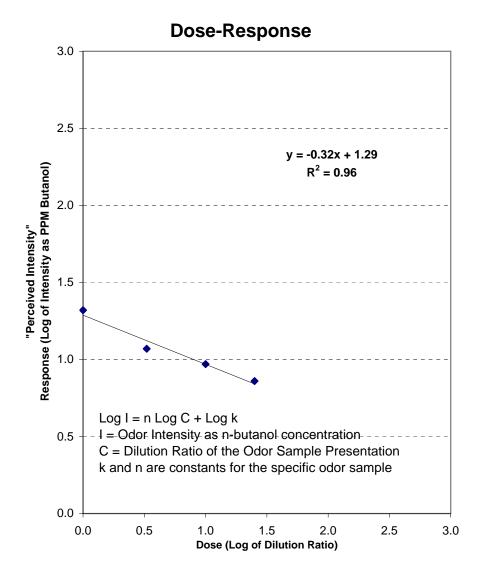
Client: SERVICE Engineering Group
Project: 05017-0207

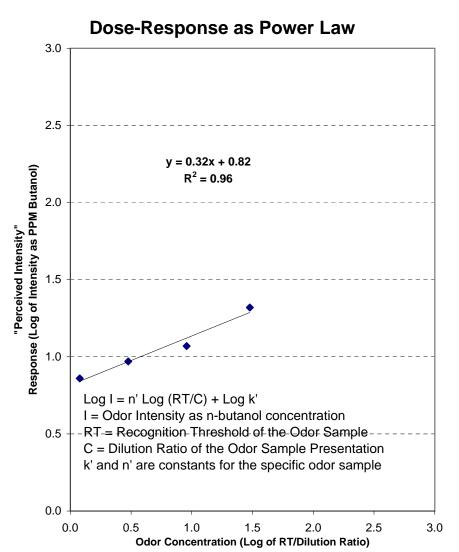
Field No.: 10029-1Q-(2-6)

Description: 2-6 Hour Odor Sample

Report No.: 532301

Evaluation Date: 11/19/05



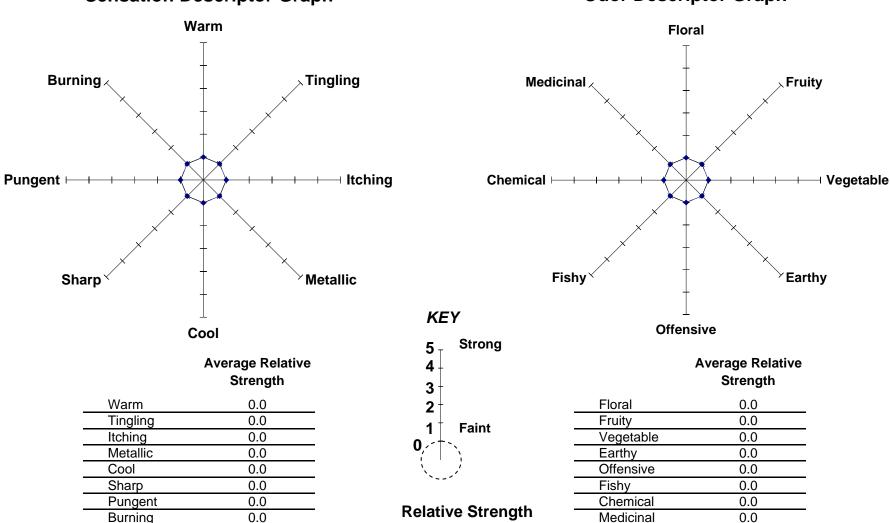


Client: SERVICE Engineering Group Field No.: 10029-1Q-(6-22) Report No.: 532301

Project: 05017-0207 Description: 6-22 Hour Odor Sample Evaluation Date: 11/19/05

Sensation Descriptor Graph

Odor Descriptor Graph



Odor Evaluation Report

 Client:
 SERVICE Engineering Group
 Field No.:
 10029-1Q-(6-22)
 Report No.:
 532301

 Project:
 05017-0207
 Description:
 6-22 Hour Odor Sample
 Evaluation Date:
 11/19/05

Client: SERVICE Engineering Group Field No.

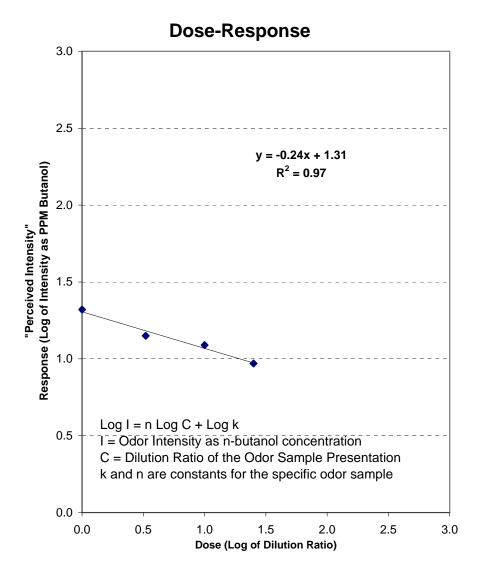
Project: 05017-0207 Description

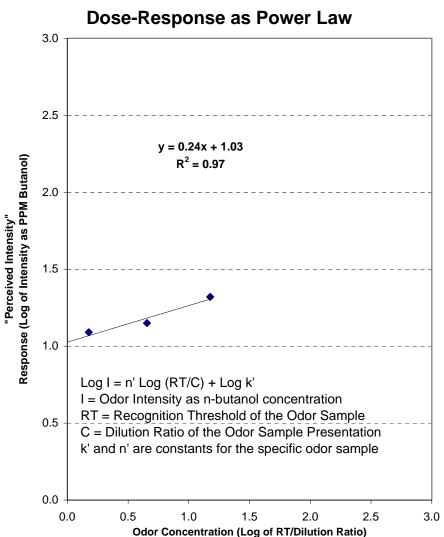
Field No.: 10029-1Q-(6-22)

Description: 6-22 Hour Odor Sample

Report No.: 532301

Evaluation Date: 11/19/05





CHAIN OF CUSTODY RECORD FOR ODOR SAMPLES

Page_of_	For Laboratory use Only	Odor Evaluation Report No.	LN FN FN										
ted: (X)		Odor Persistenc"))	X	X	X							
s Reques		or Characteriza Ionic Tone & Descrip											
Odor Evaluations Requested: (X)	-4	Odor Intensity (MPP)		×	X	X	-						
Odor E	uo	dor Concentrati (DT, RT)	0	×	×	×							
7	50		Field H_2S (ppm)										
M.C. W.	161/11 - 81/		Sample Time	11:18	15:26	81:10							
Sampled By: Lli	Sampling Date: 41/18 - 11/19105		Description	or sample	r sample	or sample							
r Grep	+020	,	Sample D	0-2 hour odor sample	2-6 howr ada	6-22 hour oder							
Client: SERVICE Engr Grp	Project Name: 05017 - 0207	ents:	Field No.	(2-0)-07-62001	10029-10-(2-6) 2-6 hour ador	(22-9)-01-62001							
Client:	Project	Comments:	Line No.	_	7	8	4	5	9	7	∞	6	10

Transfer & Shipping Information

Number of "Air-Pacs"/ Shipping Boxes_____

Comments & Exceptions Noted relissingine 11/20/05/ 9:08 Time Date Accepted By Time 51:80 Received at St. Croix Sensory Laboratory 50/6/11 Date

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Comments Key:

- A Sample bag was received without sample.
- **B** Insufficient sample volume to complete evaluation.
- **C** Sample bag was received with condensation in the bag.
- **D** Sample description was not provided.
- **E** Assessors did not observe the sample at full stregth for Intensity, Characterization, or Persistency evaluations.
 - **E1** Sample was observed at a maximum of 50% dilution.
 - **E2** Only Persistency evaluation was conducted.
- **F** Assessors did not observe the sample for Intensity, Characterization, or Persistency evaluations.
- G By client request, the IITRI Dynamic Dilution Triangle Olfactometer, with a sample presentation flow rate of 0.5-lpm and a Method Detection Limit for Detection and Recognition Threshold of '4', was used to determine the thresholds for this odor evaluation

If you have any questions regarding the comments for this evaluation, please contact our lab at +800-879-9231 ext.12.



Service Engineering Group 05017-0207

Odor Evaluation Report Report No. 533303 11/29/05

Data Release Authorization:

Natasha Kaslow

Nataha Kaslow

Laboratory Associate

Reviewed and Approved: Charles momente

Charles M. McGinley, P.E. Technical Director

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> Tel: 800-879-9231 Fax: 651-439-1065

Email: stcroix@fivesenses.com

Odor Evaluation Report

Client:	Service Engineering Group	Report No.:	533303
Project:	05017-0207	Evaluation Date:	11/29/05

			ASTM E679	& EN13725	ASTM E544	PERSISTENCY		CHARACTERIZATION	
#	Field No.	Sample Description	Detection Threshold	Recognition Threshold	Intensity	Dose-Response Slope	Hedonic Tone	Principal Odor Descriptors	Comments
1	60028-IN-(0-2)	0-2 Hour Odor Sample	110	60	12	-0.07			
2	60028-IN-(2-6)	2-6 Hour Odor Sample	85	55	13	-0.15			
3	60028-IN-(6-22)	6-22 Hour Odor Sample	95	50	15	-0.23			

St. Croix Sensory, Inc.

Odor Evaluation Report

Client:	Service Engineering Group	Report No.:	533303
Project:	05017-0207	Evaluation Date:	11/29/05

			ASTM E679	& EN13725	ASTM E544	PERSISTENCY		CHARACTERIZATION	
			Detection	Recognition		Dose-Response	Hedonic		
#	Field No.	Sample Description	Threshold	Threshold	Intensity	Slope	Tone	Principal Odor Descriptors	Comments
		<u> </u>			•			<u> </u>	
-									
1									

533303 Service Engineering Group 60028-IN-(0-2) Client: Field No.: Report No.: 05017-0207 Description: 0-2 Hour Odor Sample 11/29/05 Evaluation Date: Project:

Sensation Descriptor Graph

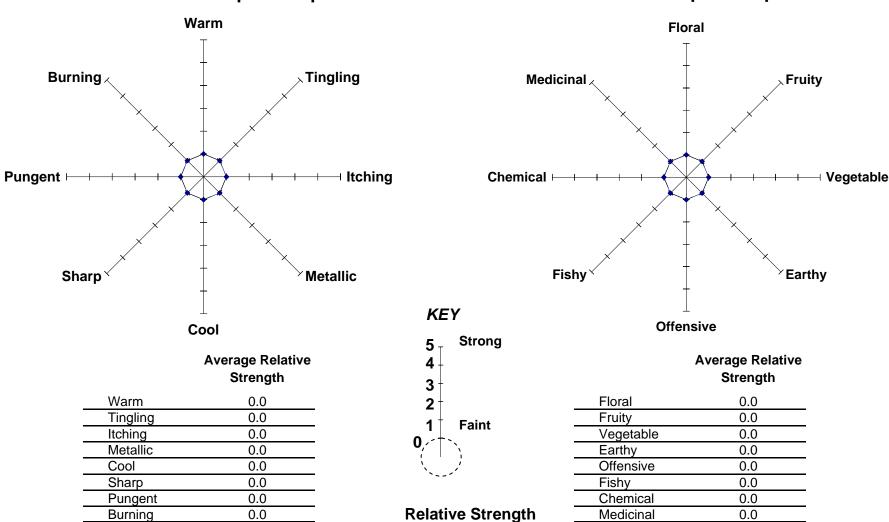
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Burning

Odor Descriptor Graph

Medicinal

0.0

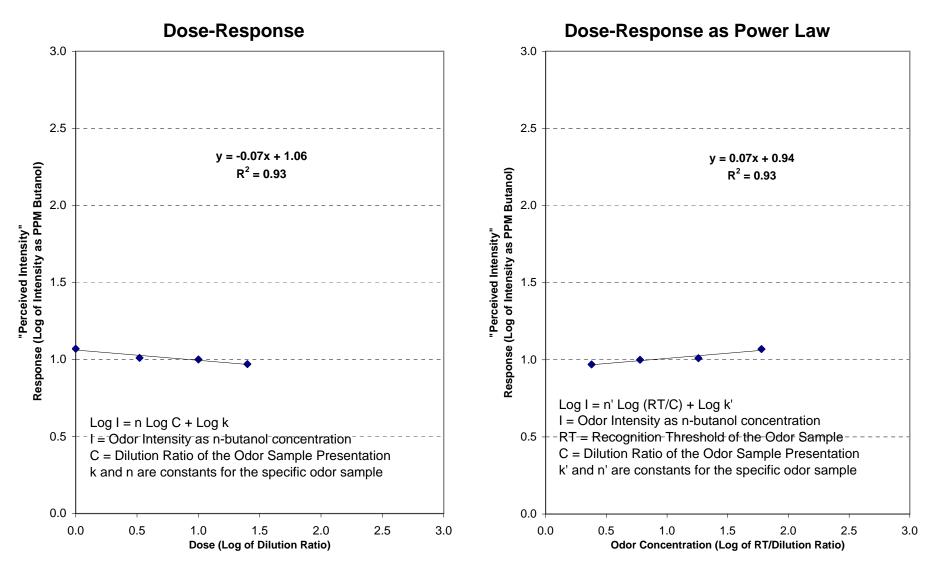


Odor Evaluation Report

 Client:
 Service Engineering Group
 Field No.:
 60028-IN-(0-2)
 Report No.:
 533303

 Project:
 05017-0207
 Description:
 0-2 Hour Odor Sample
 Evaluation Date:
 11/29/05

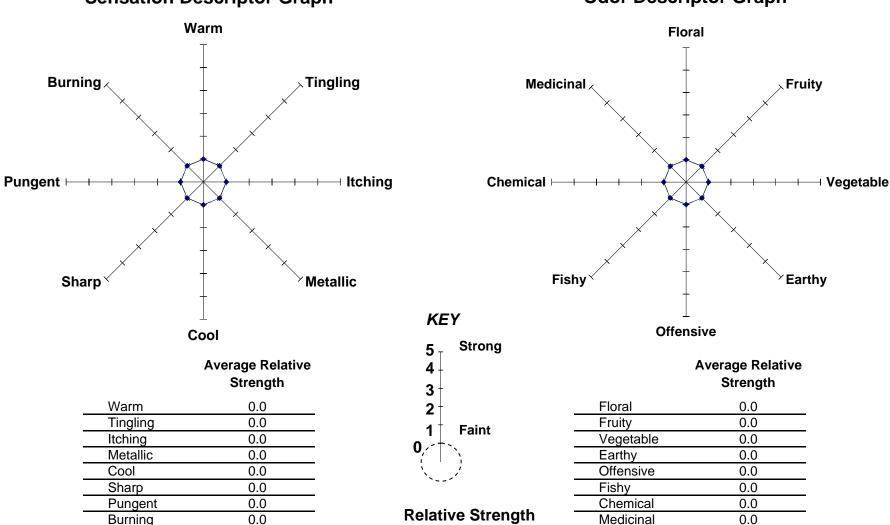
Client:Service Engineering GroupField No.:60028-IN-(0-2)Report No.:533303Project:05017-0207Description:0-2 Hour Odor SampleEvaluation Date:11/29/05



Client:Service Engineering GroupField No.:60028-IN-(2-6)Report No.:533303Project:05017-0207Description:2-6 Hour Odor SampleEvaluation Date:11/29/05

Sensation Descriptor Graph

Odor Descriptor Graph

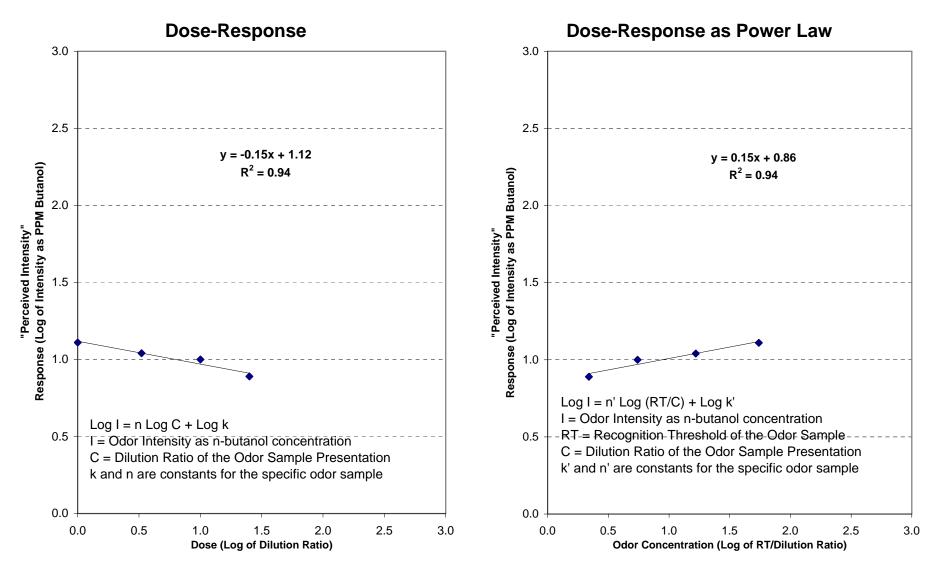


Odor Evaluation Report

 Client:
 Service Engineering Group
 Field No.:
 60028-IN-(2-6)
 Report No.:
 533303

 Project:
 05017-0207
 Description:
 2-6 Hour Odor Sample
 Evaluation Date:
 11/29/05

Client:Service Engineering GroupField No.:60028-IN-(2-6)Report No.:533303Project:05017-0207Description:2-6 Hour Odor SampleEvaluation Date:11/29/05



533303 Service Engineering Group 60028-IN-(6-22) Client: Field No.: Report No.: 05017-0207 Description: 6-22 Hour Odor Sample 11/29/05 Evaluation Date: Project:

Sensation Descriptor Graph

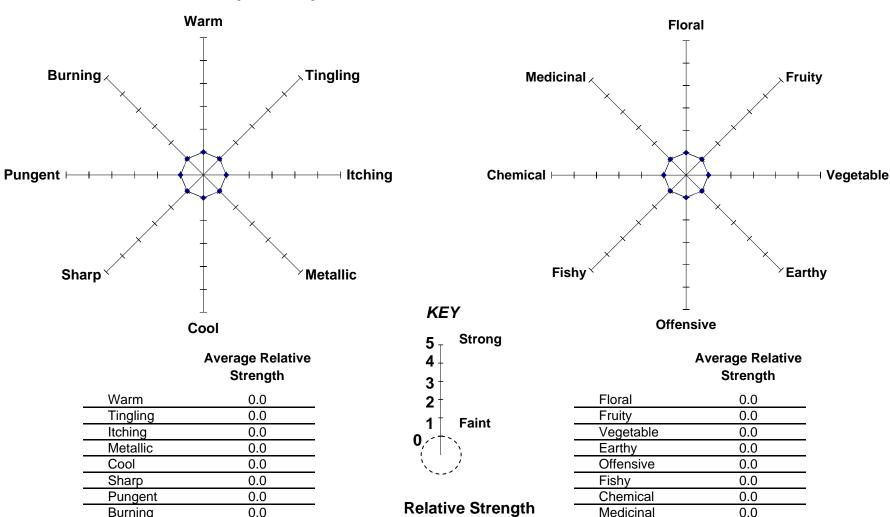
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Burning

Odor Descriptor Graph

Medicinal

0.0

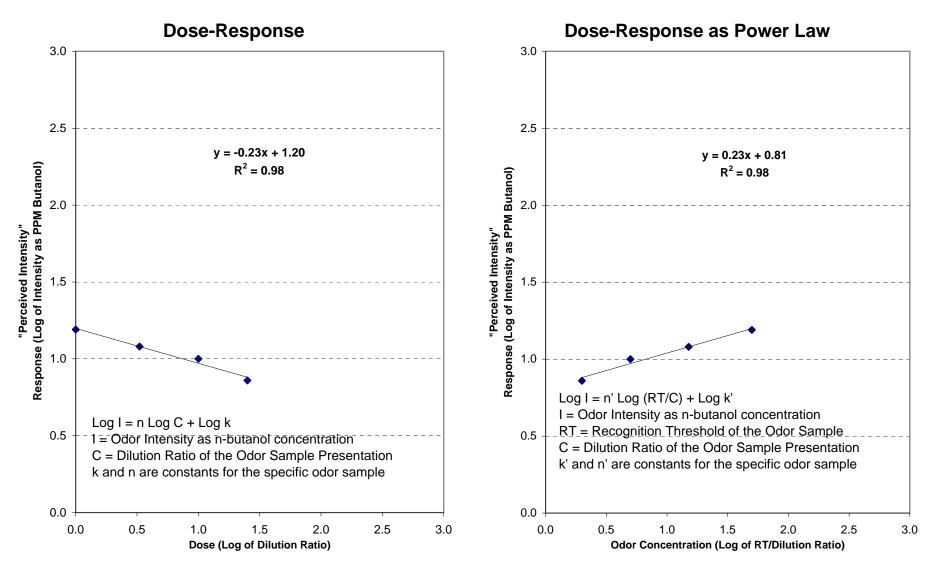


Odor Evaluation Report

 Client:
 Service Engineering Group
 Field No.:
 60028-IN-(6-22)
 Report No.:
 533303

 Project:
 05017-0207
 Description:
 6-22 Hour Odor Sample
 Evaluation Date:
 11/29/05

Client:Service Engineering GroupField No.:60028-IN-(6-22)Report No.:533303Project:05017-0207Description:6-22 Hour Odor SampleEvaluation Date:11/29/05



CHAIN OF CUSTODY RECORD FOR ODOR SAMPLES

Project Name: 05017-0207 Comments: Line Field No. 1 60028-IN (2.4) 0-2 2 60028-IN (2.4) 2-6 3 60028-IN-(4-2) 6-22	ا کا ا	Sample Description	90/62/11 - 82/11	50/	,			1 1 1	THE REAL PROPERTY AND PERSONS IN COLUMN 2 IS NOT THE REAL PROPERTY.
Field No. 60028-IN-(C00028-IN-(C00028-IN-(C00028-IN-(C00028-IN-(C00028-IN-(C00028-IN-(C00028-IN-(C00028-IN-(C00028-IN-(C00028-IN-(C00028-IN-(C00028-IN-(C00028-IN-(C00028-IN-(C00028-IN-(C000028-IN-(C000028-IN-(C000028-IN-(C000028-IN-(C000028-IN-(C000028-IN-(C000028-IN-(C000028-IN-(C0000028-IN-(C0000028-IN-(C000000-IN-(C00000-IN-(0-2 k.	Description			10		tor	For Laboratory use Only	use Only
Field No.	2-0 14 2-0	Description		ē.	Concentratio	or Intensity (M99)	haracterizat Tone & Descrip r Persistency r Sersistency	Odor Evaluation Report No.	ation To.
60028-IN-(0			Sample	Field H ₂ S (ppm)	TobO		Odo	Laboratory Sample No.	iple No.
60028-IN (2-6)		ador sample	50/82/11		×	×	×		
60028-IN-(2.6) 2-6 hour odor	dor sample	1 28/05		X	X	X		
	(6-2) 6-22 hour adoi	odor sample	50/62/m		×	×	X		

Relingis	Will-C+		
Transfer & Shipping	Information	Number of	"Air-Pacs"/

					830	
					11/29/05 830	
					Jahry Moss	1
	08:30				ratory	
	11/29/05 08:30				at St. Croix Sensory Laboratory	
11 11 11 11	Will Cott	11			Received at St. Croix	
)	Information	Number of	"Air-Pacs"/	Chinning Doves	Simpling Doves	

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Comments Key:

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- **B** Insufficient sample volume to complete evaluation.
- **C** Sample bag was received with condensation in the bag.
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- G By client request, the IITRI Dynamic Dilution Triangle Olfactometer, with a sample presentation flow rate of 0.5-lpm and a Method Detection Limit for Detection and Recognition Threshold of '4', was used to determine the thresholds for this odor evaluation

If you have any questions regarding the comments for this evaluation, please contact our lab at +800-879-9231 ext.12.



Service Engineering Group 05017-0207

Odor Evaluation Report Report No. 533403 11/30/05

Data Release Authorization:

Natasha Kaslow Laboratory Associate

Nataha Kaslow

Reviewed and Approved: Charles momente

Charles M. McGinley, P.E.

Technical Director

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> Tel: 800-879-9231 Fax: 651-439-1065

Email: stcroix@fivesenses.com

Client:	Service Engineering Group	Report No.:	533403	
Project:	05017-0207	Evaluation Date:	11/30/05	

Odor Evaluation Report

			ASTM E679	& EN13725	ASTM E544	PERSISTENCY		CHARACTERIZATION	
			Detection	Recognition		Dose-Response	Hedonic		
#	Field No.	Sample Description	Threshold	Threshold	Intensity	Slope	Tone	Principal Odor Descriptors	Comments
1	60028-10M-(0-2)	0-2 Hour Odor Sample	80	40	40	-0.39			
2	60028-10M-(2-6)	2-6 Hour Odor Sample	75	35	30	-0.29			
3	60028-10M-(6-22)	6-22 Hour Odor Sample	40	20	35	-0.35			

Odor l	Eval	luation	Report
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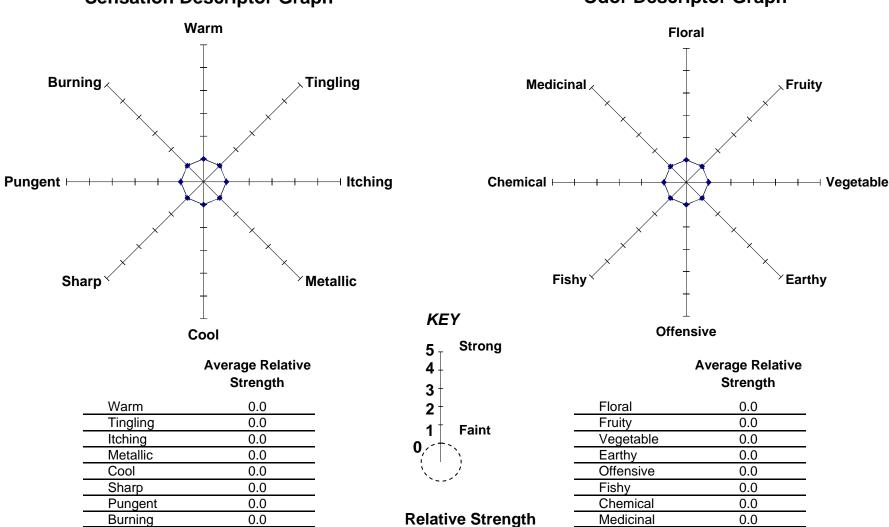
Client:	Service Engineering Group	Report No.:	533403
Project:	05017-0207	Evaluation Date:	11/30/05

			ASTM E679	& EN13725	ASTM E544	PERSISTENCY		CHARACTERIZATION	
			Detection	Recognition		Dose-Response	Hedonic		
#	Field No.	Sample Description	Threshold	Threshold	Intensity	Slope	Tone	Principal Odor Descriptors	Comments
<u> </u>									
\vdash									

Client:Service Engineering GroupField No.:60028-10M-(0-2)Report No.:533403Project:05017-0207Description:0-2 Hour Odor SampleEvaluation Date:11/30/05

Sensation Descriptor Graph

Odor Descriptor Graph

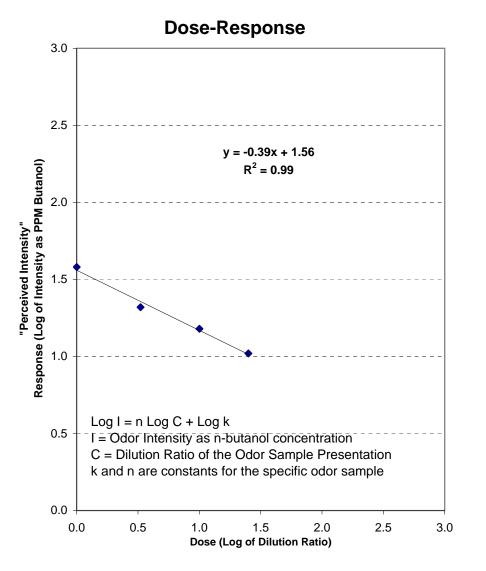


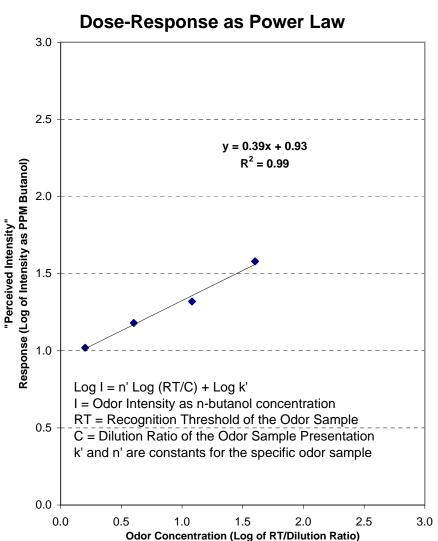
Odor Evaluation Report

 Client:
 Service Engineering Group
 Field No.:
 60028-10M-(0-2)
 Report No.:
 533403

 Project:
 05017-0207
 Description:
 0-2 Hour Odor Sample
 Evaluation Date:
 11/30/05

Client:Service Engineering GroupField No.:60028-10M-(0-2)Report No.:533403Project:05017-0207Description:0-2 Hour Odor SampleEvaluation Date:11/30/05





533403 Service Engineering Group 60028-10M-(2-6) Client: Field No.: Report No.: 05017-0207 Description: 2-6 Hour Odor Sample 11/30/05 Evaluation Date: Project:

Sensation Descriptor Graph

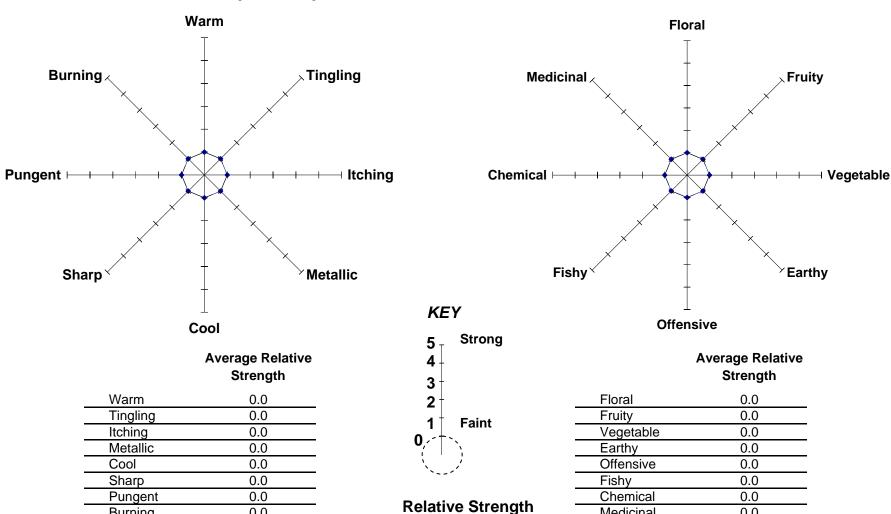
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Burning

Odor Descriptor Graph

Medicinal

0.0



Odor Evaluation Report

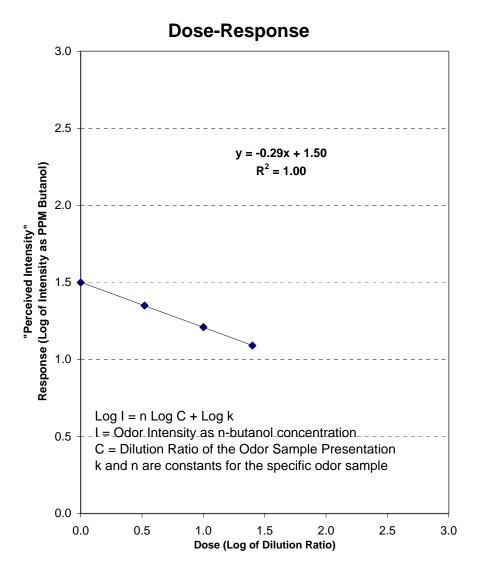
 Client:
 Service Engineering Group
 Field No.:
 60028-10M-(2-6)
 Report No.:
 533403

 Project:
 05017-0207
 Description:
 2-6 Hour Odor Sample
 Evaluation Date:
 11/30/05

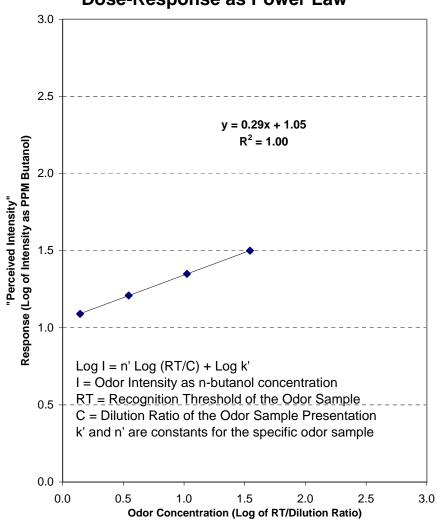
533403

Service Engineering Group 60028-10M-(2-6) Client: Field No.: 05017-0207 Description: 2-6 Hour Odor Sample Project:

Report No.: 11/30/05 **Evaluation Date:**



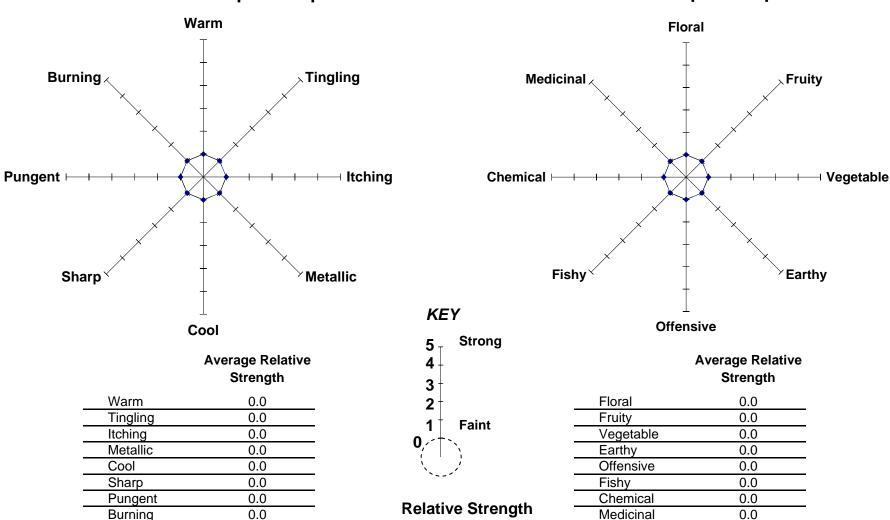
Dose-Response as Power Law



Client:Service Engineering GroupField No.:60028-10M-(6-22)Report No.:533403Project:05017-0207Description:6-22 Hour Odor SampleEvaluation Date:11/30/05

Sensation Descriptor Graph

Odor Descriptor Graph

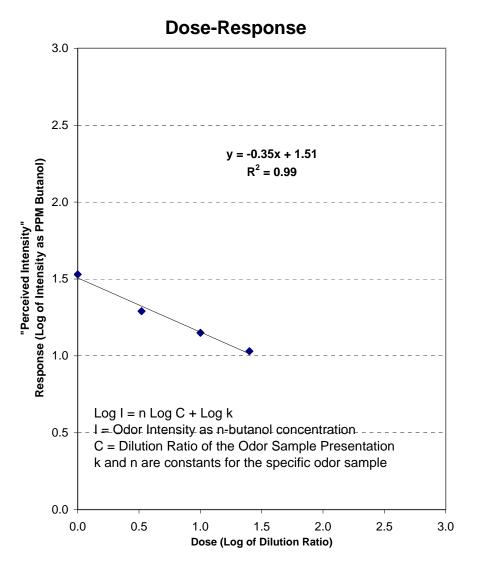


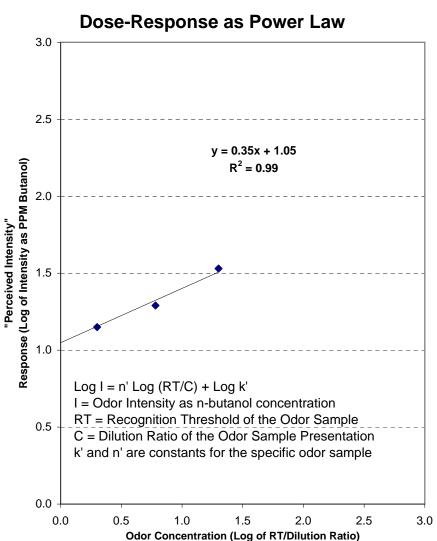
Odor Evaluation Report

 Client:
 Service Engineering Group
 Field No.:
 60028-10M-(6-22)
 Report No.:
 533403

 Project:
 05017-0207
 Description:
 6-22 Hour Odor Sample
 Evaluation Date:
 11/30/05

Client:Service Engineering GroupField No.:60028-10M-(6-22)Report No.:533403Project:05017-0207Description:6-22 Hour Odor SampleEvaluation Date:11/30/05





CHAIN OF CUSTODY RECORD FOR ODOR SAMPLES

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Sample Description Sample Description Sample Description O-2 hour odor sample	130/05	Odor Evaluat	Odor Evaluations Requested: (X)		Page Tot T
Sample De	130/05				
Sample Description 6-2 hour odor Sample		uo	(suo)		For Laboratory use Only
Sample Description 6-2 hour odor Sample		oncentrationT, RT)	(PPM) aracterizat	Persistency e-Response")	Odor Evaluation Report No.
0-2 hour odor sample	Sample Field H ₂ S Time (ppm))	T oinob9H)	(,,Dos	Laboratory Sample No.
		×		\ \	
60028-1014-(2-6) 2-6 hour odor Sumple	123/05	×		×	
60028-1012-(6.22) 6-22 hour odor sample 07:45	105	X		×	

Transfer & Shipping Information

08:15

11/30/05

Shipping Boxes, Number of "Air-Pacs"/

Received at St. Croix Sensory Laboratory (24/20/05/11/30/05/11/30/05/15/11/30/05/15/11/30/05/

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CLIENT COPY PINK

Comments Key:

- A Sample bag was received without sample.
- **B** Insufficient sample volume to complete evaluation.
- **C** Sample bag was received with condensation in the bag.
- **D** Sample description was not provided.
- **E** Assessors did not observe the sample at full stregth for Intensity, Characterization, or Persistency evaluations.
 - **E1** Sample was observed at a maximum of 50% dilution.
 - **E2** Only Persistency evaluation was conducted.
- **F** Assessors did not observe the sample for Intensity, Characterization, or Persistency evaluations.
- G By client request, the IITRI Dynamic Dilution Triangle Olfactometer, with a sample presentation flow rate of 0.5-lpm and a Method Detection Limit for Detection and Recognition Threshold of '4', was used to determine the thresholds for this odor evaluation

If you have any questions regarding the comments for this evaluation, please contact our lab at +800-879-9231 ext.12.



Service Engineering Group 05017-0207

Odor Evaluation Report Report No. 533503 12/01/05

Data Release Authorization:

Natasha Kaslow

Laboratory Associate

nataha Kaslow

Reviewed and Approved:

Mill Mes

Michael A. McGinley, P.E. Laboratory Director

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> Tel: 800-879-9231 Fax: 651-439-1065

Email: stcroix@fivesenses.com

Odor Evaluation Report

Client:	Service Engineering Group	Report No.:	533503
Project:	05017-0207	Evaluation Date:	12/01/05

			ASTM E679	& EN13725	ASTM E544	PERSISTENCY		CHARACTERIZATION	
#	Field No.	Sample Description	Detection Threshold	Recognition Threshold	Intensity	Dose-Response Slope	Hedonic Tone	Principal Odor Descriptors	Comments
1	60028-10Q-(0-2)	0-2 Hour Odor Sample	80	50	25	-0.30			
2	60028-10Q-(2-6)	2-6 Hour Odor Sample	100	60	19	-0.29			
3	60028-10Q-(6-22)	6-22 Hour Odor Sample	85	50	19	-0.26			

St. Croix Sensory, Inc.

Odor Evaluation Report

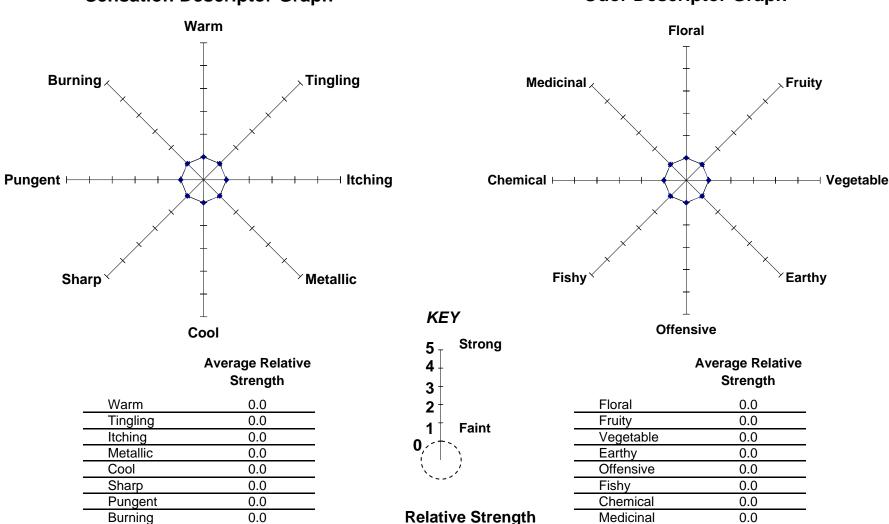
Client:	Service Engineering Group	Report No.:	533503
Project:	05017-0207	Evaluation Date:	12/01/05

			ASTM E679	& EN13725	ASTM E544	PERSISTENCY	CHARACTERIZATION		1
			Detection	Recognition			Hedonic		
#	Field No.	Sample Description	Threshold	Threshold	Intensity	Slope	Tone	Principal Odor Descriptors	Comments
_									

Client:Service Engineering GroupField No.:60028-10Q-(0-2)Report No.:533503Project:05017-0207Description:0-2 Hour Odor SampleEvaluation Date:12/01/05

Sensation Descriptor Graph

Odor Descriptor Graph



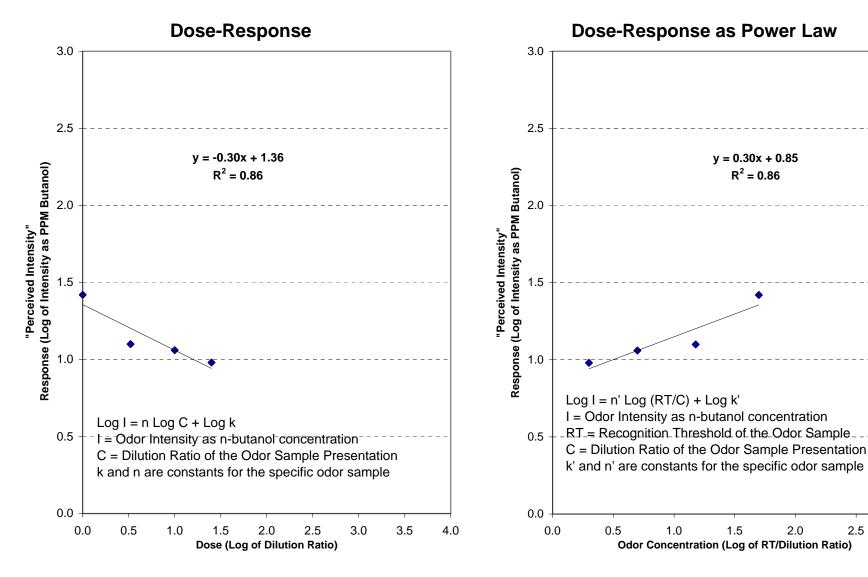
Odor Evaluation Report

 Client:
 Service Engineering Group
 Field No.:
 60028-10Q-(0-2)
 Report No.:
 533503

 Project:
 05017-0207
 Description:
 0-2 Hour Odor Sample
 Evaluation Date:
 12/01/05

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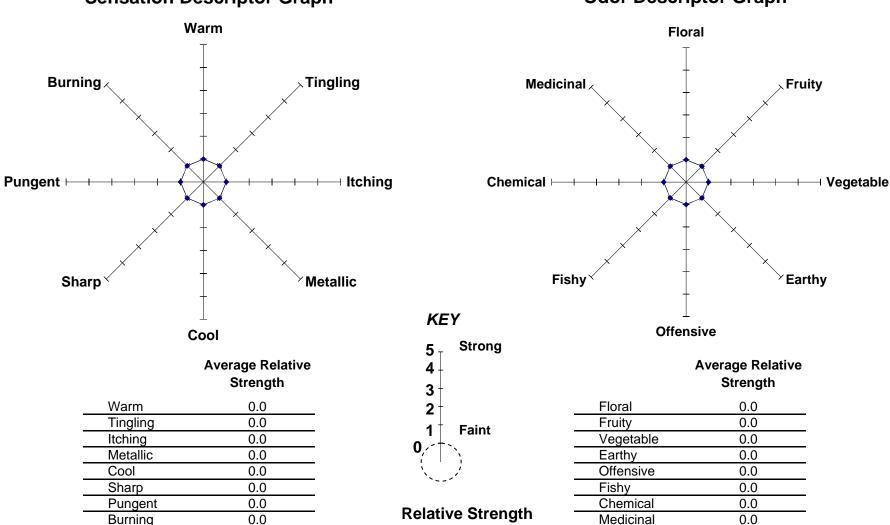
Client:Service Engineering GroupField No.:60028-10Q-(0-2)Report No.:533503Project:05017-0207Description:0-2 Hour Odor SampleEvaluation Date:12/01/05



Client:Service Engineering GroupField No.:60028-10Q-(2-6)Report No.:533503Project:05017-0207Description:2-6 Hour Odor SampleEvaluation Date:12/01/05

Sensation Descriptor Graph

Odor Descriptor Graph

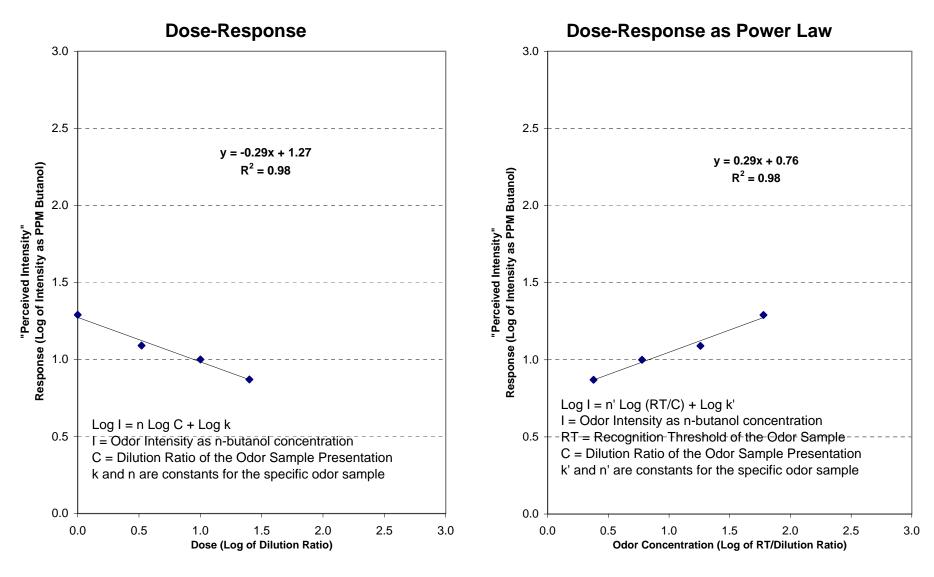


Odor Evaluation Report

 Client:
 Service Engineering Group
 Field No.:
 60028-10Q-(2-6)
 Report No.:
 533503

 Project:
 05017-0207
 Description:
 2-6 Hour Odor Sample
 Evaluation Date:
 12/01/05

Client:Service Engineering GroupField No.:60028-10Q-(2-6)Report No.:533503Project:05017-0207Description:2-6 Hour Odor SampleEvaluation Date:12/01/05



533503 Service Engineering Group 60028-10Q-(6-22) Client: Field No.: Report No.: 05017-0207 Description: 6-22 Hour Odor Sample 12/01/05 Evaluation Date: Project:

Sensation Descriptor Graph

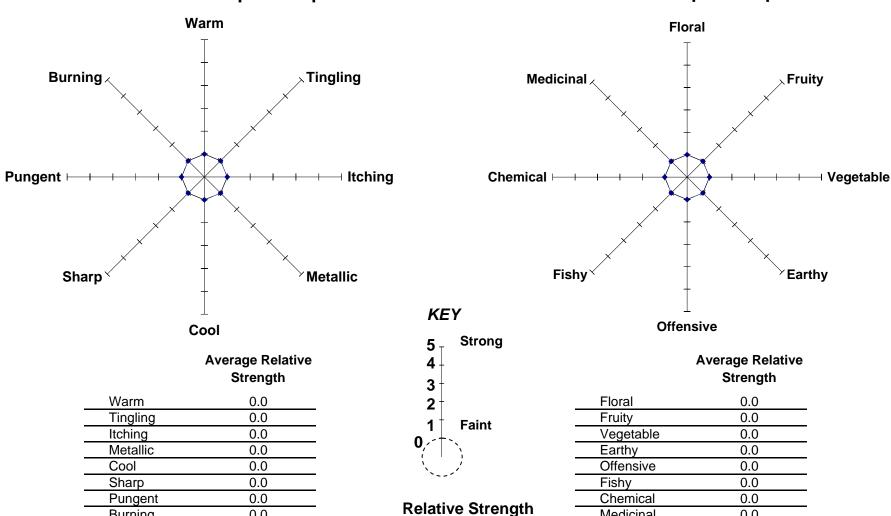
0.0

Burning

Odor Descriptor Graph

Medicinal

0.0



Odor Evaluation Report

 Client:
 Service Engineering Group
 Field No.:
 60028-10Q-(6-22)
 Report No.:
 533503

 Project:
 05017-0207
 Description:
 6-22 Hour Odor Sample
 Evaluation Date:
 12/01/05

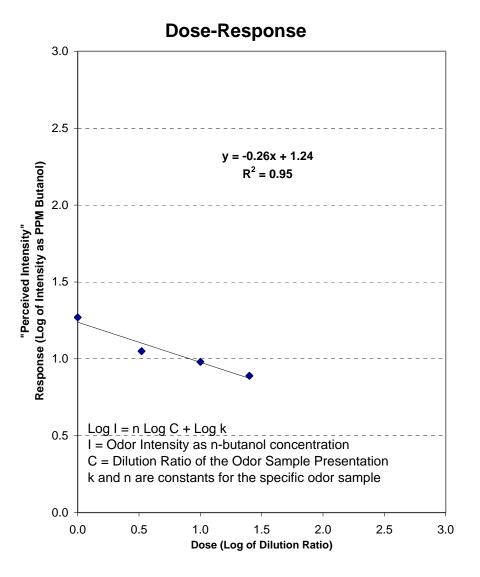
533503

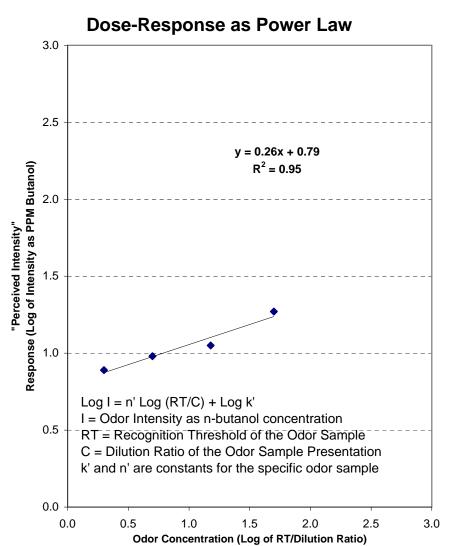
Client: Service Engineering Group Field No.: 60028-10Q-(6-22)

Project: 05017-0207 Description: 6-22 Hour Odor Sample

Evaluation Date: 12/01/05

Report No.:





CHAIN OF CUSTODY RECORD FOR ODOR SAMPLES

Page L of L	For Laboratory use Only	Odor Evaluation Report No.	Laboratory Sample No.										
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Odor Evaluations Requested: (X)		r Intensity (PPM)	opO	X	×	×							
Odor E	uo	oncentration, RT)	O TobO	X	×	×							
	501		Field H ₂ S (ppm)										
THE OM	30-12/01	130 - 12/0	Sample	11/30/05	11/30/05	15:0121							
Sampled By: 4 Jill	Sampling Date: 11/30 - 12/01/05		Sample Description	or Sample	or sample	10- Sample							
Group	t020-		Sample D	0-2 hour odor sample	2-6 hour Oder sample	6-22 hour Odor Sample							
Client: SERVICE Engr Group	Project Name: 05017 - 0207	ents:	Field No.	(2-0)	6002B-10Q-	60028-10Q-							
Client:	Project	Comments:	Line No.	1	2	3	4	5	9	7	8	6	10

Comments & Exceptions Noted				
Time				850
Date				12/1/02 850
Accepted By				(athy Mord
Time	08:15			ratory
Date	12/01/05 08:15	, ,		oix Sensory Laboratory
, Relingished By	the silling	//		Received at St. Cro
Transfer & Shipping	Information	Number of	"Air-Pacs"/	Shipping Boxes

St. Croix Sensory, Inc. * 3549 Lake Elmo Avenue North * Lake Elmo, MN 55042 U.S.A. * Tel:800679-9231 * Fax:651-439-1065 * Email:stcroix@fivesenses.com * Web:www.fivesenses.com

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Comments Key:

- A Sample bag was received without sample.
- **B** Insufficient sample volume to complete evaluation.
- **C** Sample bag was received with condensation in the bag.
- **D** Sample description was not provided.
- **E** Assessors did not observe the sample at full stregth for Intensity, Characterization, or Persistency evaluations.
 - **E1** Sample was observed at a maximum of 50% dilution.
 - **E2** Only Persistency evaluation was conducted.
- **F** Assessors did not observe the sample for Intensity, Characterization, or Persistency evaluations.
- G By client request, the IITRI Dynamic Dilution Triangle Olfactometer, with a sample presentation flow rate of 0.5-lpm and a Method Detection Limit for Detection and Recognition Threshold of '4', was used to determine the thresholds for this odor evaluation

If you have any questions regarding the comments for this evaluation, please contact our lab at +800-879-9231 ext.12.



Service Engineering Group 05017-0207

Odor Evaluation Report Report No. 533601 12/02/05

Data Release Authorization:

Natasha Kaslow

Laboratory Associate

nataha Kaslow

Reviewed and Approved:

Miller

Michael A. McGinley, P.E. Laboratory Director

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> Tel: 800-879-9231 Fax: 651-439-1065

Email: stcroix@fivesenses.com

Odor Evaluation Report

Client:	Service Engineering Group	Report No.:	533601
Project:	05017-0207	Evaluation Date:	12/02/05

			ASTM E679	& EN13725	ASTM E544	PERSISTENCY	CHARACTERIZATION		
#	Field No.	Sample Description	Detection Threshold	Recognition Threshold	Intensity	Dose-Response Slope	Hedonic Tone	Principal Odor Descriptors	Comments
1	60028-1M-(0-2)	0-2 Hour Odor Sample	50	30	21	-0.26			
2	60028-1M-(2-6)	2-6 Hour Odor Sample	80	50	20	-0.22			
3	60028-1M-(6-22)	6-22 Hour Odor Sample	75	40	17	-0.20			

 Client:
 Service Engineering Group
 Report No.:
 533601

 Project:
 05017-0207
 Evaluation Date:
 12/02/05

Odor Evaluation Report

			ASTM E679	& EN13725	ASTM E544	PERSISTENCY	CHARACTERIZATION		
			Detection	Recognition		Dose-Response	Hedonic		
#	Field No.	Sample Description	Threshold	Threshold	Intensity	Slope	Tone	Principal Odor Descriptors	Comments
1									

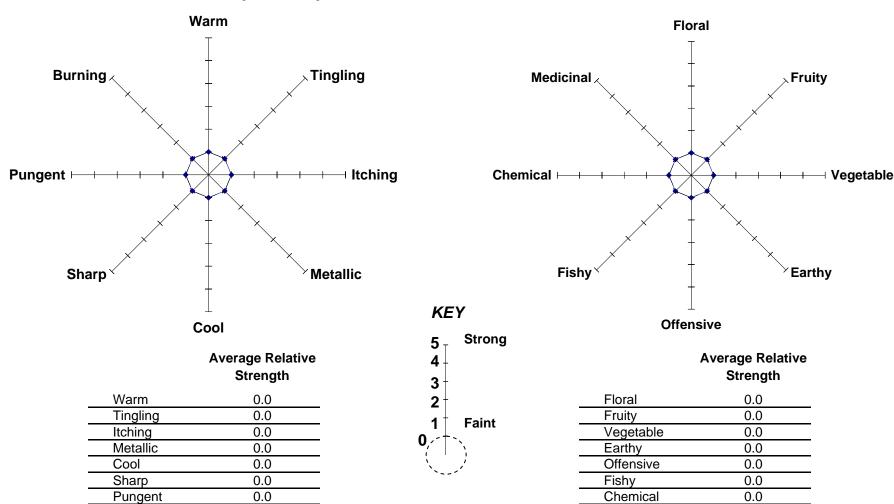
Client:Service Engineering GroupField No.:60028-1M-(0-2)Report No.:533601Project:05017-0207Description:0-2 Hour Odor SampleEvaluation Date:12/02/05

Sensation Descriptor Graph

0.0

Burning

Odor Descriptor Graph



Relative Strength

Medicinal

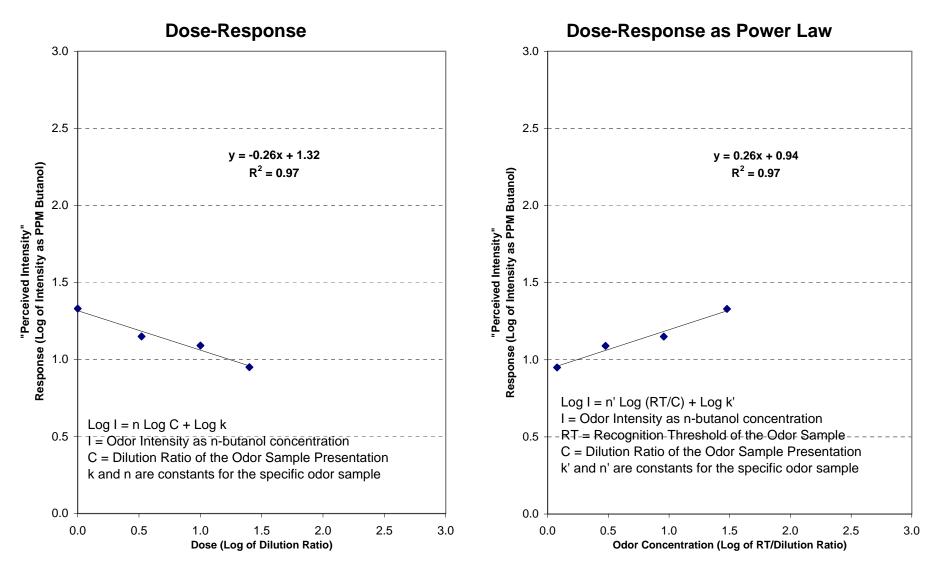
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Odor Evaluation Report

 Client:
 Service Engineering Group
 Field No.:
 60028-1M-(0-2)
 Report No.:
 533601

 Project:
 05017-0207
 Description:
 0-2 Hour Odor Sample
 Evaluation Date:
 12/02/05

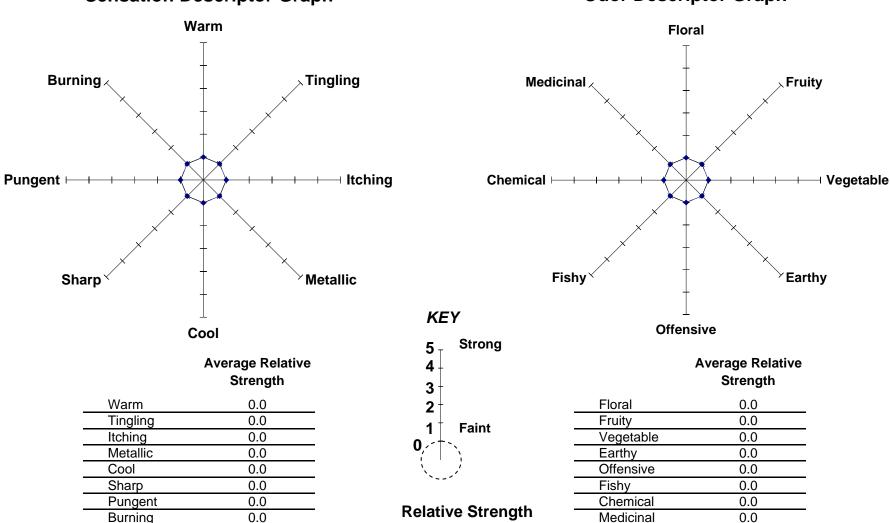
Client:Service Engineering GroupField No.:60028-1M-(0-2)Report No.:533601Project:05017-0207Description:0-2 Hour Odor SampleEvaluation Date:12/02/05



Client:Service Engineering GroupField No.:60028-1M-(2-6)Report No.:533601Project:05017-0207Description:2-6 Hour Odor SampleEvaluation Date:12/02/05

Sensation Descriptor Graph

Odor Descriptor Graph

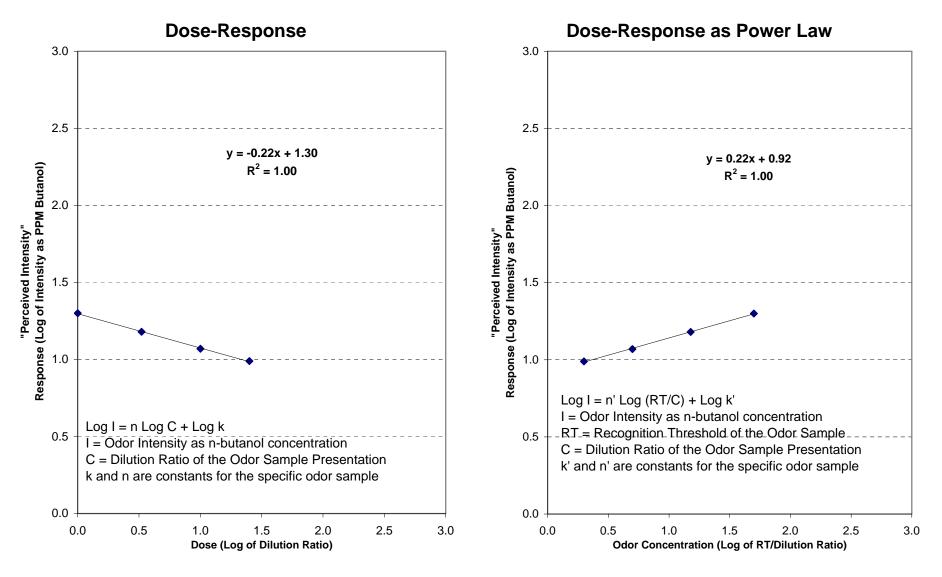


Odor Evaluation Report

 Client:
 Service Engineering Group
 Field No.:
 60028-1M-(2-6)
 Report No.:
 533601

 Project:
 05017-0207
 Description:
 2-6 Hour Odor Sample
 Evaluation Date:
 12/02/05

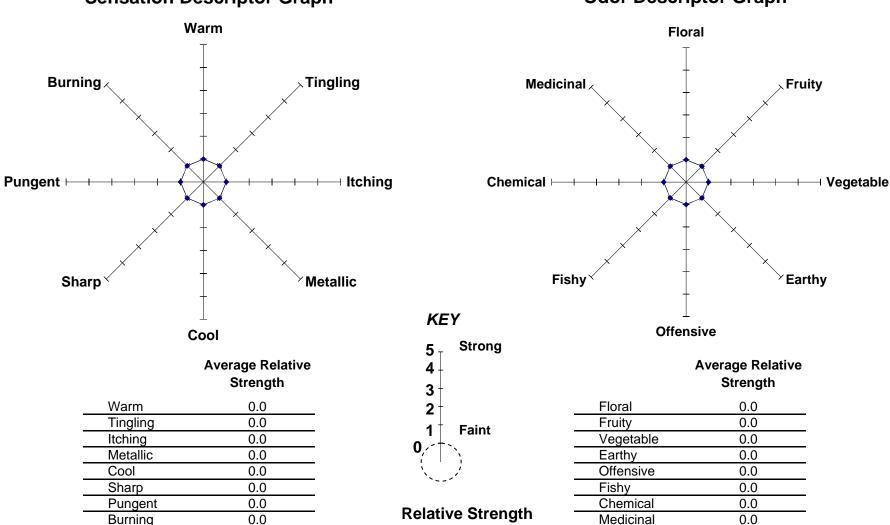
Client:Service Engineering GroupField No.:60028-1M-(2-6)Report No.:533601Project:05017-0207Description:2-6 Hour Odor SampleEvaluation Date:12/02/05



Client:Service Engineering GroupField No.:60028-1M-(6-22)Report No.:533601Project:05017-0207Description:6-22 Hour Odor SampleEvaluation Date:12/02/05

Sensation Descriptor Graph

Odor Descriptor Graph

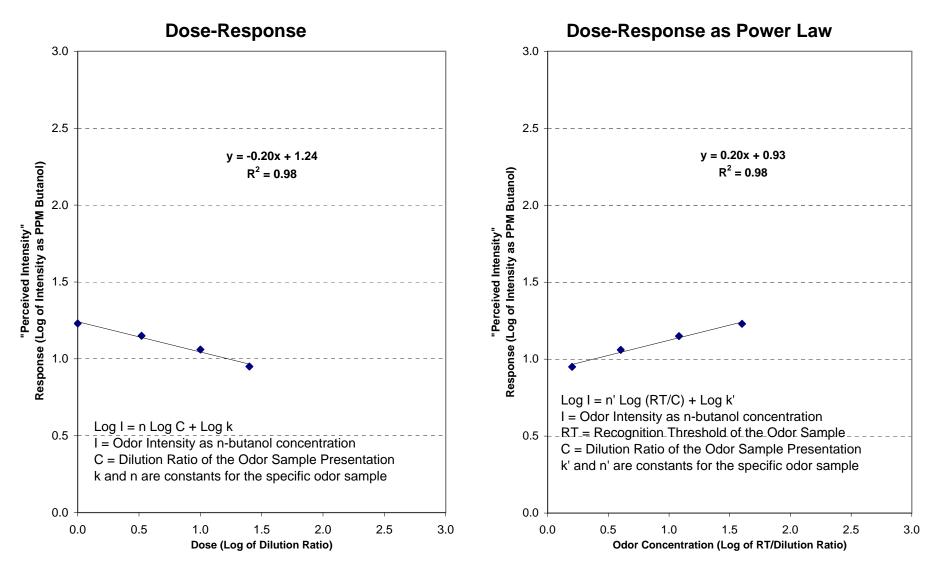


Odor Evaluation Report

 Client:
 Service Engineering Group
 Field No.:
 60028-1M-(6-22)
 Report No.:
 533601

 Project:
 05017-0207
 Description:
 6-22 Hour Odor Sample
 Evaluation Date:
 12/02/05

Client:Service Engineering GroupField No.:60028-1M-(6-22)Report No.:533601Project:05017-0207Description:6-22 Hour Odor SampleEvaluation Date:12/02/05



CHAIN OF CUSTODY RECORD FOR ODOR SAMPLES

Page_Lof_L	For Laboratory use Onl	Odor Evaluation Report No.	Laboratory Sample No.											Comments & Excentions Noted
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Odor Evaluations Requested: (X)		aracteriza												90
valuation		r Intensity (PPM)		X	×	X								Time
Odor E	uo	oncentratio		×	×	×								Dota
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W. 7.1	Sampling Date: 12/01 - 12/02/09		Sample	12/01/05	12/01/05	50/20/2)								
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Sampled By:	Sampling I		Sample Description	dor sam	or Sampl	ier sample								Dott
igr Group	£020		Sample I	0-2 hour odor sample	2-6 hour ador Sample	6-22 howrod								Delineisked D.
Client: S'ERVICE Engr Group	Project Name: 05017-0207	ents:	Field No.	(2-0)	60028-IM-	(22-9) -W1-82009								
Client:	Project	Comments:	Line No.	-	2	3	4	5	9	7	8	6	10	

ransfer & Shipping Information

Number of "Air-Pacs"/ Shipping Boxes____

Received at St. Croix Sensory Laboratory (affly 17188) 12/2/65 8:45

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Comments Key:

- A Sample bag was received without sample.
- **B** Insufficient sample volume to complete evaluation.
- **C** Sample bag was received with condensation in the bag.
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- **E** Assessors did not observe the sample at full stregth for Intensity, Characterization, or Persistency evaluations.
 - **E1** Sample was observed at a maximum of 50% dilution.
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- **F** Assessors did not observe the sample for Intensity, Characterization, or Persistency evaluations.
- G By client request, the IITRI Dynamic Dilution Triangle Olfactometer, with a sample presentation flow rate of 0.5-lpm and a Method Detection Limit for Detection and Recognition Threshold of '4', was used to determine the thresholds for this odor evaluation

If you have any questions regarding the comments for this evaluation, please contact our lab at +800-879-9231 ext.12.



Service Engineering Group 05017-0207

Odor Evaluation Report Report No. 533701 12/03/05

Data Release Authorization:

Natasha Kaslow Laboratory Associate

Nataha Karlow

Reviewed and Approved:

Michael A. McGinley, P.E. Laboratory Director

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> Tel: 800-879-9231 Fax: 651-439-1065

Email: stcroix@fivesenses.com

Odor Evaluation Report

Client:	Service Engineering Group	Report No.:	533701	
Project:	05017-0207	Evaluation Date:	12/03/05	

			ASTM E679	& EN13725	ASTM E544	PERSISTENCY	CHARACTERIZATION		
#	Field No.	Sample Description	Detection Threshold	Recognition Threshold	Intensity	Dose-Response Slope	Hedonic Tone	Principal Odor Descriptors	Comments
1	60028-1Q-(0-2)	0-2 Hour Odor Sample	40	25	22	-0.33			
2	60028-1Q-(2-6)	2-6 Hour Odor Sample	55	45	16	-0.23			
3	60028-1Q-(6-22)	6-22 Hour Odor Sample	45	30	19	-0.31			

Service Engineering Group

05017-0207

Client:

Project:

Odor Evaluation Report

Report No.: 533701

Evaluation Date: 12/03/05

			ASTM E679	& EN13725	ASTM E544	PERSISTENCY	CHARACTERIZATION		
			Detection	Recognition		Dose-Response	Hedonic		_
#	Field No.	Sample Description	Threshold	Threshold	Intensity	Slope	Tone	Principal Odor Descriptors	Comments
_									

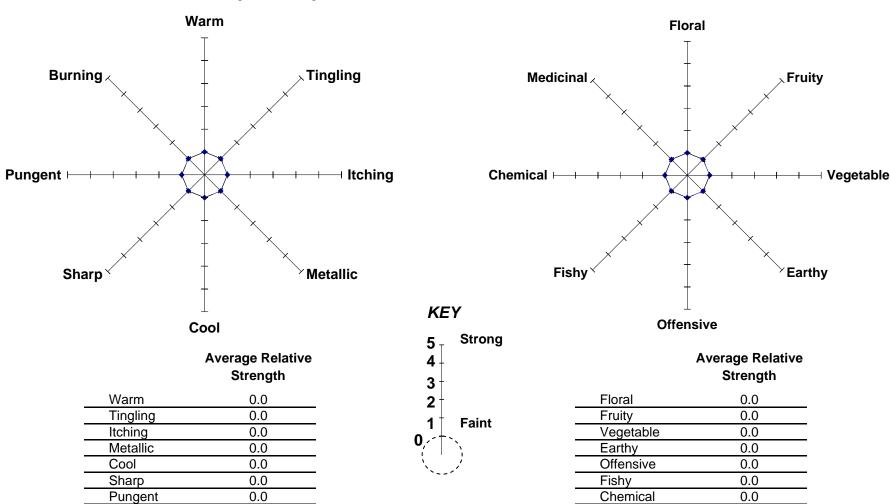
Client:Service Engineering GroupField No.:60028-1Q-(0-2)Report No.:533701Project:05017-0207Description:0-2 Hour Odor SampleEvaluation Date:12/03/05

Sensation Descriptor Graph

0.0

Burning

Odor Descriptor Graph



Relative Strength

Medicinal

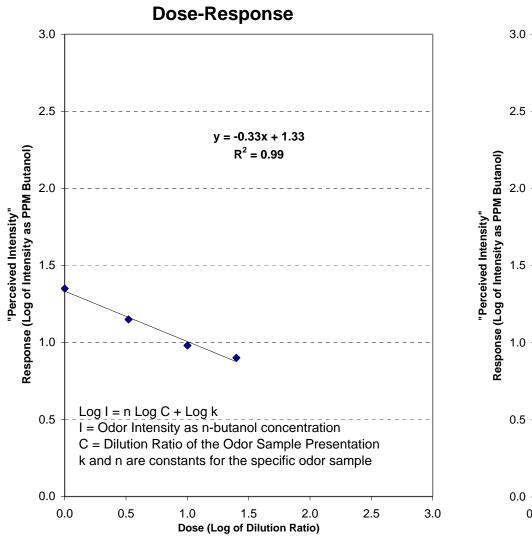
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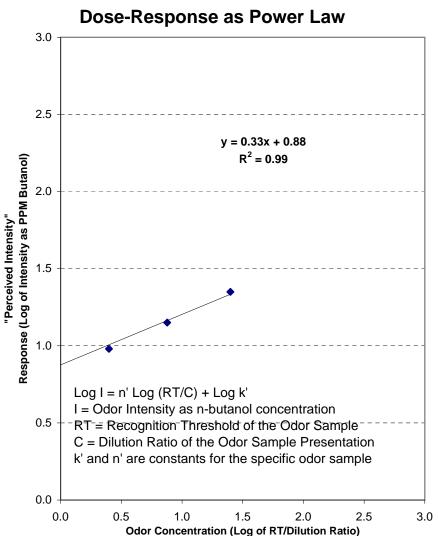
Odor Evaluation Report

 Client:
 Service Engineering Group
 Field No.:
 60028-1Q-(0-2)
 Report No.:
 533701

 Project:
 05017-0207
 Description:
 0-2 Hour Odor Sample
 Evaluation Date:
 12/03/05

Client:Service Engineering GroupField No.:60028-1Q-(0-2)Report No.:533701Project:05017-0207Description:0-2 Hour Odor SampleEvaluation Date:12/03/05

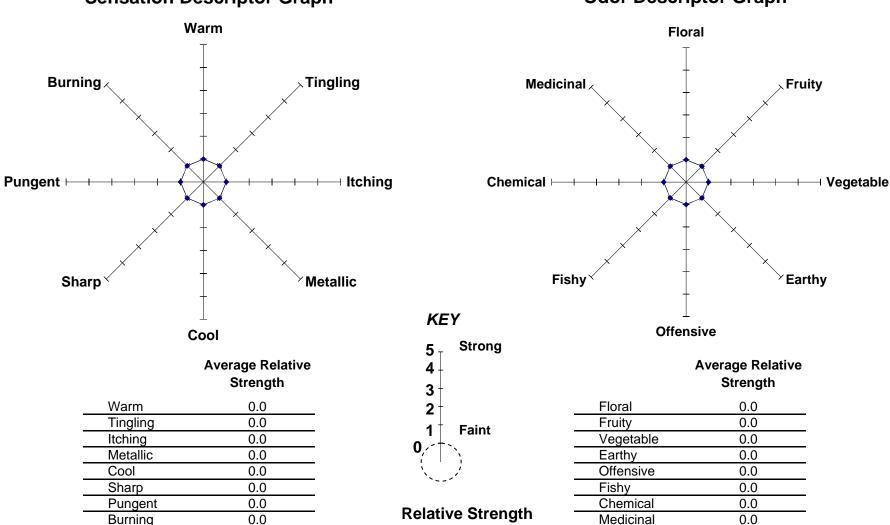




Client:Service Engineering GroupField No.:60028-1Q-(2-6)Report No.:533701Project:05017-0207Description:2-6 Hour Odor SampleEvaluation Date:12/03/05

Sensation Descriptor Graph

Odor Descriptor Graph

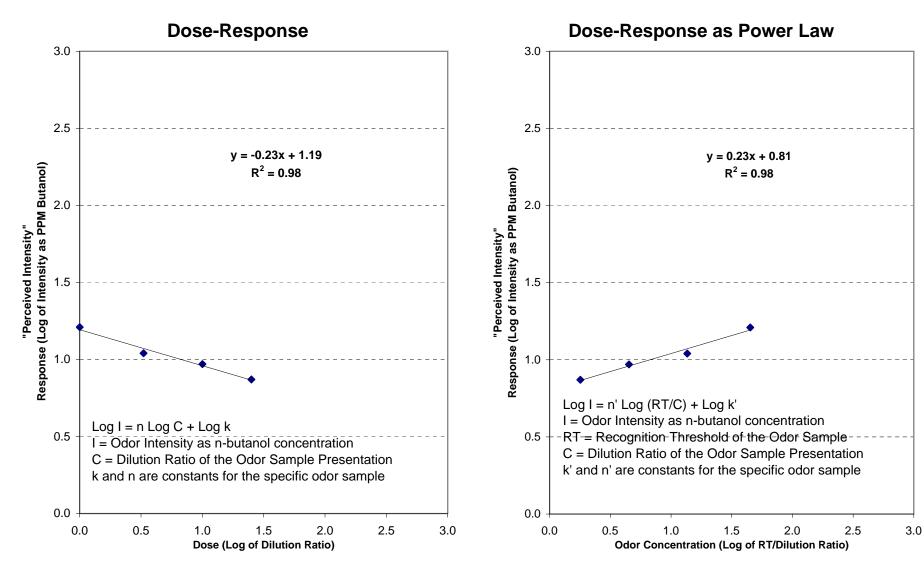


Odor Evaluation Report

 Client:
 Service Engineering Group
 Field No.:
 60028-1Q-(2-6)
 Report No.:
 533701

 Project:
 05017-0207
 Description:
 2-6 Hour Odor Sample
 Evaluation Date:
 12/03/05

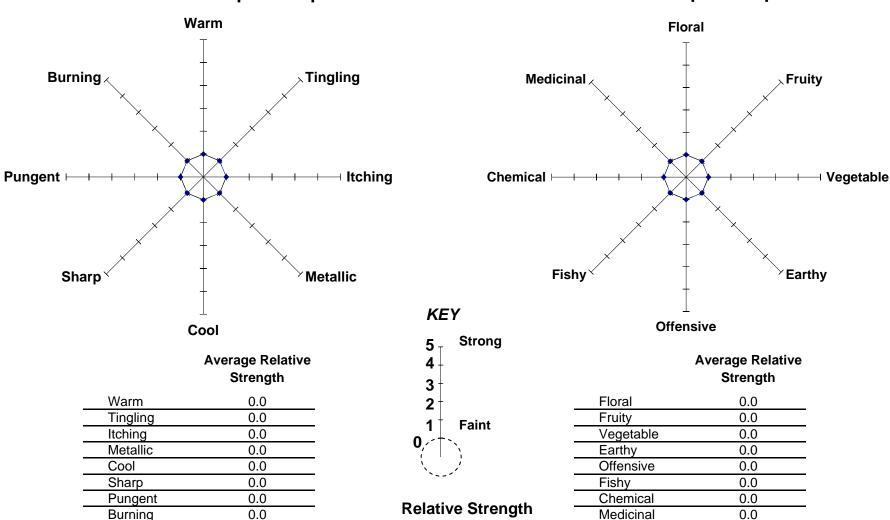
Client:Service Engineering GroupField No.:60028-1Q-(2-6)Report No.:533701Project:05017-0207Description:2-6 Hour Odor SampleEvaluation Date:12/03/05



Client:Service Engineering GroupField No.:60028-1Q-(6-22)Report No.:533701Project:05017-0207Description:6-22 Hour Odor SampleEvaluation Date:12/03/05

Sensation Descriptor Graph

Odor Descriptor Graph

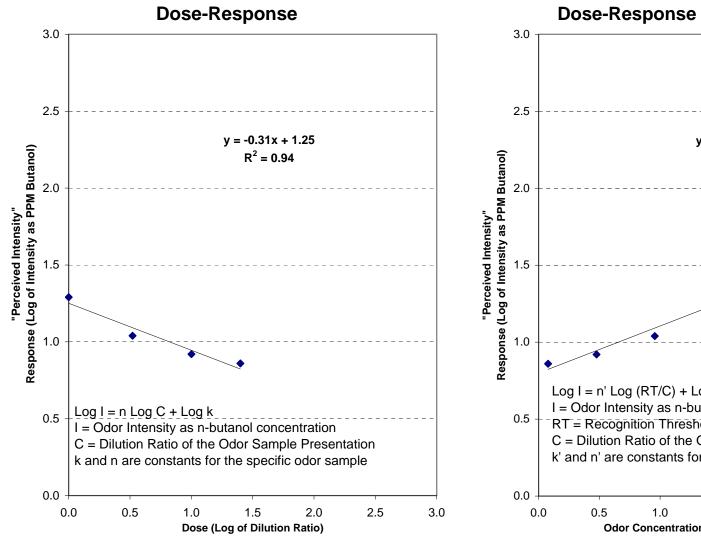


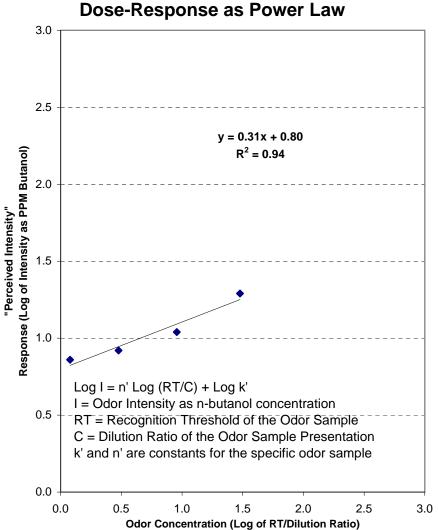
Odor Evaluation Report

 Client:
 Service Engineering Group
 Field No.:
 60028-1Q-(6-22)
 Report No.:
 533701

 Project:
 05017-0207
 Description:
 6-22 Hour Odor Sample
 Evaluation Date:
 12/03/05

533701 Service Engineering Group 60028-1Q-(6-22) Client: Field No.: Report No.: 05017-0207 Description: 6-22 Hour Odor Sample 12/03/05 **Evaluation Date:** Project:





CHAIN OF CUSTODY RECORD FOR ODOR SAMPLES

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Page_Lofi	For Laboratory use Only	Odor Evaluation Report No.	Laboratory Sample No.											Commante & Evocations Noted
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Odor Ev	uo	oncentrati DT, RT)		X	×	×								Data
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MC H	102-12/03/05		Sample	50/20/21	15/02/09	12/03/05								
Sampled By: L	Sampling Date: 12/02		Sample Description	· scenyole	sample	or sample								-
- Group	2020		Sample D	0-2 hour ador	2-6 hour odor	6-22 hour odo								Delineished D.
Client: SERVICE Engr Group	Project Name: C5017 - 0207	ents:	Field No.	60028-1Q-(0-2)	(9-2)-01-82009	(22-9)- 15-82009								
Client:	Project	Comments:	Line No.	1	2	Э	4	5	9	7	8	6	10	

4 J. W.C	Ree
Transfer & Shipping Information	Number of "Air-Pacs"/ Shipping Boxes

TOTO				
Comments or parceptions (voice				
Commen				
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Comments Key:

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- **D** Sample description was not provided.
- **E** Assessors did not observe the sample at full stregth for Intensity, Characterization, or Persistency evaluations.
 - **E1** Sample was observed at a maximum of 50% dilution.
 - **E2** Only Persistency evaluation was conducted.
- **F** Assessors did not observe the sample for Intensity, Characterization, or Persistency evaluations.
- G By client request, the IITRI Dynamic Dilution Triangle Olfactometer, with a sample presentation flow rate of 0.5-lpm and a Method Detection Limit for Detection and Recognition Threshold of '4', was used to determine the thresholds for this odor evaluation

If you have any questions regarding the comments for this evaluation, please contact our lab at +800-879-9231 ext.12.



SERVICE Engineering Group

05017-0207

Odor Evaluation Report

Report No. 534003 12/06/05

Data Release Authorization:

melosa machinly

Melissa McGinley Laboratory Associate Reviewed and Approved:

Millou 3

Michael A. McGinley, P.E. Laboratory Director

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Email: stcroix@fivesenses.com

St. Croix Sensory, Inc. Odor Evaluation Report

Client:	SERVICE Engineering Group	Report No.:	534003
Project:	05017-0207	Evaluation Date:	12/06/05

			ASTM E679	& EN13725	ASTM E544	PERSISTENCY	Y CHARACTERIZATION		
#	Field No.	Sample Description	Detection Threshold	Recognition Threshold	Intensity	Dose-Response Slope	Hedonic Tone	Principal Odor Descriptors	Comments
1	70015-IN-(0-2)	0-2 Hour Odor Sample	100	60	14	-0.25			
2	70015-IN-(2-6)	2-6 Hour Odor Sample	90	70	20	-0.26			
3	70015-IN-(6-22)	6-22 Hour Odor Sample	85	50	15	-0.22			

Odor Evaluation Report

Client:	SERVICE Engineering Group	Report No.:	534003	
Project:	05017-0207	Evaluation Date:	12/06/05	

			ASTM E679	& EN13725	ASTM E544	PERSISTENCY			1
			Detection	Recognition			Hedonic		
#	Field No.	Sample Description	Threshold	Threshold	Intensity	Slope	Tone	Principal Odor Descriptors	Comments

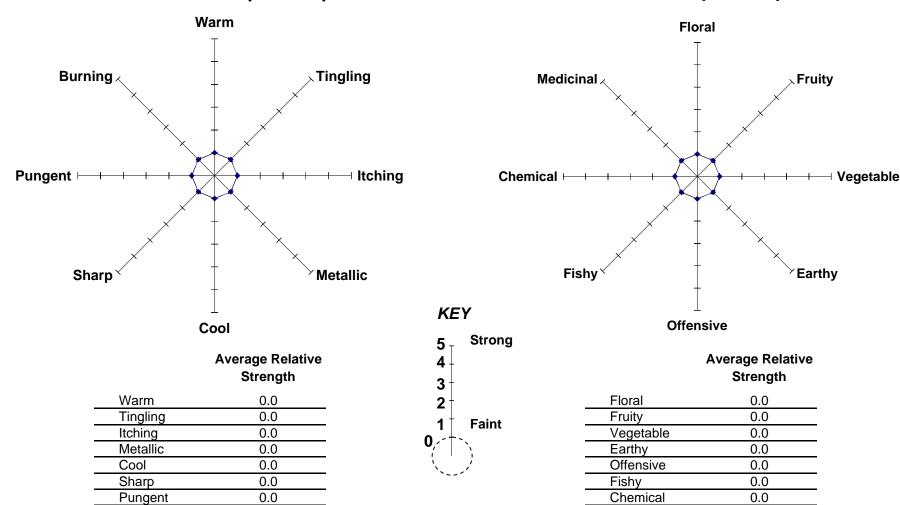
Client:SERVICE Engineering GroupField No.:70015-IN-(0-2)Report No.:534003Project:05017-0207Description:0-2 Hour Odor SampleEvaluation Date:12/06/05

Sensation Descriptor Graph

0.0

Burning

Odor Descriptor Graph



Relative Strength

Medicinal

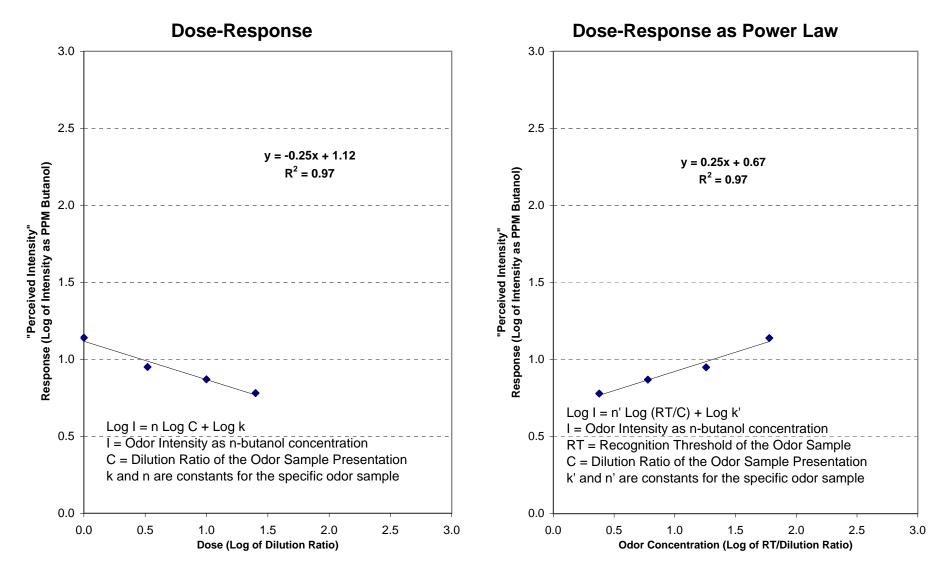
0.0

Odor Evaluation Report

 Client:
 SERVICE Engineering Group
 Field No.:
 70015-IN-(0-2)
 Report No.:
 534003

 Project:
 05017-0207
 Description:
 0-2 Hour Odor Sample
 Evaluation Date:
 12/06/05

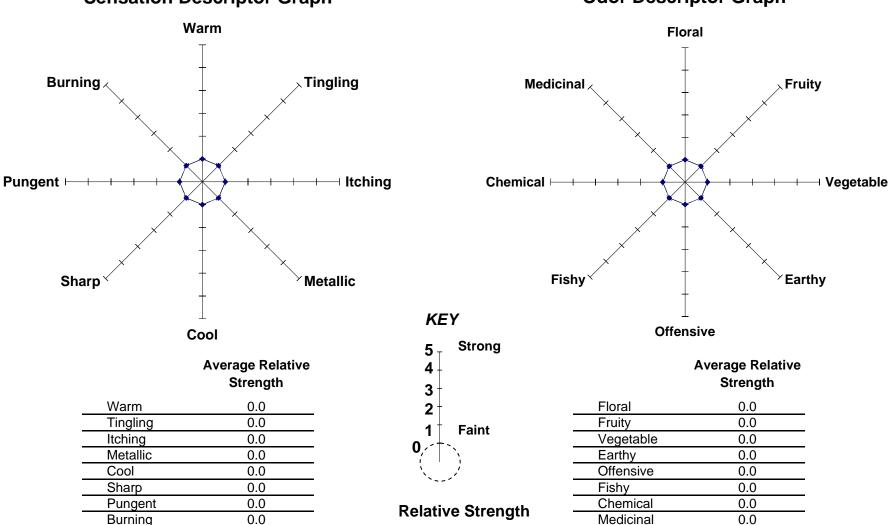
Client:SERVICE Engineering GroupField No.:70015-IN-(0-2)Report No.:534003Project:05017-0207Description:0-2 Hour Odor SampleEvaluation Date:12/06/05



Client:SERVICE Engineering GroupField No.:70015-IN-(2-6)Report No.:534003Project:05017-0207Description:2-6 Hour Odor SampleEvaluation Date:12/06/05

Sensation Descriptor Graph

Odor Descriptor Graph



Odor Evaluation Report

 Client:
 SERVICE Engineering Group
 Field No.:
 70015-IN-(2-6)
 Report No.:
 534003

 Project:
 05017-0207
 Description:
 2-6 Hour Odor Sample
 Evaluation Date:
 12/06/05

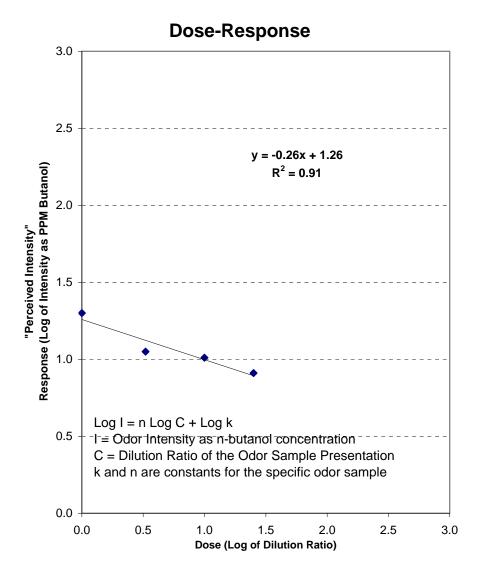
Client: SERVICE Engineering Group
Project: 05017-0207

Field No.: 70015-IN-(2-6)

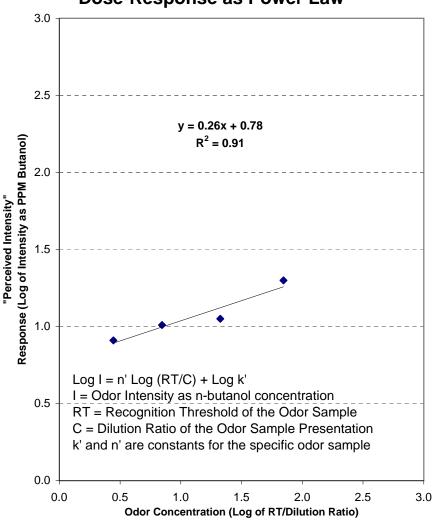
Description: 2-6 Hour Odor Sample

Report No.: 534003

Evaluation Date: 12/06/05



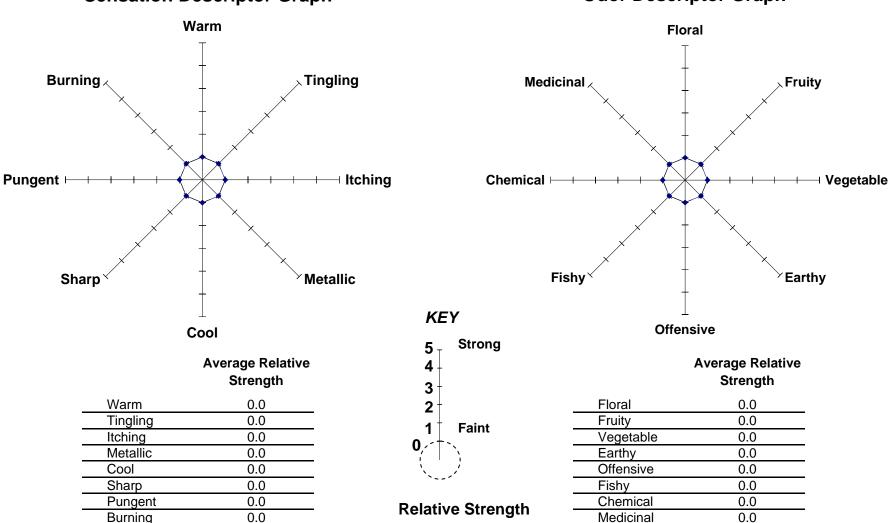
Dose-Response as Power Law



Client:SERVICE Engineering GroupField No.:70015-IN-(6-22)Report No.:534003Project:05017-0207Description:6-22 Hour Odor SampleEvaluation Date:12/06/05

Sensation Descriptor Graph

Odor Descriptor Graph



Odor Evaluation Report

 Client:
 SERVICE Engineering Group
 Field No.:
 70015-IN-(6-22)
 Report No.:
 534003

 Project:
 05017-0207
 Description:
 6-22 Hour Odor Sample
 Evaluation Date:
 12/06/05

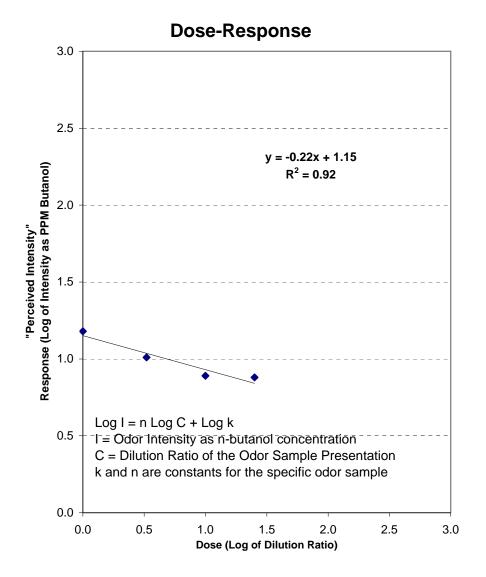
Client: SERVICE Engineering Group Field Project: 05017-0207 Descript

Field No.: 70015-IN-(6-22)

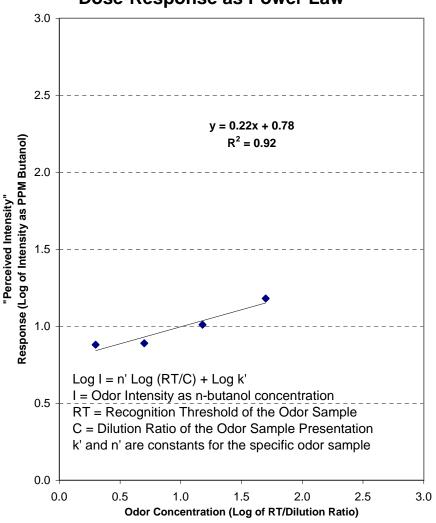
Description: 6-22 Hour Odor Sample

Report No.: 534003

Evaluation Date: 12/06/05







Comments:

Line No.

2

3

5

4

9

For Laboratory use Only Laboratory Sample No Odor Evaluation Report No. Page i of [Z Odor Evaluations Requested: (X) ("Dose-Resbouse") Odor Persistency (Hedonic Tone & Descriptors) Odor Characterization (PPM) CHAIN OF CUSTODY RECORD Odor Intensity (DT, RT) FOR ODOR SAMPLES Odor Concentration Field H₂S (ppm) Sampling Date: 12/05 - 17/06/05 Sampled By: Will C. H. 86:51 20/50/21 50/90/21 Sample Time 11:41 りたったの 2-6 hour odor sample 6-22 hour odor sample 0-2 hour odor sample Sample Description Engr Group -0207 70015-IN-(2-6) 70015-IN-(6-12) 70015-IM-(0-2) Project Name: 05017 Field No. Client: SERVICE

10

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6

Number of	"Air-Pacs"/	hipping Boxes	

<u></u>	12/4/05 835	Cethy Moos	ratory	Received at St. Croix Sensory Laboratory
			08:80	15/06/05 08:00
Time Comment	Date	Accepted By	Time	Date

ts & Exceptions Noted

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- G By client request, the IITRI Dynamic Dilution Triangle Olfactometer, with a sample presentation flow rate of 0.5-lpm and a Method Detection Limit for Detection and Recognition Threshold of '4', was used to determine the thresholds for this odor evaluation

If you have any questions regarding the comments for this evaluation, please contact our lab at +800-879-9231 ext.12.



SERVICE Engineering Group

05017-0207

Odor Evaluation Report

Report No. 534103 12/07/05

Data Release Authorization:

Melosa Mchirly

Melissa McGinley Laboratory Associate Reviewed and Approved:

Mill Mes

Michael A. McGinley, P.E. Laboratory Director

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> Tel: 800-879-9231 Fax: 651-439-1065

Email: stcroix@fivesenses.com

St. Croix Sensory, Inc. Odor Evaluation Report

Client:	SERVICE Engineering Group	Report No.:	534103
Project:	05017-0207	Evaluation Date:	12/07/05

			ASTM E679	& EN13725	ASTM E544	PERSISTENCY		CHARACTERIZATION	
#	Field No.	Sample Description	Detection Threshold	Recognition Threshold	Intensity	Dose-Response Slope	Hedonic Tone	Principal Odor Descriptors	Comments
1	70015-10M-(0-2)	0-2 Hour Odor Sample	100	65	35	-0.43			
2	70015-10M-(2-6)	2-6 Hour Odor Sample	150	110	25	-0.31			
3	70015-10M-(6-22)	6-22 Hour Odor Sample	55	40	22	-0.36			

St. Croix Sensory, Inc.

Odor Evaluation Report

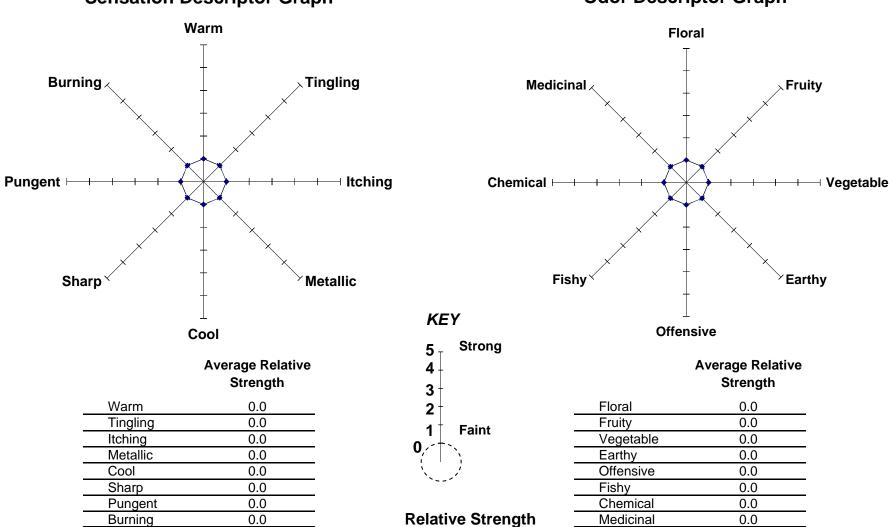
Client:	SERVICE Engineering Group	Report No.:	534103	
Project:	05017-0207	Evaluation Date:	12/07/05	

			ASTM E679	& EN13725	ASTM E544	PERSISTENCY		CHARACTERIZATION	1
			Detection	Recognition			Hedonic		
#	Field No.	Sample Description	Threshold	Threshold	Intensity	Slope	Tone	Principal Odor Descriptors	Comments
_									

Client:SERVICE Engineering GroupField No.:70015-10M-(0-2)Report No.:534103Project:05017-0207Description:0-2 Hour Odor SampleEvaluation Date:12/07/05

Sensation Descriptor Graph

Odor Descriptor Graph



Odor Evaluation Report

 Client:
 SERVICE Engineering Group
 Field No.:
 70015-10M-(0-2)
 Report No.:
 534103

 Project:
 05017-0207
 Description:
 0-2 Hour Odor Sample
 Evaluation Date:
 12/07/05

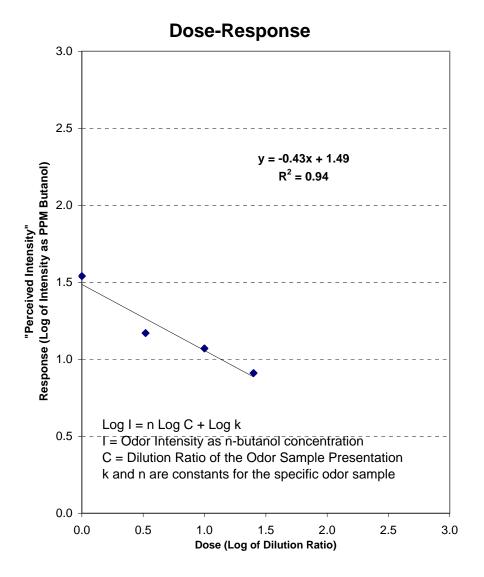
Client: SERVICE Engineering Group
Project: 05017-0207

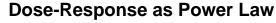
Field No.: 70015-10M-(0-2)

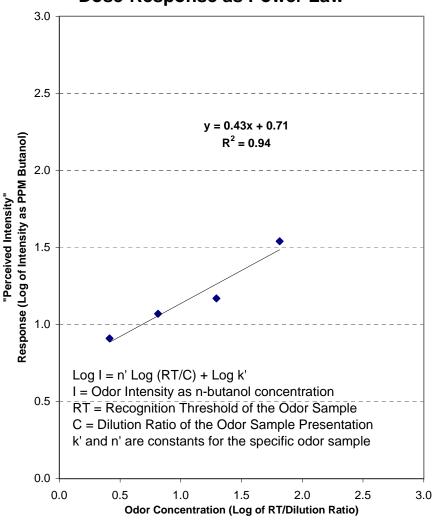
Description: 0-2 Hour Odor Sample

Report No.: 534103

Evaluation Date: 12/07/05



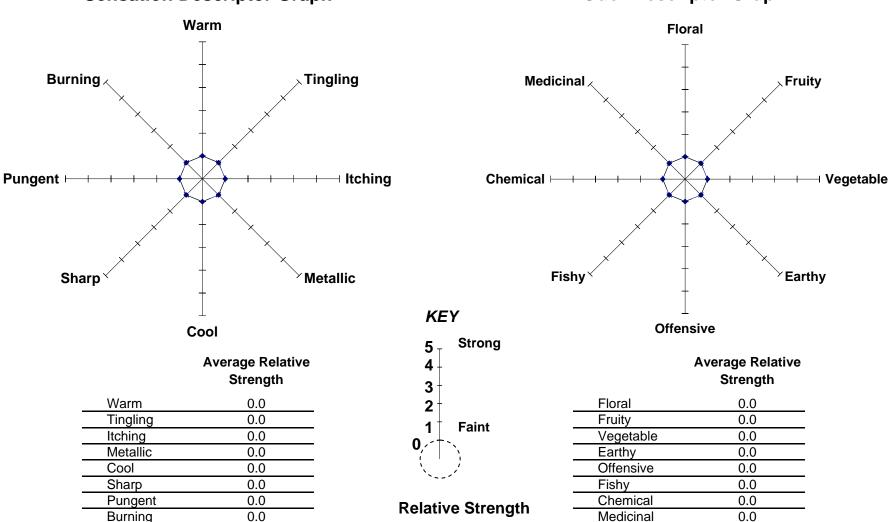




Client:SERVICE Engineering GroupField No.:70015-10M-(2-6)Report No.:534103Project:05017-0207Description:2-6 Hour Odor SampleEvaluation Date:12/07/05

Sensation Descriptor Graph

Odor Descriptor Graph



Odor Evaluation Report

 Client:
 SERVICE Engineering Group
 Field No.:
 70015-10M-(2-6)
 Report No.:
 534103

 Project:
 05017-0207
 Description:
 2-6 Hour Odor Sample
 Evaluation Date:
 12/07/05

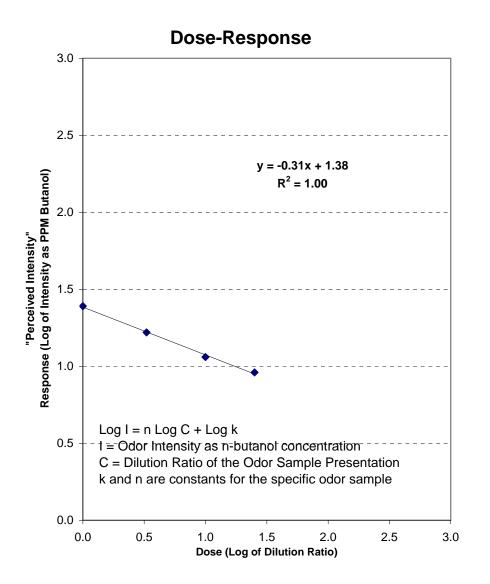
Client: SERVICE Engineering Group
Project: 05017-0207

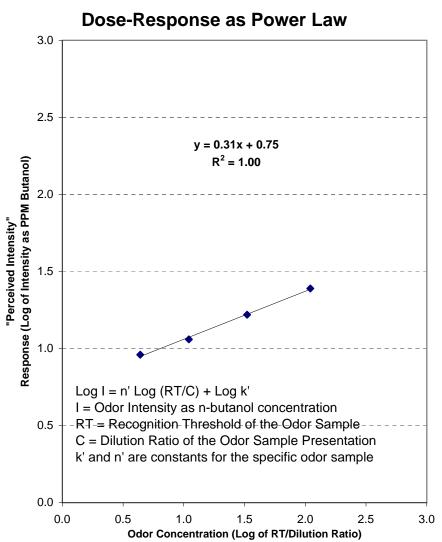
Field No.: 70015-10M-(2-6)

Description: 2-6 Hour Odor Sample

Report No.: 534103

Evaluation Date: 12/07/05



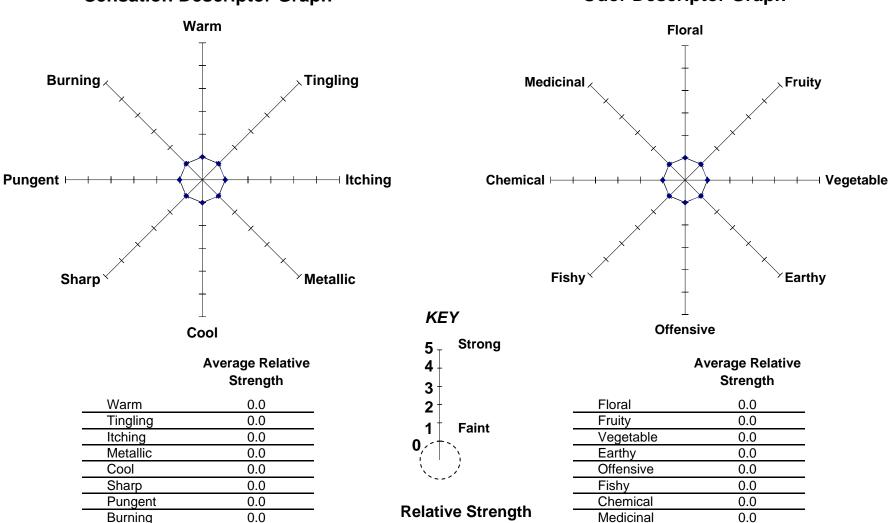


Client: SERVICE Engineering Group Field No.: 70015-10M-(6-22) Report No.: 534103

Project: 05017-0207 Description: 6-22 Hour Odor Sample Evaluation Date: 12/07/05

Sensation Descriptor Graph

Odor Descriptor Graph



Odor Evaluation Report

 Client:
 SERVICE Engineering Group
 Field No.:
 70015-10M-(6-22)
 Report No.:
 534103

 Project:
 05017-0207
 Description:
 6-22 Hour Odor Sample
 Evaluation Date:
 12/07/05

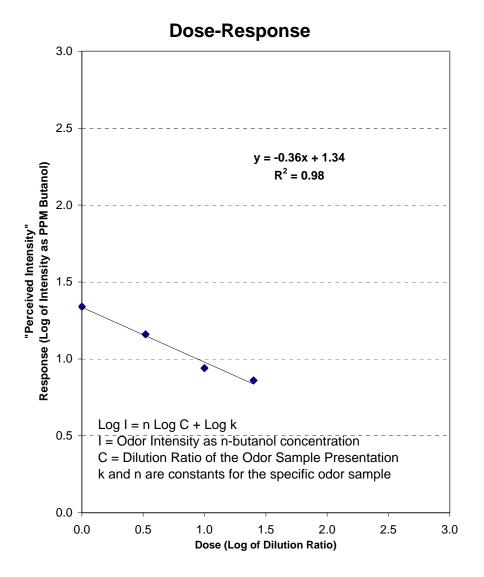
Client: SERVICE Engineering Group
Project: 05017-0207

Field No.: 70015-10M-(6-22)

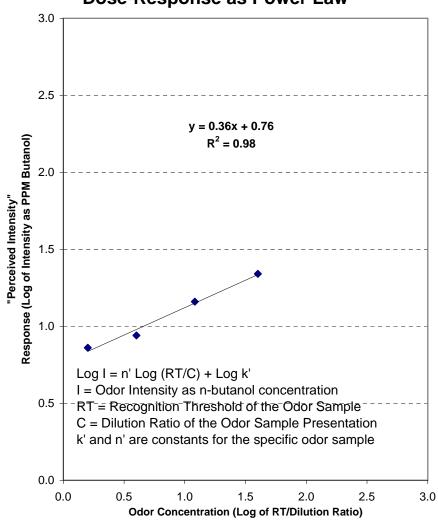
Description: 6-22 Hour Odor Sample

Report No.: 534103

Evaluation Date: 12/07/05







CHAIN OF CUSTODY RECORD FOR ODOR SAMPLES

Page_Lof_L	For Laboratory use Only	Odor Evaluation Report No.	Laboratory Sample No.											Comments & Exceptions Noted
ed: (X)	1	Persistency e-Response")		×	×	X	,							Commen
Odor Evaluations Requested: (X)		aracterizat one & Descrip												ne
valuation		r Intensity (PPM)		X	X	×								Time
Odor E	uc	oncentratio		X	×	×								Date
7	50/2		Field H ₂ S (ppm)											Accepted By
1. H.	Sampling Date: (2/06 - (2/07/05		Sample	12/06/05	12/06/05	30/20/21								Ac
will	ate: (2/0													Time
Sampled By: 4	Sampling Da		Sample Description	r sample	r sample	lor sample								Date
- Group	520T		Sample D	0-2 hour Odor	2-6 hour ado	6-22 hour odor sample								, Relingished By
Client: SERVICE Engr Group	Project Name: 05017 - 0	ents:	Field No.	foois-1014-(0.5)	(9.2)-MOI-GISOE	70015-10m-(6-22)								Transfer & Shipping
Client:	Project	Comments:	Line No.	1	2	3	4	5	9	7	8	6	10	Transf

ansfer & Shipping Information

Number of "Air-Pacs"/ Shipping Boxes____

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08:30		ratory	
50/20/21		ix Sensory Labo	
1. J. M. C. H.U	11	Received at St. Croix Sensory Laboratory	

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If you have any questions regarding the comments for this evaluation, please contact our lab at +800-879-9231 ext.12.



SERVICE Engineering Group

05017-0207

Odor Evaluation Report

Report No. 534202 12/08/05

Data Release Authorization:

melossa melinty

Melissa McGinley Laboratory Associate Reviewed and Approved:

Millou 3

Michael A. McGinley, P.E. Laboratory Director

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Email: stcroix@fivesenses.com

St. Croix Sensory, Inc. Odor Evaluation Report

Client:	SERVICE Engineering Group	Report No.:	534202
Project:	05017-0207	Evaluation Date:	12/08/05

			ASTM E679	& EN13725	ASTM E544	PERSISTENCY		CHARACTERIZATION	
#	Field No.	Sample Description	Detection Threshold	Recognition Threshold	Intensity	Dose-Response Slope	Hedonic Tone	Principal Odor Descriptors	Comments
1	70015-10Q-(0-2)	0-2 Hour Odor Sample	50	35	23	-0.34			
2	70015-10Q-(2-6)	2-6 Hour Odor Sample	95	65	21	-0.30			
3	70015-10Q-(6-22)	6-22 Hour Odor Sample	190	120	25	-0.29			

St. Croix Sensory, Inc.

Odor Evaluation Report

Client:	SERVICE Engineering Group	Report No.:	534202
Project:	05017-0207	Evaluation Date:	12/08/05

			ASTM E679	& EN13725	ASTM E544	PERSISTENCY		CHARACTERIZATION	
			Detection	Recognition		Dose-Response	Hedonic		
#	Field No.	Sample Description	Threshold	Threshold	Intensity	Slope	Tone	Principal Odor Descriptors	Comments
1									

534202 **SERVICE Engineering Group** 70015-10Q-(0-2) Client: Field No.: Report No.: 05017-0207 Description: 0-2 Hour Odor Sample 12/08/05 Evaluation Date: Project:

Sensation Descriptor Graph

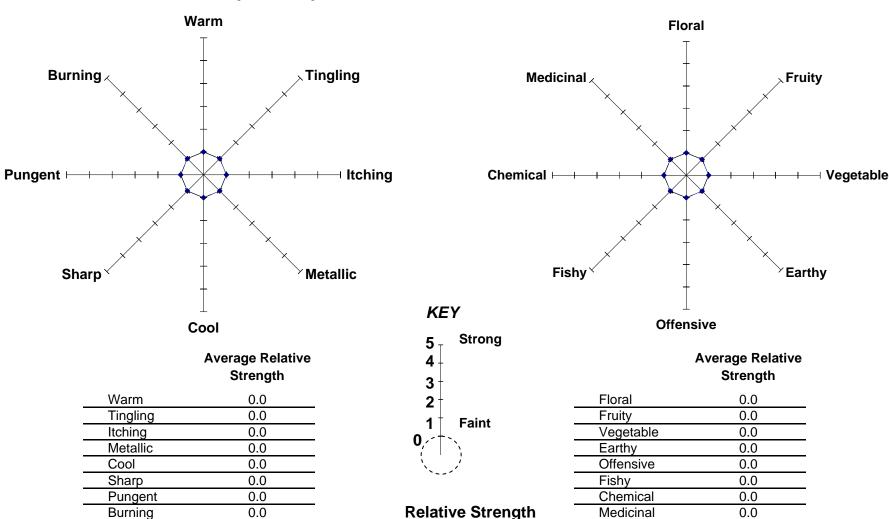
0.0

Burning

Odor Descriptor Graph

Medicinal

0.0



Odor Evaluation Report

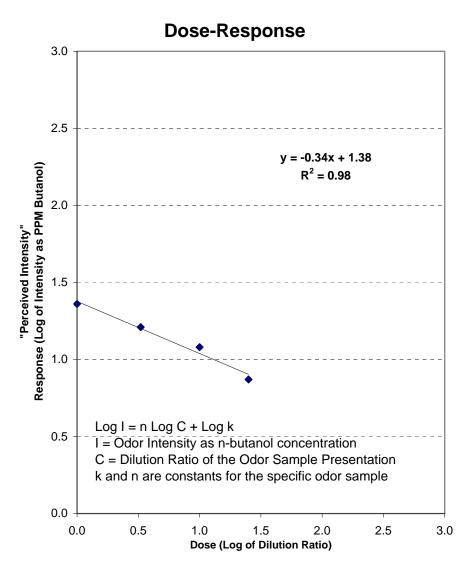
 Client:
 SERVICE Engineering Group
 Field No.:
 70015-10Q-(0-2)
 Report No.:
 534202

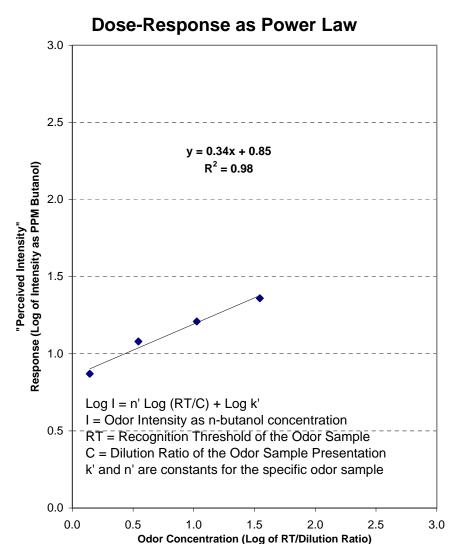
 Project:
 05017-0207
 Description:
 0-2 Hour Odor Sample
 Evaluation Date:
 12/08/05

SERVICE Engineering Group 70015-10Q-(0-2) Client: Field No.: 05017-0207 Description: 0-2 Hour Odor Sample Project:

534202 Report No.:

12/08/05 **Evaluation Date:**



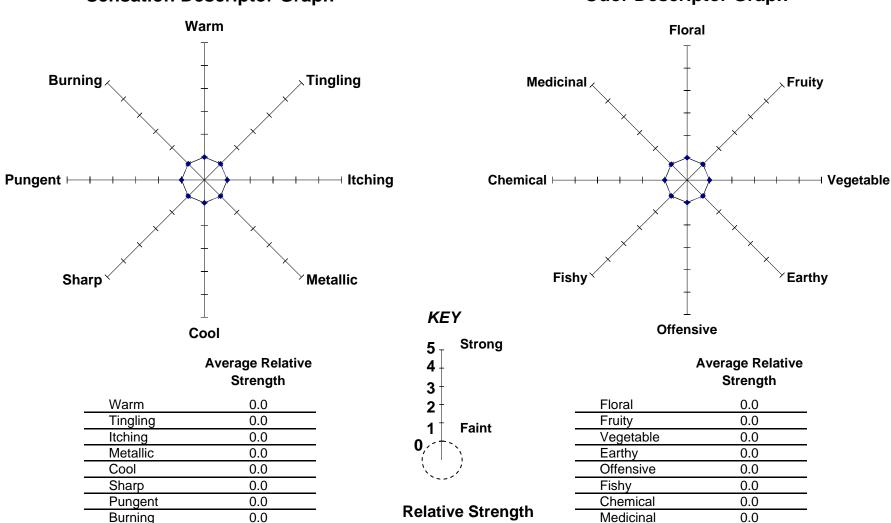


Client: SERVICE Engineering Group Field No.: 70015-10Q-(2-6) Report No.: 534202

Project: 05017-0207 Description: 2-6 Hour Odor Sample Evaluation Date: 12/08/05

Sensation Descriptor Graph

Odor Descriptor Graph



Odor Evaluation Report

 Client:
 SERVICE Engineering Group
 Field No.:
 70015-10Q-(2-6)
 Report No.:
 534202

 Project:
 05017-0207
 Description:
 2-6 Hour Odor Sample
 Evaluation Date:
 12/08/05

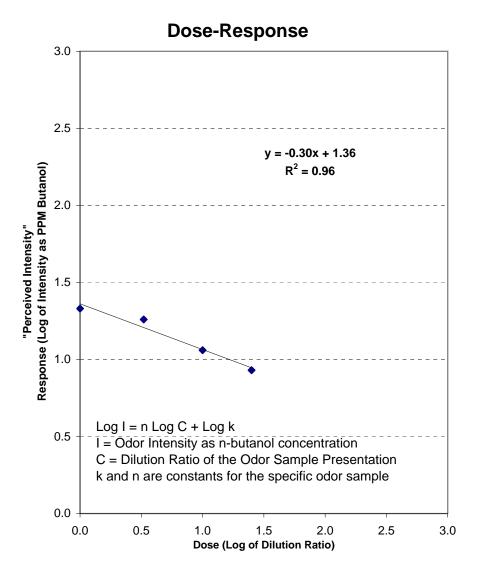
Client: SERVICE Engineering Group
Project: 05017-0207

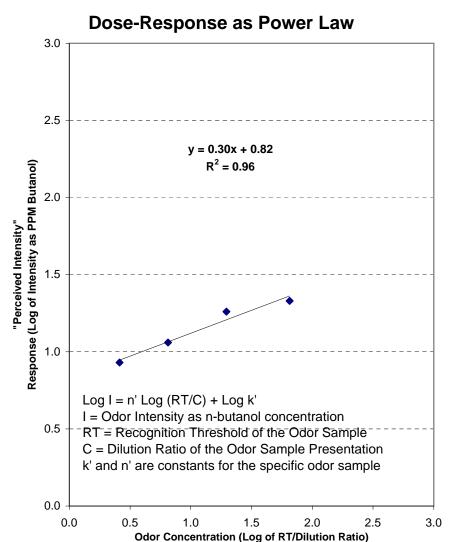
Field No.: 70015-10Q-(2-6)

Description: 2-6 Hour Odor Sample

Report No.: 534202

Evaluation Date: 12/08/05



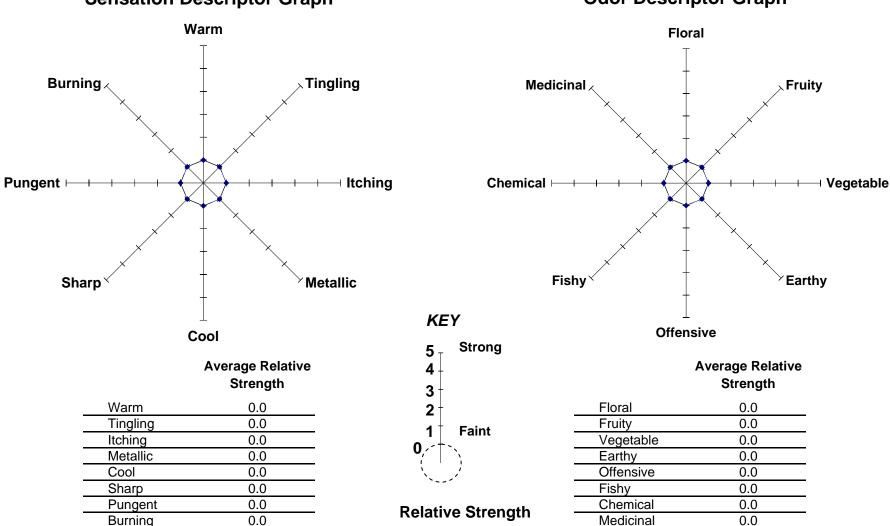


Client: SERVICE Engineering Group Field No.: 70015-10Q-(6-22) Report No.: 534202

Project: 05017-0207 Description: 6-22 Hour Odor Sample Evaluation Date: 12/08/05

Sensation Descriptor Graph

Odor Descriptor Graph



Odor Evaluation Report

 Client:
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 Field No.:
 70015-10Q-(6-22)
 Report No.:
 534202

 Project:
 05017-0207
 Description:
 6-22 Hour Odor Sample
 Evaluation Date:
 12/08/05

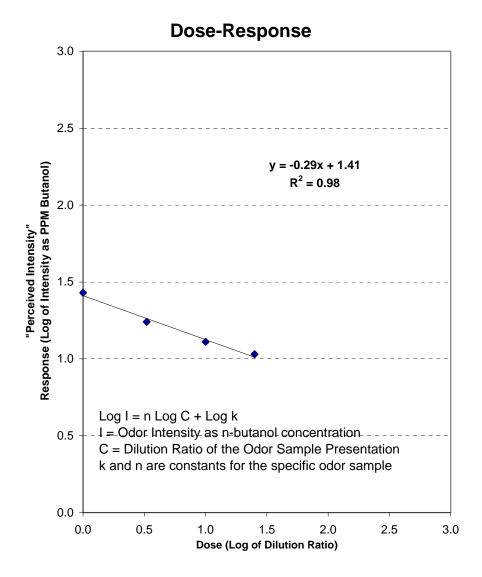
SERVICE Engineering Group Client: 05017-0207 Project:

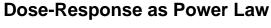
70015-10Q-(6-22) Field No.:

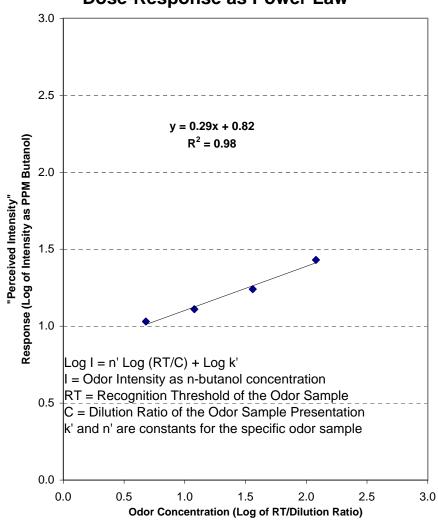
Description: 6-22 Hour Odor Sample

534202 Report No.:

12/08/05 **Evaluation Date:**







CHAIN OF CUSTODY RECORD FOR ODOR SAMPLES

	K) Page_L of_L	For Laboratory use Only	Odor Evaluation Report No.	Laboratory Sample No.	. N										
	ested: ()		Persistency	TobO		×	×	×							
	ns Requ	Odor Characterization (Hedonic Tone & Descriptors)													
	Odor Evaluations Requested: (X)	Odor Intensity (PPM)				×	×	×							
2	Odor E	uo	oncentratio DT, RT)		O	X	×	×						12	
-	12	50/			Field H_2S (ppm)										
at martin		50/80/21-±0/	C	1	Sample Time	20/20/21	00:91 16:00	12/08/05				1			
		Sampling Date: 12/07		N.	Sample Description	r sample	r sample	or sample							
	yr Group	£020	t020		Sample D	Sample D	0-2 hour ador	2-6 hour oder	6-22 hour odor						
	Client: SERVICE Engr Group	Project Name: 05017 - 0207	ents:	2	Field No.	70015-100-(0-5	70015-106-	70015-100-							
	Client:	Project	Comments:		Line No.		2	3	4	S	9	7	∞	6	10

Transfer & Shipping Information

Number of "Air-Pacs"/ Shipping Boxes_____

mg	Relingished By	Date	Time	Accepted By	Date	Time	Comments & Exceptions Noted
٥	1.J.W.C. 740	21:80 20/80/20	51:80				
	//						
	Received at St. Croi	Croix Sensory Laboratory	ratory	Cathy Most	12/8/05 9:00	9,00	

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- **C** Sample bag was received with condensation in the bag.
- **D** Sample description was not provided.
- **E** Assessors did not observe the sample at full stregth for Intensity, Characterization, or Persistency evaluations.
 - **E1** Sample was observed at a maximum of 50% dilution.
 - **E2** Only Persistency evaluation was conducted.
- **F** Assessors did not observe the sample for Intensity, Characterization, or Persistency evaluations.
- G By client request, the IITRI Dynamic Dilution Triangle Olfactometer, with a sample presentation flow rate of 0.5-lpm and a Method Detection Limit for Detection and Recognition Threshold of '4', was used to determine the thresholds for this odor evaluation

If you have any questions regarding the comments for this evaluation, please contact our lab at +800-879-9231 ext.12.



SERVICE Engineering Group

05017-0207

Odor Evaluation Report

Report No. 534301 12/09/05

Data Release Authorization:

Melosa Mchinly

Melissa McGinley Laboratory Associate Reviewed and Approved:

Millou 3

Michael A. McGinley, P.E. Laboratory Director

St. Croix Sensory is a laboratory dedicated to practicing state-of-the-art sensory evaluation and to advancing the science of sensory perception.

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> Tel: 800-879-9231 Fax: 651-439-1065

Email: stcroix@fivesenses.com

St. Croix Sensory, Inc. Odor Evaluation Report

 Client:
 SERVICE Engineering Group
 Report No.:
 534301

 Project:
 05017-0207
 Evaluation Date:
 12/09/05

			ASTM E679	& EN13725	ASTM E544	PERSISTENCY		CHARACTERIZATION	
#	Field No.	Sample Description	Detection Threshold	Recognition Threshold	Intensity	Dose-Response Slope	Hedonic Tone	Principal Odor Descriptors	Comments
1	70015-1M-(0-2)	0-2 Hour Odor Sample	85	50	11	-0.15			
2	70015-1M-(2-6)	2-6 Hour Odor Sample	65	35	12	-0.18			
3	70015-1M-(6-22)	6-22 hour Odor Sample	80	45	12	-0.18			

 Client:
 SERVICE Engineering Group
 Report No.:
 534301

 Project:
 05017-0207
 Evaluation Date:
 12/09/05

Odor Evaluation Report

			ASTM E679	& EN13725	ASTM E544	PERSISTENCY		CHARACTERIZATION	
			Detection	Recognition		Dose-Response	Hedonic		
#	Field No.	Sample Description	Threshold	Threshold	Intensity	Slope	Tone	Principal Odor Descriptors	Comments

Sharp

Pungent

Burning

0.0

0.0

0.0

Client:SERVICE Engineering GroupField No.:70015-1M-(0-2)Report No.:534301Project:05017-0207Description:0-2 Hour Odor SampleEvaluation Date:12/09/05

Sensation Descriptor Graph

Odor Descriptor Graph

Fishy

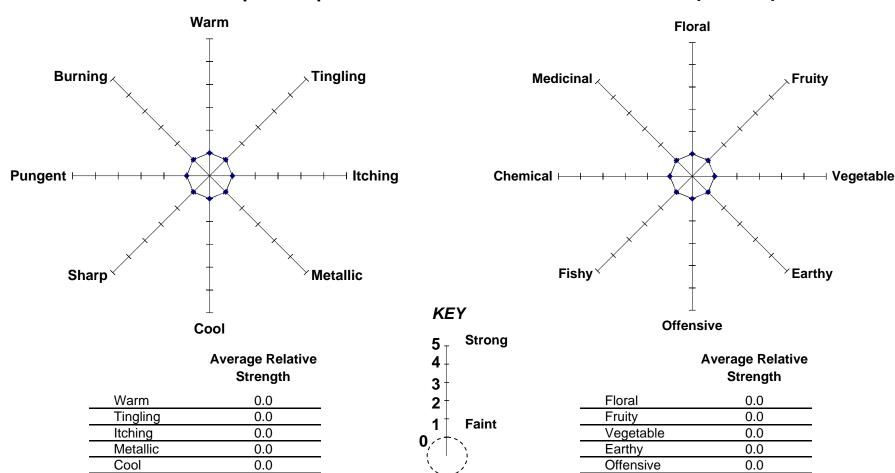
Chemical

Medicinal

0.0

0.0

0.0



Relative Strength

Odor Evaluation Report

 Client:
 SERVICE Engineering Group
 Field No.:
 70015-1M-(0-2)
 Report No.:
 534301

 Project:
 05017-0207
 Description:
 0-2 Hour Odor Sample
 Evaluation Date:
 12/09/05

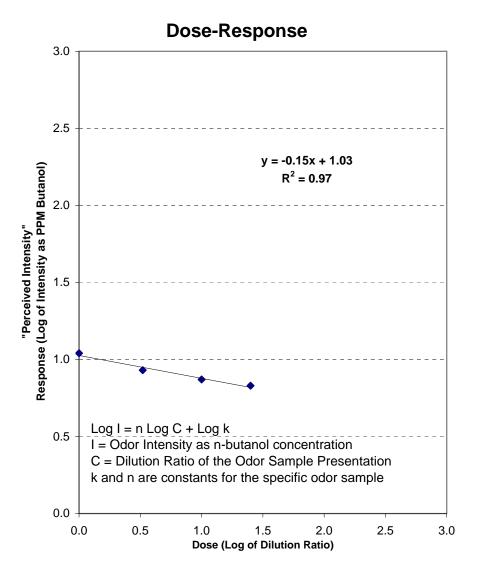
534301

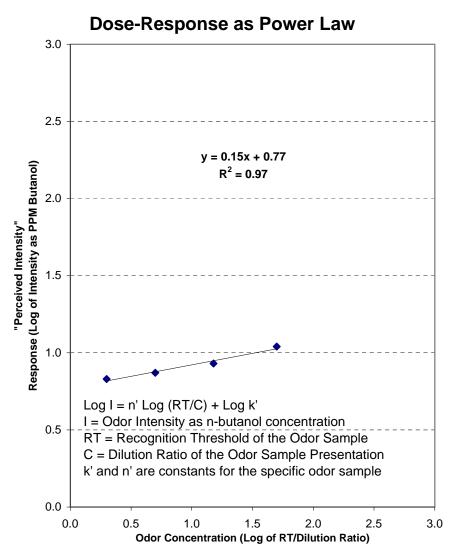
Client: SERVICE Engineering Group Field No.: 70015-1M-(0-2)

Project: 05017-0207 Description: 0-2 Hour Odor Sample

Evaluation Date: 12/09/05

Report No.:

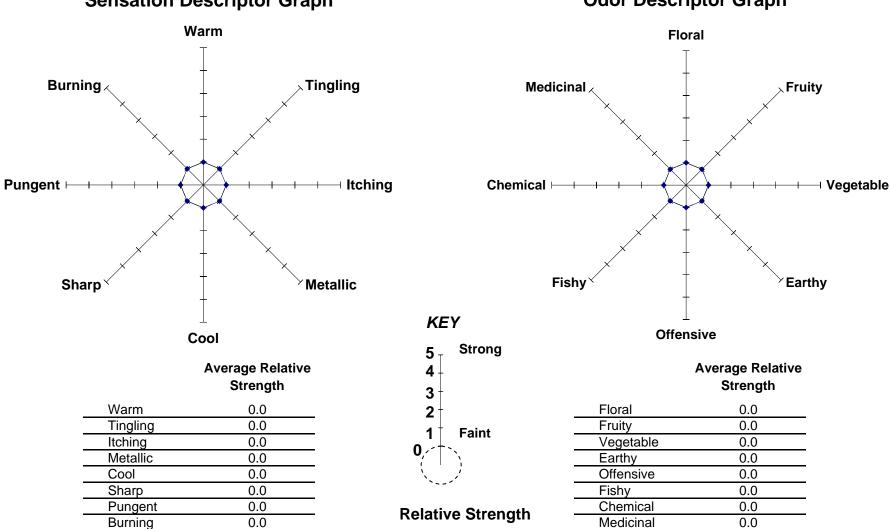




Client:SERVICE Engineering GroupField No.:70015-1M-(2-6)Report No.:534301Project:05017-0207Description:2-6 Hour Odor SampleEvaluation Date:12/09/05

Sensation Descriptor Graph

Odor Descriptor Graph



Odor Evaluation Report

 Client:
 SERVICE Engineering Group
 Field No.:
 70015-1M-(2-6)
 Report No.:
 534301

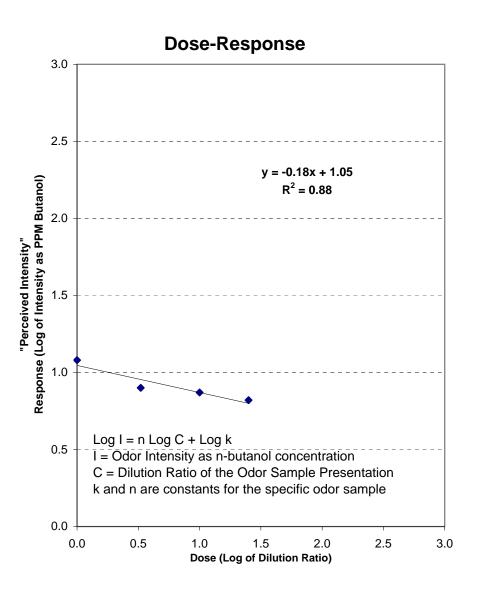
 Project:
 05017-0207
 Description:
 2-6 Hour Odor Sample
 Evaluation Date:
 12/09/05

534301

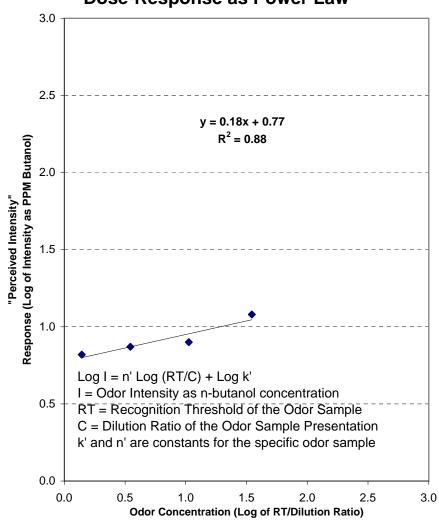
SERVICE Engineering Group 70015-1M-(2-6) Client: Field No.: 05017-0207 Description: 2-6 Hour Odor Sample Project:

12/09/05 **Evaluation Date:**

Report No.:



Dose-Response as Power Law



534301 **SERVICE Engineering Group** 70015-1M-(6-22) Client: Field No.: Report No.: 05017-0207 Description: 6-22 hour Odor Sample 12/09/05 Evaluation Date: Project:

Sensation Descriptor Graph

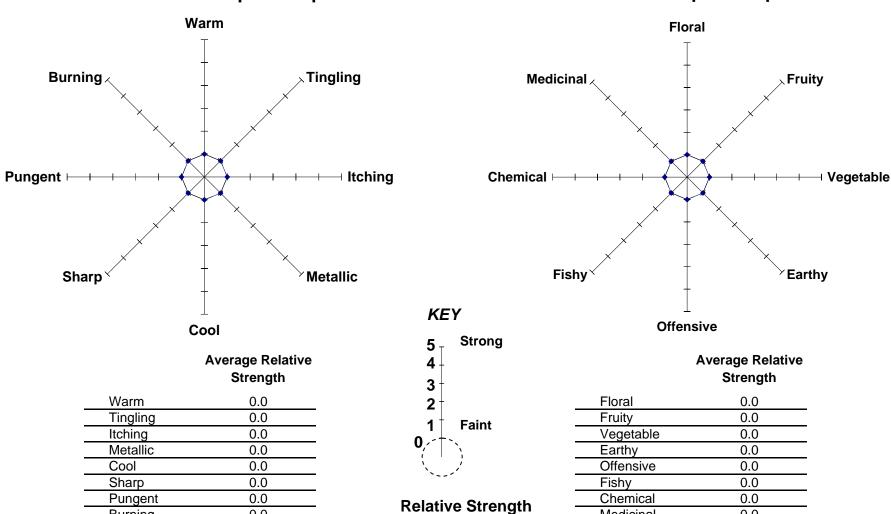
0.0

Burning

Odor Descriptor Graph

Medicinal

0.0



Odor Evaluation Report

 Client:
 SERVICE Engineering Group
 Field No.:
 70015-1M-(6-22)
 Report No.:
 534301

 Project:
 05017-0207
 Description:
 6-22 hour Odor Sample
 Evaluation Date:
 12/09/05

Project:

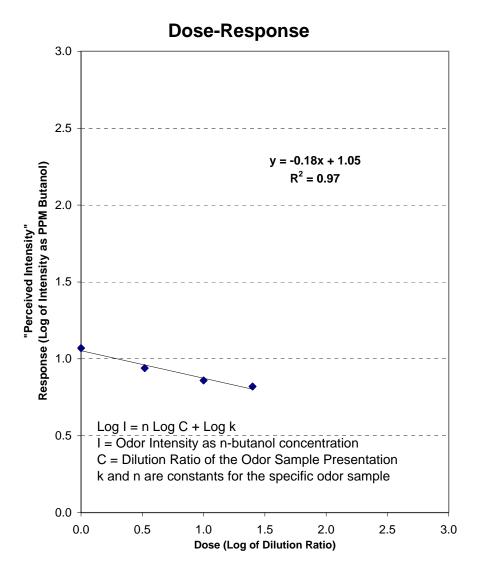
SERVICE Engineering Group Client: 05017-0207

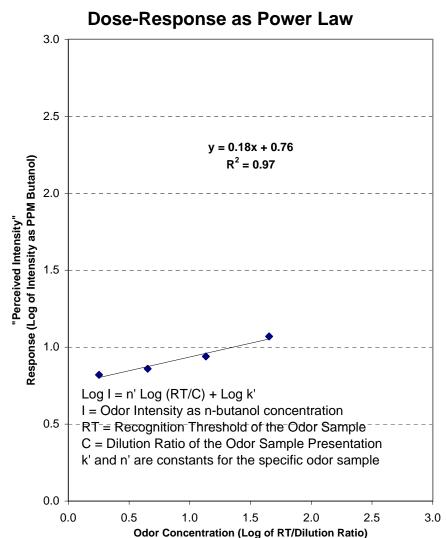
70015-1M-(6-22) Field No.:

Description: 6-22 hour Odor Sample

534301 Report No.:

12/09/05 **Evaluation Date:**





CHAIN OF CUSTODY RECORD FOR ODOR SAMPLES

Page_Lof_L	For Laboratory use Only	Odor Evaluation Report No.	Laboratory Sample No.	. H										
ed: (X)	1	Persistency e-Response")			×	×	×							
Odor Evaluations Requested: (X)		aracterizat one & Descrip												
valuations		. Intensity (PPM)	юрО		X	\times	×							
Odor Ev	uc	oncentratio TA, TC		o	X	×	,×							
				Field H_2S (ppm)										
M. 344	1			Sample Time	12/08/05	50/80/21	50/60/21							
Sampled By:	Sampling Date:			Sample Description	sample	sample	sample							
Group.	2020			Sample L	o-z hour oder sample	70015-1111-(2-6) 2-6 hour odor sample	70015-1M-(6-22) 6-22 hour oder sample							
Client: SERULCE Engr Group	Project Name: 65017 - 0207	ents:		Field No.	70018-111-(0-5)	70012-11M-(2-6)	70015-1M-(6-22)							
Client:	Project	Comments:		Line No.	1	2	3	4	5	9	7	∞	6	10

fransfer & Shipping Information	Number of "Air-Pacs"/ hipping Boxes
\subseteq	Sh

6:00 Time 12/9/05 Date athy Moth 12/08/05 08:30 Received at St. Croix Sensory Laboratory

Comments & Exceptions Noted

St. Croix Sensory, Inc. *3549 Lake Elmo Avenue North * Lake Elmo, MN 55042 U.S.A. * Tel:800(\$79-9231 * Fax:651-439-1065 * Email:stcroix@fivesenses.com * Web:www.fivesenses.com

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Comments Key:

- A Sample bag was received without sample.
- **B** Insufficient sample volume to complete evaluation.
- **C** Sample bag was received with condensation in the bag.
- **D** Sample description was not provided.
- **E** Assessors did not observe the sample at full stregth for Intensity, Characterization, or Persistency evaluations.
 - **E1** Sample was observed at a maximum of 50% dilution.
 - **E2** Only Persistency evaluation was conducted.
- **F** Assessors did not observe the sample for Intensity, Characterization, or Persistency evaluations.
- G By client request, the IITRI Dynamic Dilution Triangle Olfactometer, with a sample presentation flow rate of 0.5-lpm and a Method Detection Limit for Detection and Recognition Threshold of '4', was used to determine the thresholds for this odor evaluation

If you have any questions regarding the comments for this evaluation, please contact our lab at +800-879-9231 ext.12.



Service Engineering Group 05017-0207

Odor Evaluation Report Report No. 534401 12/10/05

Data Release Authorization:

Natasha Kaslow

Laboratory Associate

nataha Kaslow

Reviewed and Approved:

Mill Mes

Michael A. McGinley, P.E. Laboratory Director

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> Tel: 800-879-9231 Fax: 651-439-1065

Email: stcroix@fivesenses.com

Odor Evaluation Report

Client:	Service Engineering Group	Report No.:	534401
Project:	05017-0207	Evaluation Date:	12/10/05

			ASTM E679	& EN13725	ASTM E544	PERSISTENCY		CHARACTERIZATION	
#	Field No.	Sample Description	Detection Threshold	Recognition Threshold	Intensity	Dose-Response Slope	Hedonic Tone	Principal Odor Descriptors	Comments
1	70015-1Q-(0-2)	0-2 Hour Odor Sample	50	30	13	-0.13			
2	70015-1Q-(2-6)	2-6 Hour Odor Sample	50	25	12	-0.16			
3	70015-1Q-(6-22)	6-22 Hour Odor Sample	40	25	14	-0.21			

Odor Evaluation Report

Client:	Service Engineering Group	Report No.:	534401
Project:	05017-0207	Evaluation Date:	12/10/05

			ASTM E679	& EN13725	ASTM E544	PERSISTENCY		CHARACTERIZATION	1
			Detection	Recognition			Hedonic		
#	Field No.	Sample Description	Threshold	Threshold	Intensity	Slope	Tone	Principal Odor Descriptors	Comments
_									

534401 Service Engineering Group 70015-1Q-(0-2) Client: Field No.: Report No.: 05017-0207 Description: 0-2 Hour Odor Sample 12/10/05 Evaluation Date: Project:

Sensation Descriptor Graph

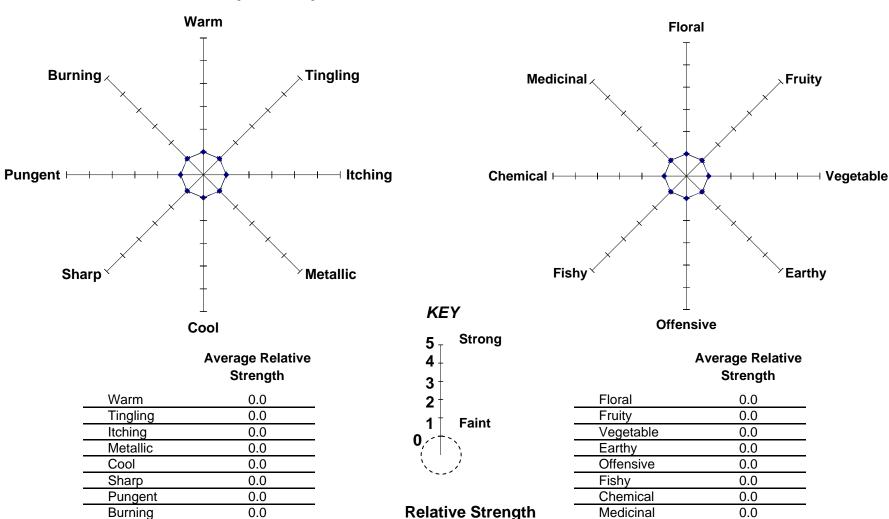
0.0

Burning

Odor Descriptor Graph

Medicinal

0.0



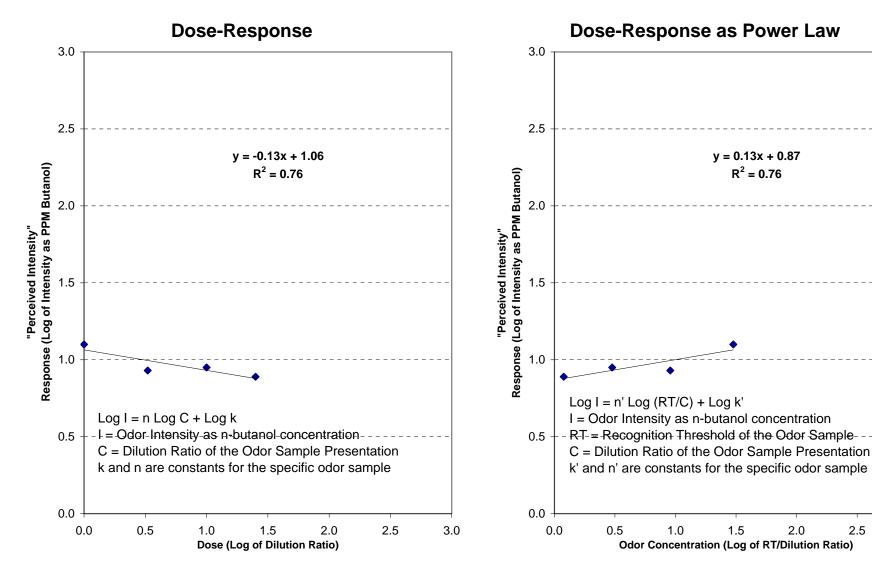
Odor Evaluation Report

 Client:
 Service Engineering Group
 Field No.:
 70015-1Q-(0-2)
 Report No.:
 534401

 Project:
 05017-0207
 Description:
 0-2 Hour Odor Sample
 Evaluation Date:
 12/10/05

3.0

Client:Service Engineering GroupField No.:70015-1Q-(0-2)Report No.:534401Project:05017-0207Description:0-2 Hour Odor SampleEvaluation Date:12/10/05



534401 Service Engineering Group 70015-1Q-(2-6) Client: Field No.: Report No.: 05017-0207 Description: 2-6 Hour Odor Sample 12/10/05 Evaluation Date: Project:

Sensation Descriptor Graph

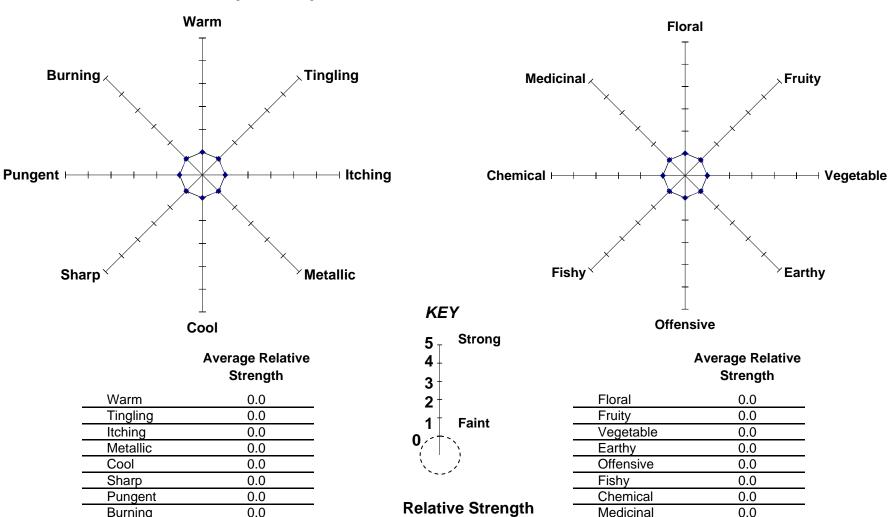
0.0

Burning

Odor Descriptor Graph

Medicinal

0.0

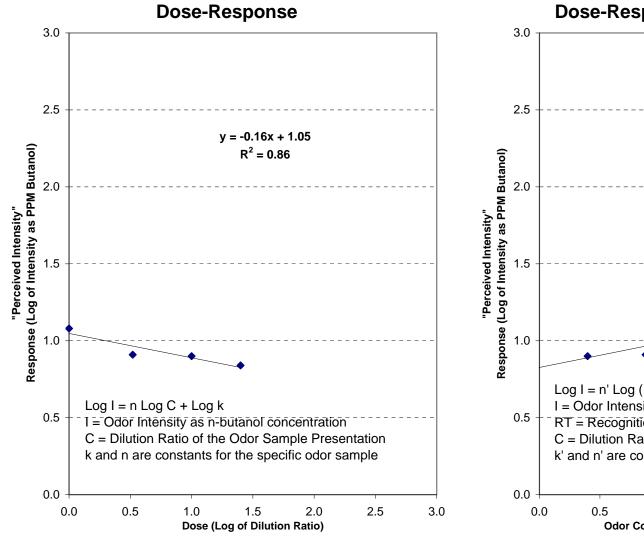


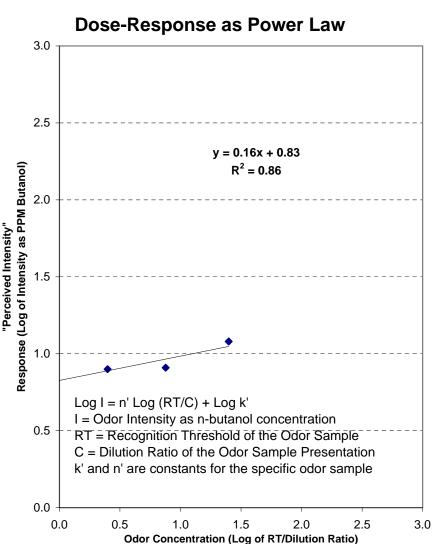
Odor Evaluation Report

 Client:
 Service Engineering Group
 Field No.:
 70015-1Q-(2-6)
 Report No.:
 534401

 Project:
 05017-0207
 Description:
 2-6 Hour Odor Sample
 Evaluation Date:
 12/10/05

Client:Service Engineering GroupField No.:70015-1Q-(2-6)Report No.:534401Project:05017-0207Description:2-6 Hour Odor SampleEvaluation Date:12/10/05

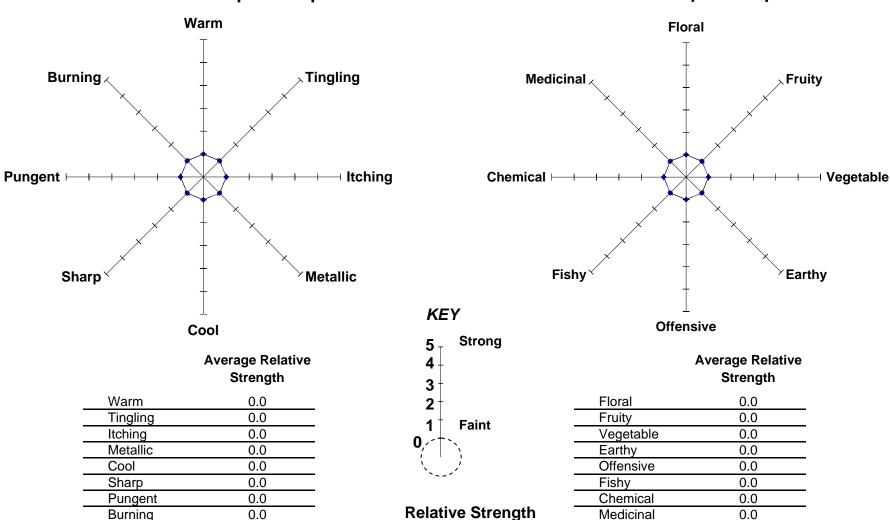




Client:Service Engineering GroupField No.:70015-1Q-(6-22)Report No.:534401Project:05017-0207Description:6-22 Hour Odor SampleEvaluation Date:12/10/05

Sensation Descriptor Graph

Odor Descriptor Graph

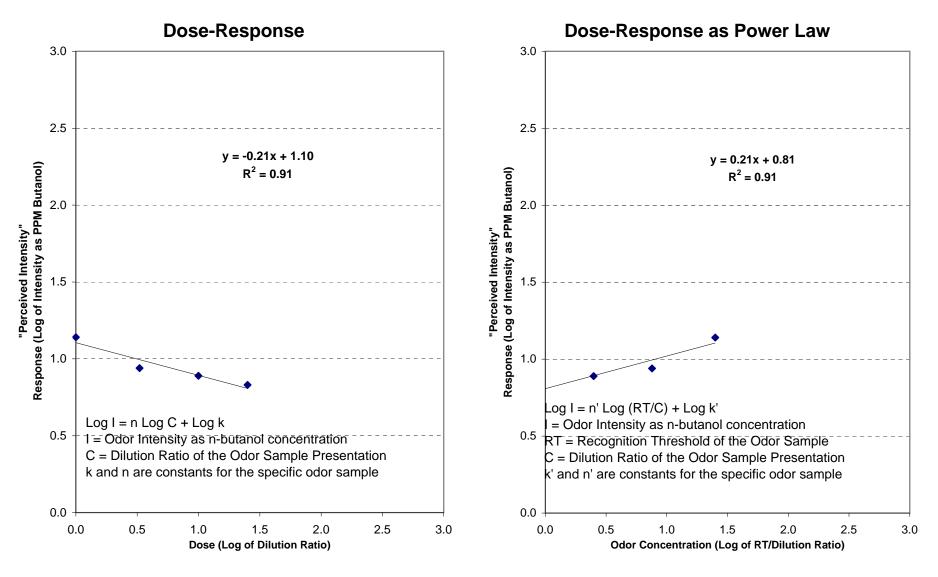


Odor Evaluation Report

 Client:
 Service Engineering Group
 Field No.:
 70015-1Q-(6-22)
 Report No.:
 534401

 Project:
 05017-0207
 Description:
 6-22 Hour Odor Sample
 Evaluation Date:
 12/10/05

Client:Service Engineering GroupField No.:70015-1Q-(6-22)Report No.:534401Project:05017-0207Description:6-22 Hour Odor SampleEvaluation Date:12/10/05



CHAIN OF CUSTODY RECORD FOR ODOR SAMPLES

				The Part of the Pa							
Client:	Client: SERVICE Engr Group	- Group	Sampled By:	MC 24	7	Odor Ev	Odor Evaluations Requested: (X)	Requeste	d: (X)	Page_Lof_L	
Project	Project Name: 05017 - 0207	t020	Sampling Date: 12/09 -	1/21 - 60/2	12/10/05	uc				For Laboratory use Only	nly
Comments:	ents:					oncentratio	Intensity PPM)	aracterizat ne & Descrip	Persistency -Response")	Odor Evaluation Report No.	_
Line	1		·	Sample	Field H ₂ S					Laboratory Sample No.	łō.
No.	Field No.		Sample Description	Ë	(mdd)					L'N	
1	70015-14-(0-5)	0-2 hour oder sample	r sample	12:03		×	X		×		
2	70015-10-(2-6	70015-1Q-(2-6) 2-6 hour odor	sample	50/50/21		\times	×		×		
3	70015-19-(6-22)	2) 6-22 hour odor	r sample	12/10/05		×	×		×		
4											
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Transfer & Shipping	Information	Number of	"Air-Pacs"/	Shipping Boxes

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xes	Received at St. Croix Sensory Laboratory	Mathra B	Roy Hill	ST 81 25	
Sensory, Inc. * 3549) Lake Elmo Avenue North & Lake Elmo, MN 55042 U.S.A. & Tel:800-879-9231 & Fax:651-439-1065 & Email:stcroix@	* Tel:800-879-9231	Fax:651-439-106	5 ♦ Email:stcroix@f	ivesenses.com * Web:www.fivesenses.com

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Comments Key:

- A Sample bag was received without sample.
- **B** Insufficient sample volume to complete evaluation.
- **C** Sample bag was received with condensation in the bag.
- **D** Sample description was not provided.
- **E** Assessors did not observe the sample at full stregth for Intensity, Characterization, or Persistency evaluations.
 - **E1** Sample was observed at a maximum of 50% dilution.
 - **E2** Only Persistency evaluation was conducted.
- **F** Assessors did not observe the sample for Intensity, Characterization, or Persistency evaluations.
- G By client request, the IITRI Dynamic Dilution Triangle Olfactometer, with a sample presentation flow rate of 0.5-lpm and a Method Detection Limit for Detection and Recognition Threshold of '4', was used to determine the thresholds for this odor evaluation

If you have any questions regarding the comments for this evaluation, please contact our lab at +800-879-9231 ext.12.

RESULTS OF ANALYSIS Page 1 of 1

Client: Service Engineering Group

 Client Sample ID:
 10029-10M-(0-2)
 CAS Project ID: P2502850

 Client Project ID:
 Onondaga Lake/05017-0207
 CAS Sample ID: P2502850-001

Test Code: ASTM D 5504-01 Date Collected: 11/15/2005
Instrument ID: Agilent 6890A/GC13/SCD Time Collected: 15:47
Analyst: Zheng Wang Date Received: 11/16/2005
Sampling Media: Tedlar Bag Date Analyzed: 11/16/05

Test Notes: Time Analyzed: 11:24

Volume(s) Analyzed: 1.0 ml(s)

D.F.= 1.00

		Result	MRL	Result	MRL	Data
CAS#	Compound					Qualifier
		μg/m³	$\mu g/m^3$	ppbV	ppbV	
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	ND	12	ND	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	11	7.8	3.5	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	ND	17	ND	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	ND	20	ND	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	ND	23	ND	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	_

ND = Compound was analyzed for, but not detected above the **laboratory detection limit**.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By:	Date:	
•		Page No.:

RESULTS OF ANALYSIS Page 1 of 1

Client: Service Engineering Group

Client Sample ID:Method BlankCAS Project ID: P2502850Client Project ID:Onondaga Lake/05017-0207CAS Sample ID: P051116-MB

Test Code: ASTM D 5504-01 Date Collected: NA
Instrument ID: Agilent 6890A/GC13/SCD Time Collected: NA
Analyst: Zheng Wang Date Received: NA
Sampling Media: Tedlar Bag Date Analyzed: 11/16/05
Test Notes: Time Analyzed: 09:34

Volume(s) Analyzed: 1.0 ml(s)

D.F.= 1.00

		Result	MRL	Result	MRL	Data
CAS#	Compound					Qualifier
		μg/m³	$\mu g/m^3$	ppbV	ppbV	
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	ND	12	ND	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	ND	7.8	ND	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	ND	17	ND	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	ND	20	ND	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	ND	23	ND	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the **laboratory detection limit**.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By:	Date:	
•		Page No.:

RESULTS OF ANALYSIS

Page 1 of 1

Client: Service Engineering Group

 Client Sample ID:
 10029-10M-(0-2)
 CAS Project ID: P2502850

 Client Project ID:
 Onondaga Lake/05017-0207
 CAS Sample ID: P2502850-001B

Test Code: GC/NPD

Instrument ID: 6890N/GC14/NPD Date Received: 11/16/2005
Analyst: Madeleine Dangazyan Date Analyzed: 12/1/2005

Sampling Media: Treated Alumina Tube Desorption Volume: 2.0 ml
Test Notes: BC, DE Volume Sampled: 301.2 Liters

Date Collected: 11/15/2005

	Result	MRL	Result	MRL	Data
Compound					Qualfier
	μg/Tube	μg/Tube	μg/m³	μg/m³	
Dimethylamine	ND	0.20	ND	0.66	
Ethylamine	ND	0.22	ND	0.73	
Trimethylamine	ND	0.19	ND	0.63	
Isopropylamine	ND	0.20	ND	0.67	
t-Butylamine	ND	0.21	ND	0.69	
Propylamine	ND	0.20	ND	0.66	
Diethylamine	ND	0.21	ND	0.68	
s-Butylamine	ND	0.20	ND	0.67	
Isobutylamine	ND	0.19	ND	0.63	
Butylamine	ND	0.20	ND	0.65	
Diisopropylamine	ND	0.21	ND	0.69	
Triethylamine	ND	0.21	ND	0.69	
Dipropylamine	ND	0.42	ND	1.4	

ND = Compound was analyzed for, but not detected above the **laboratory reporting limit**.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

NA = Not applicable

2850-SVM.XLS - Sample

BC = Results reported are not blank corrected

DE = Results reported are corrected for desorption efficiency.

Verified By:	Date:	
		Page No.:

RESULTS OF ANALYSIS

Page 1 of 1

Client: Service Engineering Group

Client Sample ID:Method BlankCAS Project ID: P2502850Client Project ID:Onondaga Lake/05017-0207CAS Sample ID: P051201-MB

Test Code: GC/NPD

Instrument ID: 6890N/GC14/NPD
Analyst: Madeleine Dangazyan

Sampling Media: Treated Alumina Tube Desorption Volume: 2.0 ml
Test Notes: BC, DE Volume Sampled: NA Liters

	Result	MRL	Result	MRL	Data
Compound					Qualfier
	μg/Tube	μg/Tube	μg/m³	μg/m³	
Dimethylamine	ND	0.20	NA	NA	
Ethylamine	ND	0.22	NA	NA	
Trimethylamine	ND	0.19	NA	NA	
Isopropylamine	ND	0.20	NA	NA	
t-Butylamine	ND	0.21	NA	NA	
Propylamine	ND	0.20	NA	NA	
Diethylamine	ND	0.21	NA	NA	
s-Butylamine	ND	0.20	NA	NA	
Isobutylamine	ND	0.19	NA	NA	
Butylamine	ND	0.20	NA	NA	
Diisopropylamine	ND	0.21	NA	NA	
Triethylamine	ND	0.21	NA	NA	
Dipropylamine	ND	0.42	NA	NA	

ND = Compound was analyzed for, but not detected above the **laboratory reporting limit**.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

NA = Not applicable

BC = Results reported are not blank corrected

DE = Results reported are corrected for desorption efficiency.

Verified By:	Date:	
3		Page No.:

Date Collected: NA

Date Received: NA

Date Analyzed: 12/01/05

RESULTS OF ANALYSIS Page 1 of 1

Client: Service Engineering Group

 Client Sample ID:
 70015-10M-(0-2)
 CAS Project ID: P2503043

 Client Project ID:
 Onondaga Lake/05017-0207
 CAS Sample ID: P2503043-001

Test Code: ASTM D 5504-01 Date Collected: 12/6/2005
Instrument ID: Agilent 6890A/GC13/SCD Time Collected: 11:50
Analyst: Zheng Wang Date Received: 12/7/2005
Sampling Media: Tedlar Bag Date Analyzed: 12/7/05
Test Notes: Time Analyzed: 10:14

Volume(s) Analyzed: 1.0 ml(s)

D.F.= 1.00

		Result	MRL	Result	MRL	Data
CAS#	Compound					Qualifier
		μg/m³	$\mu g/m^3$	ppbV	ppbV	
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	ND	12	ND	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	ND	7.8	ND	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	ND	17	ND	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	ND	20	ND	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	ND	23	ND	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	_

ND = Compound was analyzed for, but not detected above the **laboratory detection limit**.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By:	Date:	
•		Page No.:

3043-SVG.XLS - Sample

RESULTS OF ANALYSIS Page 1 of 1

Client: Service Engineering Group

Client Sample ID:Method BlankCAS Project ID: P2503043Client Project ID:Onondaga Lake/05017-0207CAS Sample ID: P051207-MB

Test Code: ASTM D 5504-01 Date Collected: NA
Instrument ID: Agilent 6890A/GC13/SCD Time Collected: NA
Analyst: Zheng Wang Date Received: NA
Sampling Media: Tedlar Bag Date Analyzed: 12/07/05
Test Notes: Time Analyzed: 09:29

Volume(s) Analyzed: 1.0 ml(s)

D.F.= 1.00

		Result	MRL	Result	MRL	Data
CAS#	Compound					Qualifier
		μg/m³	$\mu g/m^3$	ppbV	ppbV	
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	ND	12	ND	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	ND	7.8	ND	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	ND	17	ND	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	ND	20	ND	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	ND	23	ND	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the **laboratory detection limit**.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By:	Date:	
•		Page No.:

RESULTS OF ANALYSIS

Page 1 of 1

Client: Service Engineering Group

 Client Sample ID:
 70015-10M-(0-2)
 CAS Project ID:
 P2503043

 Client Project ID:
 Onondaga Lake/05017-0207
 CAS Sample ID:
 P2503043-001B

Test Code: GC/NPD Date Collected: 12/6/2005
Instrument ID: HP5890II/GC9/NPD Date Received: 12/7/2005

Analyst: Madeleine Dangazyan Date Analyzed: 12/8/2005

Sampling Media: Treated Alumina Tube Desorption Volume: 2.0 ml
Test Notes: BC, DE Volume Sampled: 174 Liters

	Result	MRL	Result	MRL	Data
Compound					Qualfier
	μg/Tube	μg/Tube	μg/m³	$\mu g/m^3$	
Dimethylamine	ND	0.20	ND	1.1	
Ethylamine	ND	0.22	ND	1.3	
Trimethylamine	ND	0.19	ND	1.1	V
Isopropylamine	ND	0.20	ND	1.2	
t-Butylamine	ND	0.21	ND	1.2	
Propylamine	ND	0.20	ND	1.1	
Diethylamine	ND	0.21	ND	1.2	
s-Butylamine	ND	0.20	ND	1.2	
Isobutylamine	ND	0.19	ND	1.1	
Butylamine	ND	0.20	ND	1.1	
Diisopropylamine	ND	0.21	ND	1.2	
Triethylamine	ND	0.21	ND	1.2	
Dipropylamine	ND	0.42	ND	2.4	

ND = Compound was analyzed for, but not detected above the **laboratory reporting limit**.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

NA = Not applicable

BC = Results reported are not blank corrected

DE = Results reported are corrected for desorption efficiency.

V = The continuing calibration verification standard was outside (biased low) the method limits for this compound. See case narrative.

	Verified By:	Date:	
3043-SVM.XLS - Sample		Pa	ige No.:

RESULTS OF ANALYSIS

Page 1 of 1

Client: Service Engineering Group

Client Sample ID: Method Blank CAS Project ID: P2503043
Client Project ID: Onondaga Lake/05017-0207 CAS Sample ID: P051208-MB

Test Code: GC/NPD

Instrument ID: HP5890II/GC9/NPD Date Received: NA
Analyst: Madeleine Dangazyan Date Analyzed: 12/08/05

Sampling Media: Treated Alumina Tube Desorption Volume: 2.0 ml
Test Notes: BC, DE Volume Sampled: NA Liters

	Result	MRL	Result	MRL	Data
Compound					Qualfier
	μg/Tube	μg/Tube	μg/m³	μg/m³	
Dimethylamine	ND	0.20	NA	NA	
Ethylamine	ND	0.22	NA	NA	
Trimethylamine	ND	0.19	NA	NA	
Isopropylamine	ND	0.20	NA	NA	
t-Butylamine	ND	0.21	NA	NA	
Propylamine	ND	0.20	NA	NA	
Diethylamine	ND	0.21	NA	NA	
s-Butylamine	ND	0.20	NA	NA	
Isobutylamine	ND	0.19	NA	NA	
Butylamine	ND	0.20	NA	NA	
Diisopropylamine	ND	0.21	NA	NA	
Triethylamine	ND	0.21	NA	NA	
Dipropylamine	ND	0.42	NA	NA	

ND = Compound was analyzed for, but not detected above the **laboratory reporting limit**.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

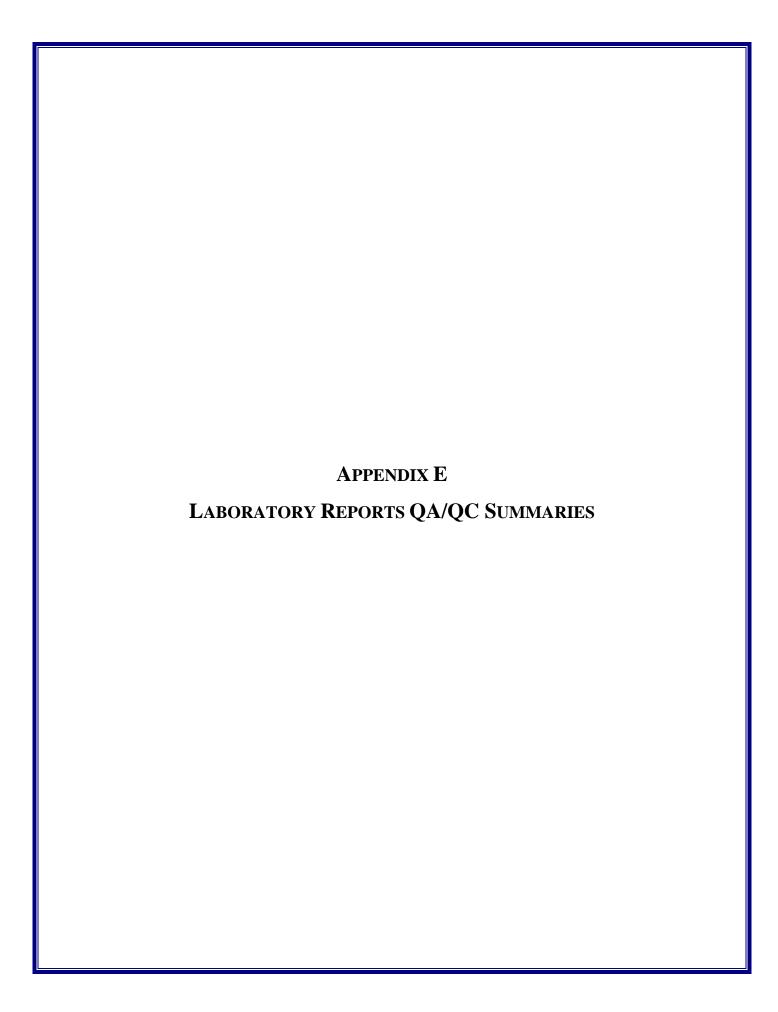
NA = Not applicable

BC = Results reported are not blank corrected

DE = Results reported are corrected for desorption efficiency.

Verified By:	Date:	
·		Page No.:

Date Collected: NA





Appendix E: Laboratory Reports QA/QC Summaries

A discussion of QA/QC for laboratory reports for each SMU is included below. The QA/QC Summary Tables follow the narrative in this appendix. This QC review has been conducted as approved in the overall project QAPP as a Level III Engineering Study.

SMU 1

No deviations resulted in the exclusion of data for the analyses for SMU 1. All recoveries that were outside of laboratory limits are attributed to matrix interference in the MS/MSD samples because the recoveries for all of the LCS/LCSDs were within laboratory limits.

There were two instances of contaminants found in the method blanks that were detected in the corresponding decontamination sample. They are mercury and 1,2,3 trichlorobenzene. The decontamination result for mercury is biased high while the 1,2,3 trichlorobenzene returned a nondetect and appeared unaffected. These results are marked with a "B" in Appendix B. They were non-detect for COIs except where also found in the blank, implying the measurement was due to laboratory contamination rather that insufficient decontamination.

SMU₆

No deviations resulted in the exclusion of data for the analyses for SMU 6. Recoveries that were outside of laboratory limits have been attributed to matrix interference in the MS/MSD samples because the recoveries for all of the LCS/LCSDs were within laboratory limits.

Several compounds were found in the method blanks in two of the analyses. Their presence did not affect the results of the sample analyses. The compounds and the related samples are:



Affected Sample	Compound	Sample Result (mg/kg)	Blank Result (mg/kg)	
60028-1M-PR	1,2,3 Trichlorobenzene	ND	0.0275	
60028-1M-PR	1,2,4 Trichlorobenzene	ND	0.0165	
60028-1M-PR	Bromoform	ND	0.0965	
60028-1M-PR	Hexachlorobutadiene	ND	0.0460	
60028-1M-PR	Methylene Chloride	ND	0.0340	
60028-1M-PR	Vinyl Chloride	ND	0.0125	
60028-1Q-PO, 60028-1Q-DCN	1,2,3 Trichlorobenzene	ND, ND	0.320	
60028-1Q-PO, 60028-1Q-DCN	1,2,4 Trichlorobenzene	ND, ND	0.240	
60028-1Q-PO, 60028-1Q-DCN	Bromoform	ND, ND	1.98	
60028-1Q-PO, 60028-1Q-DCN	Hexachlorobutadiene	ND, ND	1.07	
60028-1Q-PO, 60028-1Q-DCN	Methylene Chloride	ND, ND	0.850	

Decontamination results can be found in Appendix B. They were non-detect for COIs except where also found in the blank, implying the measurement was due to laboratory contamination rather that insufficient decontamination.

The Laboratory Control Spike Duplicate (LCSD) for hexachlorobenzene was outside of Laboratory control limits for all of the air analyses for SMU 6. The LCSD recovery was 123% of the LCS. The results for hexachlorobenzene could have been biased high. However, they were all below the Method Reporting Limit (MRL).

SMU 7

No deviations resulted in the exclusion of data for the analyses for SMU 7. Recoveries that were outside of laboratory limits were attributed to matrix interference in the MS/MSD samples. All but three of the LCS/LCSDs were within laboratory limits and the ones outside the limits did not affect the results because they were for Relative Percent Differences (RPD) of compounds that are not on the COI list.

Several compounds were found in the method blanks in two of the analyses. Their presence did not affect the results of the sample analyses. The compounds and the related samples are:



Affected Sample	Compound	Sample Result (mg/kg)	Blank Result (mg/kg)
70015-IN-PR	1,2,3 Trichlorobenzene	ND	0.0275
70015-IN-PR	Bromoform	ND	0.0965
70015-IN-PR	Hexachlorobutadiene	ND	0.0460
70015-IN-PR	Methylene Chloride	ND	0.0340
70015-IN-PR	Vinyl Chloride	ND	0.0125

Decontamination results can be found in Appendix B. They were non-detect for COIs except where also found in the blank, implying the measurement was due to laboratory contamination rather that insufficient decontamination.

The Laboratory Control Spike Duplicate (LCSD) for hexachlorobenzene was outside of Laboratory control limits for all of the air analyses for SMU 6. The LCSD recovery was 123% of the LCS. The results for hexachlorobenzene could have been biased high. However, they were all below the Method Reporting Limit (MRL).

Chemistry QC Summary – SMU 1 January 2006



Assessment				~				
Characteristic	Comments							
Holding Times	All holding times were met according to established protocols with the exception of one set of SVOCs, which was surpassed by three days.							
Detection Limits	Reporting and Detection limits were met according to established protocols with the exception of the air							
Detection Limits	analysis for the following compounds:					ic an		
	1,4 Dichlorobenzene Benzene Hexachlorobenzene Naphthalene (0)-2 hour	only)			
	Phenanthrene	Pyre	ne					
Field Duplicates	All recoveries were within esta	All recoveries were within established protocols for all field duplicates analyzed.						
Method Blanks		All sample results were greater than 10 times the concentrations found in the corresponding method blanks or the compounds were not detected in the method blank with the following exceptions:						
	Associated Sample		Compou	nd	Sample	Blank	RL	Units
	10029-IN-DCN (0505992-03	3)	Mercury		0.084	0.0890	0.55	ug/L
	10029-IN-DCN (0505992-03	3)	1,2,3 Trie	chlorobenzene	ND	1.01	1.0	ug/L
LCS/LCSDs	 All Mercury MS/MSDs analyzed had all recoveries within laboratory limits. Of the VOC MS/MSDs analyzed, all out of limit recoveries could be attributed to matrix interference. All SVOC MS/MSDs analyzed had all recoveries within laboratory limits. Results of analyses performed on the LCS/LCSDs are summarized below. All Mercury LCS/LCSDs analyzed had all recoveries within laboratory limits. 							
	 All SVOC LCS/LCSDs analyzed had all recoveries within laboratory limits. All VOC LCS/LCSDs analyzed had all recoveries within laboratory limits with the exception of acetone in one LCS/LCSD pair. Acetone was not detected in the associated sample. 							
Surrogate Standard Recoveries	Any surrogate standard recover the individual laboratory report							
Bias	The distributions of analytical recoveries are typically centered about a value less than 100% because analytes are lost rather than gained throughout the procedures. The accuracy results show that significant bias was not evident within the analytical results for this task.							
Representativeness	Proper sampling techniques were followed at all times. All samples were analyzed within proper holding times (except where noted) and according to laboratory SOPs. The data generated within this task represent the objectives described in the sampling plan.							
Comparability	All results are reported in comparable units within analyses (typically ug/L or mg/Kg) and when comparisons are made to limits or previously reported data. All results were obtained using consistent methods of analysis. Samples were taken in accordance with the sampling plan with proper sampling technique.							
Completeness	Quality control results that fell outside of the limits are summarized above and corresponding sample results are flagged in the laboratory reports. No deviations resulted in the exclusion of data from the report for this task. All samples were analyzed according to the Work Plan and the percent completion for this task is 100%.							

Abbreviations:

RPD: Relative percent deviation

MS, MSD: Matrix spike, matrix spike duplicate

LCS/LCSD: Laboratory control sample, Laboratory control sample duplicate

MDL: Method detection limit

RL: Reporting Limit

Chemistry QC Summary – SMU 6 January 2006



Assessment								
Characteristic	Comments							
Holding Times	All holding times were met according to established protocols.							
Detection Limits	Reporting and Detection limits were met according to established protocols with the exception of the air analysis for the following compounds:							
	1,4 Dichlorobenzene	Benzene	Hexachlor	obenzene	Naphtha	halene (0-2 hour only)		
	Phenanthrene	Pyrene			•			
			•		•			
Field Duplicates	All recoveries were within establis	shed protocols fo	r all field du	nlicates ana	lvzed			
Method Blanks	All recoveries were within established protocols for all field duplicates analyzed. All sample results were greater than 10 times the concentrations found in the corresponding method blanks or							
1.10u.10u 2.1u.111	the compounds were not detected						5 01	
	Affected Sample	Compound		Sample Result (mg/kg)		Blank Result (mg/kg)		
	60028-1M-PR	1,2,3 Trichloro	benzene	ND		0.0275		
	60028-1M-PR	1,2,4 Trichloro	benzene	NI)	0.0165		
	60028-1M-PR	Bromoform		NI)	0.0965		
	60028-1M-PR	Hexachlorobut	adiene	NI)	0.0460		
	60028-1M-PR	Methylene Chl	oride	NI)	0.0340		
	60028-1M-PR	Vinyl Chloride		NI		0.0125		
	60028-1Q-PO, 60028-1Q-DCN	1,2,3 Trichloro		ND, ND		0.320		
	60028-1Q-PO, 60028-1Q-DCN	1,2,4 Trichloro	benzene	ND,	ND	0.240		
	60028-1Q-PO, 60028-1Q-DCN	Bromoform		ND,		1.98		
	60028-1Q-PO, 60028-1Q-DCN			ND,	ND	1.07		
	60028-1Q-PO, 60028-1Q-DCN Methylene Chloride			ND,	ND	0.850		
MS/MSD LCS/LCSDs	Results of analyses performed on the MS/MSDs are summarized below. 1) All Mercury MS/MSDs analyzed had all recoveries within laboratory limits. 2) All VOC MS/MSDs analyzed had all recoveries within laboratory limits with only two isolated exceptions that did not result in the exclusion of any data. 3) All SVOC MS/MSDs analyzed had all recoveries within laboratory limits. Results of analyses performed on the LCS/LCSDs are summarized below. 1) All Mercury LCS/LCSDs analyzed had all recoveries within laboratory limits.							
	2) All SVOC LCS/LCSDs a						4	
	 All VOC LCS/LCSDs analyzed had all recoveries within laboratory limits with few exceptions that did not result in the exclusion of any data. 							
Surrogate Standard				ry generated	d control l	imits are summarized	in	
Recoveries	Any surrogate standard recoveries that fell outside the laboratory generated control limits are summarized in the individual laboratory report QC summary. No deviation resulted in the exclusion of any result.							
Bias	The distributions of analytical recoveries are typically centered about a value less than 100% because analytes are lost rather than gained throughout the procedures. The accuracy results show that significant bias was not evident within the analytical results for this task. For the air analyses, the Laboratory Control Spike Duplicate was outside of Laboratory control limits. The LCSD recovery was 123%. The results for Hexachlorobenzene may be biased high. However, all analyses results were below the MRL							
Representativeness	Proper sampling techniques were followed at all times. All samples were analyzed within proper holding times (except where noted) and according to laboratory SOPs. The data generated within this task represent the objectives described in the sampling plan.							
Comparability	All results are reported in comparable units within analyses (typically ug/L or mg/Kg) and when comparisons are made to limits or previously reported data. All results were obtained using consistent methods of analysis. Samples were taken in accordance with the sampling plan with proper sampling technique.							
Completeness	Quality control results that fell outside of the limits are summarized above and corresponding sample results are flagged in the laboratory reports. No deviations resulted in the exclusion of data from the report for this task. All samples were analyzed according to the Work Plan and the percent completion for this task is 100%.							

Chemistry QC Summary – SMU 6 January 2006



Abbreviations:

RPD: Relative percent deviation

MS, MSD: Matrix spike, matrix spike duplicate

LCS/LCSD: Laboratory control sample, Laboratory control sample duplicate

MDL: Method detection limit

Chemistry QC Summary – SMU 7 January 2006



Assessment							
Characteristic		Comments					
Holding Times	All holding times were met accord	ding to establish	ed protocols.				
Detection Limits		Reporting and Detection limits were met according to established protocols with the exception of the air analysis for the following compounds:					
	1,4 Dichlorobenzene	Benzene Hexachlorobenzene Naphthalene (C			alene (0-2 hour only))	
	Phenanthrene	Pyrene				(= ===================================	/
Field Dunlington	All recoveries were within establi	shad mustacals f	on all field due	nlicates one	drigad		
Field Duplicates Method Blanks	All sample results were greater th					nonding method blan	ıks or
Wichiod Blanks	the compounds were not detected						iks of
	Affected Sample	Compound		Sample (mg/		Blank Result (mg/kg)	
	70015-IN-PR	1,2,3 Trichlor	obenzene	NI		0.0275	
	70015-IN-PR	Bromoform		NI)	0.0965	
	70015-IN-PR	Hexachlorobu	tadiene	NI)	0.0460	
	70015-IN-PR	Methylene Ch	loride	NI		0.0340	
	70015-IN-PR	Vinyl Chlorid		NI)	0.0125	
	 All Mercury MS/MSDs a set due to high levels of the VOC MS/MSDs and the SVOC MS/MSDs interference. 	mercury in the sanalyzed, all out analyzed, all ou	ample. of limit recov it of limit reco	veries could overies coul	l be attrib	uted to matrix interfe	
LCS/LCSDs	Results of analyses performed on 1) All Mercury LCS/LCSDs a 2) All SVOC LCS/LCSDs a exception that did not aff 3) All VOC LCS/LCSDs ar exceptions that did not a	s analyzed had a analyzed had all fect the results. nalyzed had all r	ll recoveries v recoveries wi	within labo thin labora	tory limit	s with one isolated	
Surrogate Standard Recoveries	Any surrogate standard recoveries the individual laboratory report Q						ed in
Bias	are lost rather than gained through evident within the analytical resul Laboratory control limits for the a	The distributions of analytical recoveries are typically centered about a value less than 100% because analytes are lost rather than gained throughout the procedures. The accuracy results show that significant bias was not evident within the analytical results for this task. The Laboratory Control Spike Duplicate was outside of Laboratory control limits for the air analyses and the results for Hexachlorobenzene may be biased high. However, all analyses results were below the MRL.					s not of
Representativeness	Proper sampling techniques were (except where noted) and according objectives described in the sampli	ng to laboratory			•	1 1	-
Comparability	All results are reported in compar are made to limits or previously re Samples were taken in accordance	eported data. All	results were	obtained us	sing consi	stent methods of ana	
Completeness	Quality control results that fell ou are flagged in the laboratory reportask. All samples were analyzed a	rts. No deviation	s resulted in t	he exclusio	on of data	from the report for the	his

Chemistry QC Summary – SMU 7 January 2006



Abbreviations:

RPD: Relative percent deviation

MS, MSD: Matrix spike, matrix spike duplicate

LCS/LCSD: Laboratory control sample, Laboratory control sample duplicate

MDL: Method detection limit

Chemistry QC Summary – Braun Report #0506008 November 2005



Assessment Characteristic		Comments		
Holding Times	All holding times were met according			
Detection Limits	Reporting and Detection limits were	met according to establish	ed protocols.	
Field Duplicates	Field duplicates were not analyzed f			
Method Blanks	All sample results were greater than 10 times the concentrations found in the corresponding method blanks or the compounds were not detected in the method blanks.			
MS/MSD	MS/MSDs were not analyzed for thi	is report.		
LCS/LCSDs	Results of analyses performed on the 1) One set of Mercury LCS/L protocols. 2) One set of SVOC LCS/LCS protocols. 3) One set of VOC LCS/LCS protocols.	CSDs was analyzed with all r	recoveries and the Riecoveries and the Riecoveries	PD within established
Surrogate Standard Recoveries	All analyzed samples had the surrog with the following exceptions:	ate standard recoveries with	nin the laboratory ge	enerated control limits
	Affected Sample	Surrogate	Recovery (%)	PR Limits (%)
	10029-10M-PR	Nitrobenzene-d5	25.4	30 – 90
Bias	The distributions of analytical recover analytes are lost rather than gained to significant bias was not evident with a lost the LCS/LCSD results with the lost the l	hroughout the procedures. In the analytical results for vere within the accuracy obj	The following accurathis task: ectives for this task.	acy results show that
Representativeness	2) The surrogate recoveries for all of the samples were acceptable with the exception noted above. Proper sampling techniques were followed at all times. All samples were analyzed within proper holding times (except where noted) and according to laboratory SOPs. The data generated within this task represent the objectives described in the sampling plan.			
Comparability	All results are reported in comparab are made to limits or previously repo Samples were taken in accordance v	le units within analyses (tyported data. All results were	obtained using consi	istent methods of analysis.
Completeness	Quality control results that fell outsi are flagged in the laboratory reports task. All samples were analyzed acc	de of the limits are summar . No deviations resulted in t	ized above and corre he exclusion of data	esponding sample results from the report for this

Abbreviations:

RPD: Relative percent deviation

MS, MSD: Matrix spike, matrix spike duplicate

LCS/LCSD: Laboratory control sample, Laboratory control sample duplicate

MDL: Method detection limit

Chemistry QC Summary – Braun Report #0505992 December 2005



Assessment							
Characteristic		Comments					
Holding Times	All holding times were met according	g to established protocols.					
Detection Limits	Reporting and Detection limits were	met according to establishe	ed protocols.				
Field Duplicates	One field duplicate for Total Organic						
Method Blanks	All sample results were greater than	10 times the concentrations	s found in the corr	esponding	method	l blanks or	
	the compounds were not detected in	the method blank with the	following exception	ons:			
	Associated Sample	Compound	Sample	Blank	RL	Units	
	10029-IN-DCN (0505992-03)	Mercury	0.084	0.0890	0.55	ug/L	
	10029-IN-DCN (0505992-03)	1,2,3 Trichlorobenzene	e ND	1.01	1.0	ug/L	
MS/MSD	Des to a few days and a second and the	MCMCD	11.1.	-			
WIS/WISD	Results of analyses performed on the 1) One set of Mercury MS/MS 2) One set of VOC MS/MSDs interference. Ten out of ele 3) One set of SVOC MS/MSD	Ds was analyzed with all r was analyzed and due to the ven RPDs were within limit	ecoveries within land the high levels in the its.	e sample	there wa	as	
LCS/LCSDs	Results of analyses performed on the 1) Two sets of Mercury LCS/L laboratory. 2) Two sets of SVOC LCS/LCS laboratory limits. 3) Two sets of VOC LCS/LCS laboratory limits with the exdetected in the associated sa	CSDs, one water and one so SDs, one water and one so Ds, one water and one soil acception of acetone in the w	soil, were analyzed vil, were analyzed v	with all recitth all reco	coveries overies v	within	
C			-i		1	1::42	
Surrogate Standard Recoveries	All analyzed samples had the surrogate standard recoveries within the laboratory generated control limits with the following exceptions:						
	Affected Sample	Surrogate	Recovery (%)		imits (%	%)	
	10029-IN-PR	2,4,6-Tribromophenol	8.89		0 - 150		
	10029-IN-PR	2-Fluorophenol	28.1) – 106		
	Matrix Spike (10029-IN-PR)	2,4,6-Tribromophenol	29.4		0 - 150		
	Matrix Spike (10029-IN-PR)	2-Fluorobiphenol	129		0 - 104		
	Matrix Spike Dup (10029-IN-PR)	2,4,6-Tribromophenol	22.7	30	0 - 150		
	SVOC Method Blank	Nitrobenzene-d5	53.2	57	7 – 101		
	SVOC Method Blank	Phenol-d6	26.4	3	0 - 75		
	SVOC LCS	2,4,6-Tribromophenol	103	65	5 - 100		
	SVOC LCS	2,4,6-Tribromophenol	102	65	5 - 100		
Bias	The distributions of analytical recoveries are typically centered about a value less than 100% because analytes are lost rather than gained throughout the procedures. The following accuracy results show that significant bias was not evident within the analytical results for this task: 1) All of the LCS/LCSD results were within the accuracy objectives for this task with the exception noted above. 2) All of the MS/MSD results were within the accuracy objectives for this task with the exception of the matrix interference in the VOC spikes. 3) The surrogate recoveries for all of the samples were acceptable with the exceptions noted above and those are attributed to matrix interference due to high levels of volatile compounds.						
Representativeness	Proper sampling techniques were fol (except where noted) and according to objectives described in the sampling	to laboratory SOPs. The daplan.	ta generated withi	n this task	represe	nt the	
Comparability	All results are reported in comparabl are made to limits or previously repo Samples were taken in accordance w	e units within analyses (typerted data. All results were	obtained using cor	isistent me			

Chemistry QC Summary – Braun Report #0505992 December 2005



Assessment	
Characteristic	Comments
Completeness	Quality control results that fell outside of the limits are summarized above and corresponding sample results are flagged in the laboratory reports. No deviations resulted in the exclusion of data from the report for this task. All samples were analyzed according to the Work Plan and the percent completion for this task is 100%.

Abbreviations:

RPD: Relative percent deviation

MS, MSD: Matrix spike, matrix spike duplicate

LCS/LCSD: Laboratory control sample, Laboratory control sample duplicate

MDL: Method detection limit

Chemistry QC Summary – Braun Report #0506016 December 2005



Assessment				
Characteristic			Comments	
Holding Times	All holding times were met	according to establish	hed protocols.	
Detection Limits	Reporting limits met the established NYS SGC thresholds. Reporting limits did not meet the NYS AGC thresholds for the following compounds:			
	1,4 Dichlorobenzene	Benzene	Hexachlorobenzene	Naphthalene (0-2 hour only)
	Phenanthrene	Pyrene		
Field Duplicates	Field duplicates were not an	alyzed for this report		
Method Blanks	Method blanks were not ana	lyzed for this report.		
MS/MSD	MS/MSDs were not analyze	d for this report.		
LCS/LCSDs	LCS/LCSD were not analyz	ed for this report.		
Surrogate Standard Recoveries	Surrogate standard recoverie	es were not reported	in this report.	
Bias	It is not possible to determi report.	ne if there is any bias	in the results due to the l	lack of analytical recoveries in this
Representativeness		and according to labo		analyzed within proper holding enerated within this task represent
Comparability		usly reported data. A	ll results were obtained us	C or mg/Kg) and when comparisons sing consistent methods of analysis. apling technique.
Completeness	No deviations resulted in the according to the Work Plan			x. All samples were analyzed %.

Abbreviations:

RPD: Relative percent deviation

MS, MSD: Matrix spike, matrix spike duplicate

LCS/LCSD: Laboratory control sample, Laboratory control sample duplicate

MDL: Method detection limit

Chemistry QC Summary – Braun Report #0506044 December 2005



Assessment					
Characteristic			Comments		
Holding Times	All holding times were met a	according to establis	hed protocols.		
Detection Limits		Reporting limits met the established NYS SGC thresholds. Reporting limits did not meet the NYS AGC thresholds for the following compounds:			
	1,4 Dichlorobenzene	Benzene	Hexachlorobenzene	Naphthalene (0-2 hour only)	
	Phenanthrene	Pyrene			
Field Duplicates	Field duplicates were not an	alyzed for this repor	t.		
Method Blanks	Method blanks were not ana	lyzed for this report.			
MS/MSD	MS/MSDs were not analyzed	d for this report.			
LCS/LCSDs	LCS/LCSD were not analyze	ed for this report.			
Surrogate Standard Recoveries	Surrogate standard recoverie	es were not reported	in this report.		
Bias	It is not possible to determine report.	ne if there is any bia	s in the results due to the l	ack of analytical recoveries in this	
Representativeness		and according to lab		analyzed within proper holding enerated within this task represent	
Comparability	All results are reported in co	mparable units with ted data. All results	were obtained using consi	m³) and when comparisons are made stent methods of analysis. Samples hnique.	
Completeness	No deviations resulted in the according to the Work Plan			x. All samples were analyzed %.	

Abbreviations:

RPD: Relative percent deviation

MS, MSD: Matrix spike, matrix spike duplicate

LCS/LCSD: Laboratory control sample, Laboratory control sample duplicate

MDL: Method detection limit

Chemistry QC Summary – Braun Report #0506045 December 2005



Assessment					
Characteristic			Comments		
Holding Times	All holding times were met	according to establis	hed protocols.		
Detection Limits		Reporting limits met the established NYS SGC thresholds. Reporting limits did not meet the NYS AGC thresholds for the following compounds:			
	1,4 Dichlorobenzene	Benzene	Hexachlorobenzene	Naphthalene (0-2 hour only)	
	Phenanthrene	Pyrene			
Field Duplicates	Field duplicates were not ar	nalyzed for this report	·		
Method Blanks	Method blanks were not an	alyzed for this report.			
MS/MSD	MS/MSDs were not analyze	ed for this report.			
LCS/LCSDs	LCS/LCSD were not analyze	zed for this report.			
Surrogate Standard Recoveries	Surrogate standard recoveri	es were not reported	in this report.		
Bias	It is not possible to determine report.	ine if there is any bias	s in the results due to the	lack of analytical recoveries in this	
Representativeness		and according to labor		analyzed within proper holding enerated within this task represent	
Comparability		rted data. All results v	were obtained using consi	m ³) and when comparisons are made stent methods of analysis. Samples chnique.	
Completeness	No deviations resulted in the according to the Work Plan			x. All samples were analyzed %.	

Abbreviations:

RPD: Relative percent deviation

MS, MSD: Matrix spike, matrix spike duplicate

LCS/LCSD: Laboratory control sample, Laboratory control sample duplicate

MDL: Method detection limit

Chemistry QC Summary – Braun Report #0506064 December 2005



Assessment				
Characteristic			Comments	
Holding Times	All holding times were met	according to establis	hed protocols.	
Detection Limits	Reporting limits met the est thresholds for the following		hresholds. Reporting lim	its did not meet the NYS AGC
	unesholds for the following	compounds.		
	1,4 Dichlorobenzene	Benzene	Hexachlorobenzene	Naphthalene (0-2 hour only)
	Phenanthrene	Pyrene		
Field Duplicates	Field duplicates were not ar	nalyzed for this repor	.•	
Method Blanks	Method blanks were not an	alyzed for this report.		
MS/MSD	MS/MSDs were not analyze	ed for this report.		
LCS/LCSDs	LCS/LCSD were not analyze	zed for this report.		
Surrogate Standard Recoveries	Surrogate standard recoveri	es were not reported	in this report.	
Bias	It is not possible to determine report.	ine if there is any bias	in the results due to the l	ack of analytical recoveries in this
Representativeness		and according to labor		analyzed within proper holding enerated within this task represent
Comparability	All results are reported in co	omparable units with rted data. All results v	vere obtained using consi	m ³) and when comparisons are made stent methods of analysis. Samples hnique.
Completeness	No deviations resulted in that according to the Work Plan			x. All samples were analyzed %.

Abbreviations:

RPD: Relative percent deviation

MS, MSD: Matrix spike, matrix spike duplicate

LCS/LCSD: Laboratory control sample, Laboratory control sample duplicate

MDL: Method detection limit

Chemistry QC Summary – Braun Report #0506066 December 2005



Assessment					
Characteristic			Comments		
Holding Times	All holding times were met	according to establis	hed protocols.		
Detection Limits		Reporting limits met the established NYS SGC thresholds. Reporting limits did not meet the NYS AGC thresholds for the following compounds:			
	1,4 Dichlorobenzene	Benzene	Hexachlorobenzene	Naphthalene (0-2 hour only)	
	Phenanthrene	Pyrene			
Field Duplicates	Field duplicates were not ar	nalyzed for this report	·		
Method Blanks	Method blanks were not an	alyzed for this report.			
MS/MSD	MS/MSDs were not analyze	ed for this report.			
LCS/LCSDs	LCS/LCSD were not analyze	zed for this report.			
Surrogate Standard Recoveries	Surrogate standard recoveri	es were not reported	in this report.		
Bias	It is not possible to determine report.	ine if there is any bias	s in the results due to the	lack of analytical recoveries in this	
Representativeness		and according to labor		analyzed within proper holding enerated within this task represent	
Comparability		rted data. All results v	were obtained using consi	m ³) and when comparisons are made stent methods of analysis. Samples chnique.	
Completeness	No deviations resulted in the according to the Work Plan			x. All samples were analyzed %.	

Abbreviations:

RPD: Relative percent deviation

MS, MSD: Matrix spike, matrix spike duplicate

LCS/LCSD: Laboratory control sample, Laboratory control sample duplicate

MDL: Method detection limit

Chemistry QC Summary – Braun Report #0506250 December 2005



Assessment	
Characteristic	Comments
Holding Times	The holding time of seven days for the SVOC analysis was surpassed by three days. All other holding times were met according to established protocol.
Detection Limits	Reporting and Detection limits were met according to established protocols.
Field Duplicates	Field duplicates were not analyzed for this report.
Method Blanks	All sample results were greater than 10 times the concentrations found in the corresponding method blanks or the compounds were not detected in the method blank.
MS/MSD	MS/MSDs were not analyzed for this report.
LCS/LCSDs	Results of analyses performed on the LCS/LCSDs are summarized below.
	1) One set of Mercury LCS/LCSDs was analyzed with all recoveries within laboratory.
	2) One set of SVOC LCS/LCSDs was analyzed with all recoveries within laboratory limits.
	3) One set of VOC LCS/LCSDs was analyzed with all recoveries within laboratory limits.
Surrogate Standard	All analyzed samples had the surrogate standard recoveries within the laboratory generated control limits.
Recoveries	
Bias	The distributions of analytical recoveries are typically centered about a value less than 100% because analytes are lost rather than gained throughout the procedures. The following accuracy results show that significant bias was not evident within the analytical results for this task:
	1) All of the LCS/LCSD results were within the accuracy objectives for this task.
	2) All of the MS/MSD results were within the accuracy objectives for this task.
	3) The surrogate recoveries for all of the samples were acceptable.
Representativeness	Proper sampling techniques were followed at all times. All samples were analyzed within proper holding times (except where noted) and according to laboratory SOPs. The data generated within this task represent the objectives described in the sampling plan.
Comparability	All results are reported in comparable units within analyses (typically ug/L or mg/Kg) and when comparisons are made to limits or previously reported data. All results were obtained using consistent methods of analysis. Samples were taken in accordance with the sampling plan with proper sampling technique.
Completeness	Quality control results that fell outside of the limits are summarized above and corresponding sample results are flagged in the laboratory reports. No deviations resulted in the exclusion of data from the report for this task. All samples were analyzed according to the Work Plan and the percent completion for this task is 100%.

Abbreviations:

RPD: Relative percent deviation

MS, MSD: Matrix spike, matrix spike duplicate

LCS/LCSD: Laboratory control sample, Laboratory control sample duplicate

MDL: Method detection limit

Chemistry QC Summary – Braun Report #0506264 December 2005



Assessment		C			
Characteristic	A11.1 1.12	Comments			
Holding Times	All holding times were met according		. 1		
Detection Limits	Reporting and Detection limits were	<u> </u>	ea protocois.		
Field Duplicates Method Blanks	Field duplicates were not analyzed f		a found in the source	manding mathod blanks on	
Method Blanks		all sample results were greater than 10 times the concentrations found in the corresponding method blanks or the compounds were not detected in the method blank.			
MS/MSD	MS/MSDs were not analyzed for thi	MS/MSDs were not analyzed for this report.			
LCS/LCSDs	Results of analyses performed on the LCS/LCSDs are summarized below. 1) One set of Mercury LCS/LCSDs was analyzed with all recoveries within laboratory. 2) One set of SVOC LCS/LCSDs was analyzed with all recoveries within laboratory limits. 3) One set of VOC LCS/LCSDs was analyzed with all recoveries within laboratory limits with the exception of acetone and chlorodibromomethane. Neither was detected in the associated sample.				
Surrogate Standard	All analyzed samples had the surrogate standard recoveries within the laboratory generated control limits with				
Recoveries	the following exceptions:				
	Affected Sample	Surrogate	Recovery (%)	PR Limits (%)	
	SVOC LCS	2,4,6-Tribromophenol	108	65 – 100	
	SVOC LCSD	2,4,6-Tribromophenol	107	65 – 100	
Bias	The distributions of analytical recover are lost rather than gained throughout was not evident within the analytica 1) All of the LCS/LCSD results we above. 2) The surrogate recoveries for all	at the procedures. The follood results for this task: were within the accuracy objust of the samples were accept	wing accuracy resulificatives for this task table with the excep	ts show that significant bias with the exception noted tions noted above.	
Representativeness	Proper sampling techniques were for (except where noted) and according objectives described in the sampling	to laboratory SOPs. The da			
Comparability	All results are reported in comparab are made to limits or previously repo Samples were taken in accordance w	orted data. All results were with the sampling plan with	obtained using consi proper sampling tec	istent methods of analysis. hnique.	
Completeness	Quality control results that fell outsi are flagged in the laboratory reports task. All samples were analyzed acc	de of the limits are summar . No deviations resulted in t	rized above and corr the exclusion of data	esponding sample results from the report for this	

Abbreviations:

RPD: Relative percent deviation

MS, MSD: Matrix spike, matrix spike duplicate

LCS/LCSD: Laboratory control sample, Laboratory control sample duplicate

MDL: Method detection limit

Chemistry QC Summary – Braun Report #0506028 December 2005



Assessment Characteristic		Comments			
Holding Times	All holding times were met acco				
Detection Limits	Reporting and Detection limits v		ed protocols.		
Field Duplicates	Field duplicates were not analyz				
Method Blanks	All sample results were greater t the compounds were not detecte		s found in the corres	sponding method blan	ks or
MS/MSD	MS/MSDs were not analyzed for	r this report.			
LCS/LCSDs	 Two sets of Mercury Lo One set of SVOC LCS/ 	-,			
Surrogate Standard Recoveries					with
	Affected Sample	Surrogate	Recovery (%)	PR Limits (%)	
	SVOC Method Blank	Nitrobenzene-d5	53.2	57 – 101	
	SVOC Method Blank	Phenol-d6	26.4	30 – 75	
	SVOC LCS	2,4,6-Tribromophenol	103	65 – 100	
	SVOC LCS	2,4,6-Tribromophenol	102	65 – 100	
Bias	2) The surrogate recoveries for	ghout the procedures. The follo tical results for this task: ts were within the accuracy obj r all of the samples were accep	wing accuracy resul jectives for this task, table with the excep	ts show that significar tions noted above.	nt bias
Representativeness	Proper sampling techniques were (except where noted) and accord objectives described in the samp	ling to laboratory SOPs. The da			
Comparability	All results are reported in compa are made to limits or previously Samples were taken in accordan	rable units within analyses (typreported data. All results were	obtained using cons	istent methods of anal	
Completeness	Quality control results that fell of are flagged in the laboratory reputask. All samples were analyzed	outside of the limits are summar orts. No deviations resulted in t	rized above and correction of data	esponding sample result from the report for the	nis

Abbreviations:

RPD: Relative percent deviation

MS, MSD: Matrix spike, matrix spike duplicate

LCS/LCSD: Laboratory control sample, Laboratory control sample duplicate

MDL: Method detection limit

Chemistry QC Summary – Braun Report #0506040 December 2005



Assessment Characteristic	Comments			
Holding Times	All holding times were met accordin			
Detection Limits	Reporting and Detection limits were		ed protocols.	
Field Duplicates	Field duplicates were not analyzed for			
Method Blanks	All sample results were greater than the compounds were not detected in		s found in the corres	ponding method blanks or
MS/MSD	Results of analyses performed on the 1) One set of Mercury MS/MS			oratory limits.
LCS/LCSDs	Results of analyses performed on the			•
	1) One set of Mercury LCS/L0			
	2) One set of SVOC LCS/LCS			
	3) Two sets of VOC LCS/LCS			
Surrogate Standard	All analyzed samples had the surrog	ate standard recoveries with	nin the laboratory ge	enerated control limits with
Recoveries	the following exceptions:			
	Affected Sample	Surrogate	Recovery (%)	PR Limits (%)
	10029-10M-DCN	Nitrobenzene-d5	54.5	57 – 101
	SVOC Method Blank	2,4,6-Tribromophenol	101	65 – 100
	SVOC LCSD	2,4,6-Tribromophenol	102	65 – 100
Bias	The distributions of analytical recoveries are typically centered about a value less than 100% because analytes are lost rather than gained throughout the procedures. The following accuracy results show that significant bias was not evident within the analytical results for this task: 1) All of the LCS/LCSD results were within the accuracy objectives for this task. 2) All of the MS/MSD results were within the accuracy objectives for this task. 3) The surrogate recoveries for all of the samples were acceptable with the exceptions noted above.			
Representativeness	Proper sampling techniques were followed at all times. All samples were analyzed within proper holding times (except where noted) and according to laboratory SOPs. The data generated within this task represent the objectives described in the sampling plan.			
Comparability	All results are reported in comparabl	le units within analyses (typ		
	are made to limits or previously repo			
	Samples were taken in accordance w	vith the sampling plan with	proper sampling tec	hnique.
Completeness	Quality control results that fell outsider are flagged in the laboratory reports. task. All samples were analyzed according to the control of	No deviations resulted in t	he exclusion of data	from the report for this

Abbreviations:

RPD: Relative percent deviation

MS, MSD: Matrix spike, matrix spike duplicate

LCS/LCSD: Laboratory control sample, Laboratory control sample duplicate

MDL: Method detection limit

Chemistry QC Summary – Braun Report #0506041 December 2005



Assessment Characteristic	Comments			
Holding Times	All holding times were met according			
Detection Limits	Reporting and Detection limits were		ed protocols	
Field Duplicates	Field duplicates were not analyzed for	<u> </u>	eu protocois.	
Method Blanks	All sample results were greater than		s found in the corres	ponding method blanks or
Wiellog Diams	the compounds were not detected in		s round in the corres	ponding method blanks of
MS/MSD	MS/MSDs were not analyzed for this	s report.		
LCS/LCSDs	Results of analyses performed on the	LCS/LCSDs are summaris	zed below.	
	1) Two sets of TSS LCS/LCSI	Os were analyzed with all r	ecoveries within lab	oratory limits.
	2) One set of Mercury LCS/LC	CSDs was analyzed with all	l recoveries within la	aboratory limits.
	3) One set of SVOC LCS/LCS	Ds was analyzed with all r	ecoveries within lab	oratory limits.
	4) One set of VOC LCS/LCSE	s was analyzed with all red	coveries within labo	ratory limits.
Surrogate Standard	All analyzed samples had the surrogate standard recoveries within the laboratory generated control limits with			enerated control limits with
Recoveries	the following exceptions:			
	Affected Sample	Surrogate	Recovery (%)	PR Limits (%)
	10029-10Q-PO	2,4,6-Tribromophenol	104	65 – 100
	SVOC Method Blank	2,4,6-Tribromophenol	101	65 – 100
	SVOC LCSD	2,4,6-Tribromophenol	102	65 – 100
Bias	The distributions of analytical recoveries are typically centered about a value less than 100% because analytes are lost rather than gained throughout the procedures. The following accuracy results show that significant bias was not evident within the analytical results for this task: 1) All of the LCS/LCSD results were within the accuracy objectives for this task. 2) The surrogate recoveries for all of the samples were acceptable with the exceptions noted above.			
Representativeness	Proper sampling techniques were followed at all times. All samples were analyzed within proper holding times (except where noted) and according to laboratory SOPs. The data generated within this task represent the			
Comparability	objectives described in the sampling plan. All results are reported in comparable units within analyses (typically ug/L or mg/Kg) and when comparisons are made to limits or previously reported data. All results were obtained using consistent methods of analysis. Samples were taken in accordance with the sampling plan with proper sampling technique.			
Completeness	Quality control results that fell outsic are flagged in the laboratory reports. task. All samples were analyzed acco	le of the limits are summar No deviations resulted in t	rized above and correction of data	esponding sample results from the report for this

Abbreviations:

RPD: Relative percent deviation

MS, MSD: Matrix spike, matrix spike duplicate

LCS/LCSD: Laboratory control sample, Laboratory control sample duplicate

MDL: Method detection limit

Chemistry QC Summary – Braun Report #0506042 December 2005



Assessment Characteristic		Comments		
Holding Times	All holding times were met according to established protocols.			
Detection Limits	Reporting and Detection limits were		ed protocols	
Field Duplicates	Field duplicates were not analyzed for		eu protocois.	
Method Blanks	All sample results were greater than		s found in the corres	ponding method blanks or
	the compounds were not detected in			
MS/MSD	MS/MSDs were not analyzed for this	s report.		
LCS/LCSDs	Results of analyses performed on the			
	1) One set of TSS LCS/LCSDs			
	2) One set of Mercury LCS/LC			
	3) One set of SVOC LCS/LCS			
	4) One set of VOC LCS/LCSDs was analyzed with all recoveries within laboratory limits.			
Surrogate Standard	All analyzed samples had the surroga	ate standard recoveries with	nin the laboratory ge	enerated control limits with
Recoveries	the following exceptions:			
	Affected Sample	Surrogate	Recovery (%)	PR Limits (%)
	10029-1M-PR	2,4,6-Tribromophenol	28.8	30 – 150
Bias	The distributions of analytical recoveries are typically centered about a value less than 100% because analytes are lost rather than gained throughout the procedures. The following accuracy results show that significant bias was not evident within the analytical results for this task: 1) All of the LCS/LCSD results were within the accuracy objectives for this task. 2) The surrogate recoveries for all of the samples were acceptable with the exception noted above.			
Representativeness	Proper sampling techniques were followed at all times. All samples were analyzed within proper holding times (except where noted) and according to laboratory SOPs. The data generated within this task represent the objectives described in the sampling plan.			
Comparability	All results are reported in comparable units within analyses (typically ug/L or mg/Kg) and when comparisons are made to limits or previously reported data. All results were obtained using consistent methods of analysis. Samples were taken in accordance with the sampling plan with proper sampling technique.			
Completeness	Quality control results that fell outsic are flagged in the laboratory reports. task. All samples were analyzed acco	No deviations resulted in t	he exclusion of data	from the report for this

Abbreviations:

RPD: Relative percent deviation

MS, MSD: Matrix spike, matrix spike duplicate

LCS/LCSD: Laboratory control sample, Laboratory control sample duplicate

MDL: Method detection limit

Chemistry QC Summary – Braun Report #0506069 December 2005



Assessment Characteristic	Comments				
Holding Times	All holding times were met accordir	g to established protocols.			
Detection Limits	Reporting and Detection limits were	met according to establishe	ed protocols.		
Field Duplicates	Field duplicates were not analyzed f				
Method Blanks	All sample results were greater than the compounds were not detected in	the method blank.	s found in the corres	ponding method blanks or	
MS/MSD	MS/MSDs were not analyzed for thi	s report.			
LCS/LCSDs Surrogate Standard Recoveries	Results of analyses performed on the LCS/LCSDs are summarized below. 1) One set of Mercury LCS/LCSDs was analyzed with all recoveries within laboratory limits. 2) One set of SVOC LCS/LCSDs was analyzed with all recoveries within laboratory limits. 3) One set of VOC LCS/LCSDs was analyzed with all recoveries within laboratory limits. All analyzed samples had the surrogate standard recoveries within the laboratory generated control limits with				
Recoveries	the following exceptions:] g ,	D (0/)	DD 11 14 (0/)	
	Affected Sample	Surrogate	Recovery (%)	PR Limits (%)	
	10029-1M-PO	2,4,6-Tribromophenol	102	65 – 100	
	10029-1M-PO	Nitrobenzene-d5	54.4	57 – 101	
	SVOC Method Blank	2,4,6-Tribromophenol	101	65 – 100	
	SVOC LCSD	2,4,6-Tribromophenol	102	65 – 100	
Bias	The distributions of analytical recoveries are typically centered about a value less than 100% because analytes are lost rather than gained throughout the procedures. The following accuracy results show that significant bias was not evident within the analytical results for this task: 1) All of the LCS/LCSD results were within the accuracy objectives for this task. 2) The surrogate recoveries for all of the samples were acceptable with the exceptions noted above and those are attributed to matrix interference due to high levels of volatile compounds.				
Representativeness	Proper sampling techniques were followed at all times. All samples were analyzed within proper holding times (except where noted) and according to laboratory SOPs. The data generated within this task represent the objectives described in the sampling plan.				
Comparability	All results are reported in comparab are made to limits or previously repo	objectives described in the sampling plan. All results are reported in comparable units within analyses (typically ug/L or mg/Kg) and when comparisons are made to limits or previously reported data. All results were obtained using consistent methods of analysis. Samples were taken in accordance with the sampling plan with proper sampling technique.			
Completeness	Quality control results that fell outsi are flagged in the laboratory reports task. All samples were analyzed acc	de of the limits are summar . No deviations resulted in t	rized above and corrective exclusion of data	esponding sample results from the report for this	

Abbreviations:

RPD: Relative percent deviation

MS, MSD: Matrix spike, matrix spike duplicate

LCS/LCSD: Laboratory control sample, Laboratory control sample duplicate

MDL: Method detection limit

Chemistry QC Summary – Braun Report #0506071 December 2005



Assessment Characteristic	Comments					
Holding Times	All holding times were met accordin	g to established protocols.				
Detection Limits	Reporting and Detection limits were met according to established protocols.					
Field Duplicates	Field duplicates were not analyzed for this report.					
Method Blanks	All sample results were greater than the compounds were not detected in		s found in the corres	sponding method blanks or		
MS/MSD	Results of analyses performed on the 1) One set of Mercury LCS/L0			aboratory limits.		
LCS/LCSDs	Results of analyses performed on the LCS/LCSDs are summarized below. 1) One set of Mercury LCS/LCSDs was analyzed with all recoveries within laboratory limits. 2) One set of SVOC LCS/LCSDs was analyzed with all recoveries within laboratory limits. 3) One set of VOC LCS/LCSDs was analyzed with all recoveries within laboratory limits.					
Surrogate Standard Recoveries	All analyzed samples had the surrogate standard recoveries within the laboratory generated control limits with the following exceptions:					
	Affected Sample	Surrogate	Recovery (%)	PR Limits (%)		
	SVOC Method Blank	2,4,6-Tribromophenol	101	65 – 100		
	SVOC LCSD	2,4,6-Tribromophenol	102	65 – 100		
Bias	The distributions of analytical recoveries are typically centered about a value less than 100% because analytes are lost rather than gained throughout the procedures. The following accuracy results show that significant bias was not evident within the analytical results for this task: 1) All of the LCS/LCSD results were within the accuracy objectives for this task. 2) The surrogate recoveries for all of the samples were acceptable with the exceptions noted above and those are attributed to matrix interference due to high levels of volatile compounds.					
Representativeness	Proper sampling techniques were followed at all times. All samples were analyzed within proper holding times (except where noted) and according to laboratory SOPs. The data generated within this task represent the					
Comparability	are made to limits or previously repo	objectives described in the sampling plan. All results are reported in comparable units within analyses (typically ug/L or mg/Kg) and when comparisons are made to limits or previously reported data. All results were obtained using consistent methods of analysis. Samples were taken in accordance with the sampling plan with proper sampling technique.				
Completeness	Quality control results that fell outsider are flagged in the laboratory reports. task. All samples were analyzed according to the control of	de of the limits are summar No deviations resulted in t	rized above and corr the exclusion of data	esponding sample results a from the report for this		

Abbreviations:

RPD: Relative percent deviation

MS, MSD: Matrix spike, matrix spike duplicate

LCS/LCSD: Laboratory control sample, Laboratory control sample duplicate

MDL: Method detection limit

Chemistry QC Summary – Braun Report #0506265 December 2005



Assessment Characteristic	Comments			
Holding Times	All holding times were met accordin	g to established protocols.		
Detection Limits	Reporting and Detection limits were	met according to establishe	ed protocols.	
Field Duplicates	Field duplicates were not analyzed for			
Method Blanks	All sample results were greater than the compounds were not detected in returned a result of 0.181 ug/L. The	the method blank with the	exception of mercur	y. The initial blank
MS/MSD	MS/MSDs were not analyzed for this	s report.		
LCS/LCSDs	Results of analyses performed on the LCS/LCSDs are summarized below. 1) Two sets of Mercury LCS/LCSDs were analyzed with all recoveries within laboratory. 2) Two sets of SVOC LCS/LCSDs were analyzed with all recoveries within laboratory limits. 3) Two sets of VOC LCS/LCSDs were analyzed with all recoveries within laboratory limits with the exception of acetone and chlorodibromomethane. Neither was detected in the associated sample.			
Surrogate Standard				
Recoveries	All analyzed samples had the surrogate standard recoveries within the laboratory generated control limits with the following exceptions:			
	Affected Sample	Surrogate	Recovery (%)	PR Limits (%)
	60028-10M-PO	2,4,6-Tribromophenol	102	65 – 100
	SVOC LCS	2,4,6-Tribromophenol	108	65 – 100
	SVOC LCSD	2,4,6-Tribromophenol	107	65 – 100
Bias	The distributions of analytical recoveries are typically centered about a value less than 100% because analytes are lost rather than gained throughout the procedures. The following accuracy results show that significant bias was not evident within the analytical results for this task: 1) All of the LCS/LCSD results were within the accuracy objectives for this task with the exception noted above. 2) The surrogate recoveries for all of the samples were acceptable with the exceptions noted above.			
Representativeness	Proper sampling techniques were followed at all times. All samples were analyzed within proper holding times (except where noted) and according to laboratory SOPs. The data generated within this task represent the objectives described in the sampling plan.			
Comparability	All results are reported in comparable units within analyses (typically ug/L or mg/Kg) and when comparisons are made to limits or previously reported data. All results were obtained using consistent methods of analysis. Samples were taken in accordance with the sampling plan with proper sampling technique.			
Completeness	Quality control results that fell outside are flagged in the laboratory reports. task. All samples were analyzed according to the control of	de of the limits are summar No deviations resulted in t	rized above and correction of data	esponding sample results from the report for this

Abbreviations:

RPD: Relative percent deviation

MS, MSD: Matrix spike, matrix spike duplicate

LCS/LCSD: Laboratory control sample, Laboratory control sample duplicate

MDL: Method detection limit

Chemistry QC Summary – Braun Report #0506277 December 2005



Assessment Characteristic	Comments			
Holding Times	All holding times were met according	g to established protocols.		
Detection Limits	Reporting and Detection limits were	met according to establish	ed protocols.	
Field Duplicates	Field duplicates were not analyzed f	or this report.	-	
Method Blanks	All sample results were greater than the compounds were not detected in returned a result of 0.181 ug/L. The	the method blank with the	exception of mercur	y. The initial blank
MS/MSD	MS/MSDs were not analyzed for thi	s report.		
LCS/LCSDs	Results of analyses performed on the LCS/LCSDs are summarized below. 1) Two sets of Mercury LCS/LCSDs were analyzed with all recoveries within laboratory. 2) One set of SVOC LCS/LCSDs was analyzed with all recoveries within laboratory limits. 3) One set of VOC LCS/LCSDs was analyzed with all recoveries within laboratory limits with the exception of chlorodibromomethane. It was not detected in the associated sample.			
Surrogate Standard Recoveries	All analyzed samples had the surrogate standard recoveries within the laboratory generated control limits with the following exceptions:			
	Affected Sample	Surrogate	Recovery (%)	PR Limits (%)
	SVOC LCS	2,4,6-Tribromophenol	108	65 – 100
	SVOC LCSD	2,4,6-Tribromophenol	107	65 – 100
Bias	The distributions of analytical recoveries are typically centered about a value less than 100% because analytes are lost rather than gained throughout the procedures. The following accuracy results show that significant bias was not evident within the analytical results for this task: 1) All of the LCS/LCSD results were within the accuracy objectives for this task with the exception noted above. 2) The surrogate recoveries for all of the samples were acceptable with the exceptions noted above.			
Representativeness	Proper sampling techniques were followed at all times. All samples were analyzed within proper holding times (except where noted) and according to laboratory SOPs. The data generated within this task represent the objectives described in the sampling plan.			
Comparability	objectives described in the sampling plan. All results are reported in comparable units within analyses (typically ug/L or mg/Kg) and when comparisons are made to limits or previously reported data. All results were obtained using consistent methods of analysis. Samples were taken in accordance with the sampling plan with proper sampling technique.			
Completeness	Quality control results that fell outsi are flagged in the laboratory reports. task. All samples were analyzed acc	de of the limits are summar . No deviations resulted in t	ized above and corr he exclusion of data	esponding sample results a from the report for this

Abbreviations:

RPD: Relative percent deviation

MS, MSD: Matrix spike, matrix spike duplicate

LCS/LCSD: Laboratory control sample, Laboratory control sample duplicate

MDL: Method detection limit

Chemistry QC Summary – Braun Report #0506328 December 2005



Assessment				
Characteristic		Comments		
Holding Times		ording to established protocols.		
Detection Limits		were met according to establish	ed protocols.	
Field Duplicates	Field duplicates were not analy			
Method Blanks		than 10 times the concentration		
		ed in the method blank with the The blank was re-analyzed and		
MS/MSD		<u> </u>		
	MS/MSDs were not analyzed for	1		
LCS/LCSDs		on the LCS/LCSDs are summari		
		LCS/LCSDs were analyzed with		
	1	S/LCSDs was analyzed with all 1		•
		LCSDs was analyzed with all re		
Commonsta Ctandand		promomethane. It was not detec		
Surrogate Standard Recoveries	the following exceptions:	urrogate standard recoveries wit	nin the laboratory ge	enerated control limits with
Recoveries	the following exceptions.			
	Affected Sample	Surrogate	Recovery (%)	PR Limits (%)
	60028-1M-PO	2,4,6-Tribromophenol	103	65 – 100
	SVOC Method Blank	Nitrobenzene-d5	52.8	57 – 101
	SVOC LCS	2,4,6-Tribromophenol	102	65 – 100
	SVOC LCSD	2,4,6-Tribromophenol	105	65 – 100
		·		
Bias	The distributions of analytical i	recoveries are typically centered	about a value less th	han 100% because analytes
		ighout the procedures. The follo		
	was not evident within the anal			
		alts were within the accuracy ob	jectives for this task	with the exception noted
	above.			
		for all of the samples were accep		
Representativeness		ere followed at all times. All sam		
		ding to laboratory SOPs. The da	ata generated within	this task represent the
G 1.71	objectives described in the sam		· 11 / 7 / 7	7 1 1
Comparability		parable units within analyses (ty)		
		y reported data. All results were		
Completeness		nce with the sampling plan with outside of the limits are summar		
Completeness		ports. No deviations resulted in		
		d according to the Work Plan an		
	Lask. All samples were analyzed	a according to the WOLK Fiall all	a are percent compr	chon for this task is 100%.

Abbreviations:

RPD: Relative percent deviation

MS, MSD: Matrix spike, matrix spike duplicate

LCS/LCSD: Laboratory control sample, Laboratory control sample duplicate

MDL: Method detection limit

Chemistry QC Summary – Braun Report #0506279 December 2005



Assessment					
Characteristic		Comments			
Holding Times		according to established protocols.			
Detection Limits		nits were met according to establish	ed protocols.		
Field Duplicates	Field duplicates were not analyzed for this report.				
Method Blanks		ater than 10 times the concentration ected in the method blank with the			s or
	Affected Sample	Compound	Sample Result (mg/kg)	Blank Result (mg/kg)	
	60028-1M-PR	1,2,3 Trichlorobenzene	ND	0.0275	
	60028-1M-PR	1,2,4 Trichlorobenzene	ND	0.0165	
	60028-1M-PR	Bromoform	ND	0.0965	
	60028-1M-PR	Hexachlorobutadiene	ND	0.0460	
	60028-1M-PR	Methylene Chloride	ND	0.0340	
	60028-1M-PR	Vinyl Chloride	ND	0.0125	
MS/MSD	MS/MSDs were not analyze	d for this report.			
Surrogate Standard Recoveries	exception of 1,1,1,6 associated sample.	CS/LCSDs was analyzed with all re 2-Tetrachloroethane and chlorodibr e surrogate standard recoveries wit	romomethane. It was	not detected in the	with
	Affected Sample	Surrogate	Recovery (%)	PR Limits (%)	
	VOC LCS	4-Bromofluorobenzene	118	74 – 117	
	<u> </u>				
Bias	 The distributions of analytical recoveries are typically centered about a value less than 100% because analytes are lost rather than gained throughout the procedures. The following accuracy results show that significant bias was not evident within the analytical results for this task: 1) All of the LCS/LCSD results were within the accuracy objectives for this task with the exceptions noted above. 2) The surrogate recoveries for all of the samples were acceptable with the exception noted above. 				
Representativeness	Proper sampling techniques were followed at all times. All samples were analyzed within proper holding times (except where noted) and according to laboratory SOPs. The data generated within this task represent the objectives described in the sampling plan.				
Comparability	All results are reported in comparable units within analyses (typically ug/L or mg/Kg) and when comparisons are made to limits or previously reported data. All results were obtained using consistent methods of analysis. Samples were taken in accordance with the sampling plan with proper sampling technique.				
Completeness	Quality control results that f are flagged in the laboratory	ell outside of the limits are summar reports. No deviations resulted in to zed according to the Work Plan an	rized above and corre the exclusion of data	esponding sample result from the report for this	S

Abbreviations:

RPD: Relative percent deviation

MS, MSD: Matrix spike, matrix spike duplicate

LCS/LCSD: Laboratory control sample, Laboratory control sample duplicate

MDL: Method detection limit

Chemistry QC Summary – Braun Report #0506399 December 2005



Assessment						
Characteristic		Comments				
Holding Times	All holding times were met accord					
Detection Limits	Reporting and Detection limits we		ed protocols.			
Field Duplicates	Field duplicates were not analyzed for this report.					
Method Blanks	All sample results were greater than 10 times the concentrations found in the corresponding method blanks or					
	the compounds were not detected					
	Affected Sample	Compound	Sample Result	Blank Result		
		romposition and the second	(ug/L)	(ug/L)		
	60028-1Q-PO, 60028-1Q-DCN	1,2,3 Trichlorobenzene	ND, ND	0.320		
	60028-1Q-PO, 60028-1Q-DCN	1,2,4 Trichlorobenzene	ND, ND	0.240		
	60028-1Q-PO, 60028-1Q-DCN	Bromoform	ND, ND	1.98		
	60028-1Q-PO, 60028-1Q-DCN	Hexachlorobutadiene	ND, ND	1.07		
	60028-1Q-PO, 60028-1Q-DCN	Methylene Chloride	ND, ND	0.850		
	00020 10 10,00020 10 Delv	Wiedlyfelie Chloride	ND, ND	0.050		
MS/MSD	MS/MSDs were not analyzed for t	his report.				
LCS/LCSDs	Results of analyses performed on t	he I CS/I CSDs are summari	zed below			
LCB/LCBDs		S/LCSDs were analyzed with		lahoratory		
		CSDs was analyzed with all r				
	3) One set of VOC LCS/LC					
		nomethane. It was not detect				
Surrogate Standard	All analyzed samples had the surro				with	
Recoveries	the following exceptions:	Sate Standard 1000 veries with	im the laboratory go		** 1611	
11000,01100	and rone wing energicing.					
	Affected Sample	Surrogate	Recovery (%)	PR Limits (%)		
	SVOC Method Blank	Nitrobenzene-d5	52.8	57 – 101		
	SVOC LCS	2,4,6-Tribromophenol	102	65 – 100		
	SVOC LCSD	2,4,6-Tribromophenol	105	65 – 100		
	S TO C LOSD	2,1,0 1110101110111011011	103	05 100		
Bias	The distributions of analytical reco	arranias ana tronicaller contanad	ahaut a valua lasa th	on 1000/ hagging and	1	
Dias						
	are lost rather than gained throughout the procedures. The following accuracy results show that significant bias					
	was not evident within the analytical results for this task:					
l			entimes for this task	with the execution not	ad	
	1) All of the LCS/LCSD results		ectives for this task	with the exception not	ted	
	1) All of the LCS/LCSD results above.	were within the accuracy obj		-	ted	
Poprocentativeness	 All of the LCS/LCSD results above. The surrogate recoveries for a 	were within the accuracy obj all of the samples were accep	table with the except	tions noted above.		
Representativeness	 All of the LCS/LCSD results above. The surrogate recoveries for a Proper sampling techniques were for 	were within the accuracy obj all of the samples were accep followed at all times. All sam	table with the except ples were analyzed v	tions noted above. within proper holding to		
Representativeness	 All of the LCS/LCSD results above. The surrogate recoveries for a Proper sampling techniques were face (except where noted) and according 	were within the accuracy object all of the samples were accept followed at all times. All saming to laboratory SOPs. The day	table with the except ples were analyzed v	tions noted above. within proper holding to		
•	 All of the LCS/LCSD results above. The surrogate recoveries for a Proper sampling techniques were f (except where noted) and accordin objectives described in the sampling techniques. 	were within the accuracy objall of the samples were acceptollowed at all times. All sames to laboratory SOPs. The dang plan.	table with the except ples were analyzed v ta generated within	tions noted above. within proper holding this task represent the	times	
Representativeness Comparability	All of the LCS/LCSD results above. The surrogate recoveries for a Proper sampling techniques were 1 (except where noted) and accordin objectives described in the samplin All results are reported in compara	were within the accuracy object of the samples were accepted followed at all times. All saming to laboratory SOPs. The daing plan.	table with the except ples were analyzed value generated within the pically ug/L or mg/K	tions noted above. within proper holding this task represent the	times	
•	 All of the LCS/LCSD results above. The surrogate recoveries for a Proper sampling techniques were for except where noted) and according objectives described in the sampling All results are reported in comparative made to limits or previously results. 	were within the accuracy object all of the samples were accept followed at all times. All saming to laboratory SOPs. The daing plan. The ble units within analyses (tyported data. All results were	table with the except ples were analyzed with a ta generated within a pically ug/L or mg/K obtained using consi	tions noted above. within proper holding this task represent the g) and when comparise tent methods of analy	times	
Comparability	 All of the LCS/LCSD results above. The surrogate recoveries for a Proper sampling techniques were function (except where noted) and according objectives described in the sampling All results are reported in compara are made to limits or previously results amples were taken in accordance 	were within the accuracy object all of the samples were accept followed at all times. All saming to laboratory SOPs. The daing plan. The ported data is a subject to the sampling plan with the sampling plan with	table with the except ples were analyzed within the ta generated within the pically ug/L or mg/K obtained using consi proper sampling tech	tions noted above. within proper holding this task represent the g) and when comparise stent methods of analymnique.	sons	
•	All of the LCS/LCSD results above. The surrogate recoveries for a Proper sampling techniques were for except where noted) and according objectives described in the sampling All results are reported in comparate made to limits or previously resamples were taken in accordance Quality control results that fell out	were within the accuracy object all of the samples were accept followed at all times. All saming to laboratory SOPs. The daing plan. In the sampling plan with the sampling plan with side of the limits are summand.	table with the except ples were analyzed within the ta generated within the pically ug/L or mg/K obtained using consi proper sampling tech ized above and corre	tions noted above. within proper holding this task represent the reg) and when comparise stent methods of analymique. esponding sample resu	sons ysis.	
Comparability	 All of the LCS/LCSD results above. The surrogate recoveries for a Proper sampling techniques were function (except where noted) and according objectives described in the sampling All results are reported in compara are made to limits or previously results amples were taken in accordance 	were within the accuracy object of the samples were accepted followed at all times. All saming to laboratory SOPs. The date of plan. The samples were accepted to the samples of the samples of the limits are summarts. No deviations resulted in the samples of th	table with the except ples were analyzed value generated within the pically ug/L or mg/K obtained using consist proper sampling technical above and correct the exclusion of data	tions noted above. within proper holding this task represent the region and when comparise stent methods of analymique. esponding sample results from the report for this	sons ysis.	

Abbreviations:

RPD: Relative percent deviation

MS, MSD: Matrix spike, matrix spike duplicate

LCS/LCSD: Laboratory control sample, Laboratory control sample duplicate

MDL: Method detection limit

Chemistry QC Summary – Braun Report #0506249 December 2005



Assessment					
Characteristic	Comments				
Holding Times	All holding times were met according to established protocols.				
Detection Limits	Reporting and Detection limits were met according to established protocols.				
Field Duplicates	One field duplicate for Total Organic Carbon (TOC) and one for % solids were analyzed and the RPD is within established protocols.				
Method Blanks	All sample results were greater than 10 times the concentrations found in the corresponding method blanks or the compounds were not detected in the method blank.				
MS/MSD	Results of analyses performed on the MS/MSDs are summarized below. 1) One set of Mercury MS/MSDs was analyzed with all recoveries within laboratory limits. 2) One set of VOC MS/MSDs was analyzed and 134 out of 136 recoveries were within laboratory limits. 3) One set of SVOC MS/MSDs was analyzed with all recoveries within laboratory limits.				
LCS/LCSDs	Results of analyses performed on the LCS/LCSDs are summarized below. 1) One set of Mercury LCS/LCSDs was analyzed with all recoveries within laboratory. 2) One set of SVOC LCS/LCSDs was analyzed with all recoveries within laboratory limits. 3) One set of VOC LCS/LCSDs was analyzed with 135 of 136 recoveries within laboratory.				
Surrogate Standard Recoveries	All analyzed samples had the surrogate standard recoveries within the laboratory generated control limits.				
Bias	The distributions of analytical recoveries are typically centered about a value less than 100% because analytes are lost rather than gained throughout the procedures. The following accuracy results show that significant bias was not evident within the analytical results for this task:				
	All of the LCS/LCSD results were within the accuracy objectives for this task with the exception noted above. All of the MS/MSD results were within the accuracy objectives for this task with the exception noted above.				
	2) All of the MS/MSD results were within the accuracy objectives for this task with the exceptions noted above.3) The surrogate recoveries for all of the samples were acceptable.				
Representativeness	Proper sampling techniques were followed at all times. All samples were analyzed within proper holding times (except where noted) and according to laboratory SOPs. The data generated within this task represent the objectives described in the sampling plan.				
Comparability	All results are reported in comparable units within analyses (typically ug/L or mg/Kg) and when comparisons are made to limits or previously reported data. All results were obtained using consistent methods of analysis. Samples were taken in accordance with the sampling plan with proper sampling technique.				
Completeness	Quality control results that fell outside of the limits are summarized above and corresponding sample results are flagged in the laboratory reports. No deviations resulted in the exclusion of data from the report for this task. All samples were analyzed according to the Work Plan and the percent completion for this task is 100%.				

Abbreviations:

RPD: Relative percent deviation

MS, MSD: Matrix spike, matrix spike duplicate

LCS/LCSD: Laboratory control sample, Laboratory control sample duplicate

MDL: Method detection limit

Chemistry QC Summary – Braun Report #0506248 December 2005



Assessment					
Characteristic	Comments				
Holding Times	All holding times were met	according to establish	ned protocols.		
Detection Limits	Reporting limits met the established NYS SGC thresholds. Reporting limits did not meet the NYS AGC				
	thresholds for the following	compounds:			
	1,4 Dichlorobenzene	Benzene	Hexachlorobenzene	Naphthalene (0-2 hour only)	
	Phenanthrene	Pyrene			
Field Duplicates	Field duplicates were not ar	nalyzed for this report	<u>.</u>		
Method Blanks	Method blanks were not and				
MS/MSD	MS/MSDs were not listed in this report.				
LCS/LCSDs	LCS/LCSD were not listed				
Surrogate Standard	Surrogate standard recoveri	es were not reported i	in this report.		
Recoveries					
Bias	The Laboratory Control Spike Duplicate was outside of Laboratory control limits. The LCSD recovery was				
	123%. The results for Hexachlorobenzene may be biased high. However, all analyses results were below the MRL.				
Representativeness	Proper sampling techniques	were followed at all	times. All samples were a	analyzed within proper holding	
			oratory SOPs. The data ge	nerated within this task represent	
	the objectives described in the sampling plan.				
Comparability	All results are reported in comparable units within analyses (typically ug/m³) and when comparisons are made				
				stent methods of analysis. Samples	
	were taken in accordance w				
Completeness				t. All samples were analyzed	
	according to the Work Plan	and the percent comp	oletion for this task is 100	%.	

Abbreviations:

RPD: Relative percent deviation

MS, MSD: Matrix spike, matrix spike duplicate

LCS/LCSD: Laboratory control sample, Laboratory control sample duplicate

MDL: Method detection limit

Chemistry QC Summary – Braun Report #0506259 December 2005



Assessment					
Characteristic	Comments				
Holding Times	All holding times were met	All holding times were met according to established protocols.			
Detection Limits	Reporting limits met the established NYS SGC thresholds. Reporting limits did not meet the NYS AGC				
	thresholds for the following compounds:				
	1,4 Dichlorobenzene Benzene Hexachlorobenzene Naphthalene (0-2 hour only)				
	Phenanthrene	Pyrene			
Field Duplicates	Field duplicates were not ar	nalyzed for this report	<u>.</u>		
Method Blanks	Method blanks were not analyzed for this report.				
MS/MSD	MS/MSDs were not listed in this report.				
LCS/LCSDs	LCS/LCSD were not listed in this report.				
Surrogate Standard	Surrogate standard recoveries were not reported in this report.				
Recoveries					
Bias	The Laboratory Control Spike Duplicate was outside of Laboratory control limits. The LCSD recovery was				
	123%. The results for Hexachlorobenzene may be biased high. However, all analyses results were below the MRL				
Representativeness	Proper sampling techniques were followed at all times. All samples were analyzed within proper holding				
			oratory SOPs. The data ge	nerated within this task represent	
	the objectives described in the sampling plan.				
Comparability	All results are reported in comparable units within analyses (typically ug/m³) and when comparisons are made				
				stent methods of analysis. Samples	
	were taken in accordance with the sampling plan with proper sampling technique.				
Completeness				t. All samples were analyzed	
	according to the Work Plan	and the percent comp	oletion for this task is 100	%.	

Abbreviations:

RPD: Relative percent deviation

MS, MSD: Matrix spike, matrix spike duplicate

LCS/LCSD: Laboratory control sample, Laboratory control sample duplicate

MDL: Method detection limit

Chemistry QC Summary – Braun Report #0506276 December 2005



Assessment					
Characteristic	Comments				
Holding Times	All holding times were met according to established protocols.				
Detection Limits	Reporting limits met the established NYS SGC thresholds. Reporting limits did not meet the NYS AGC thresholds for the following compounds:			its did not meet the NYS AGC	
	1,4 Dichlorobenzene	Benzene	Hexachlorobenzene	Naphthalene (0-2 hour only)	
	Phenanthrene	Pyrene			
Field Duplicates	Field duplicates were not a	nalyzed for this repor			
Method Blanks		Method blanks were not analyzed for this report.			
MS/MSD	MS/MSDs were not listed in this report.				
LCS/LCSDs	LCS/LCSD were not listed in this report.				
Surrogate Standard	Surrogate standard recoveries were not reported in this report.				
Recoveries					
Bias	The Laboratory Control Spike Duplicate was outside of Laboratory control limits. The LCSD recovery was 123%. The results for Hexachlorobenzene may be biased high. However, all analyses results were below the MRL				
Representativeness	Proper sampling techniques were followed at all times. All samples were analyzed within proper holding times (except where noted) and according to laboratory SOPs. The data generated within this task represent the objectives described in the sampling plan.				
Comparability	All results are reported in comparable units within analyses (typically ug/m³) and when comparisons are made to limits or previously reported data. All results were obtained using consistent methods of analysis. Samples were taken in accordance with the sampling plan with proper sampling technique.				
Completeness	No deviations resulted in the exclusion of data from the report for this task. All samples were analyzed according to the Work Plan and the percent completion for this task is 100%.				

Abbreviations:

RPD: Relative percent deviation

MS, MSD: Matrix spike, matrix spike duplicate

LCS/LCSD: Laboratory control sample, Laboratory control sample duplicate

MDL: Method detection limit

Chemistry QC Summary – Braun Report #0506358 December 2005



Assessment						
Characteristic	Comments					
Holding Times	All holding times were met according to established protocols.					
Detection Limits	Reporting limits met the established NYS SGC thresholds. Reporting limits did not meet the NYS AGC thresholds for the following compounds:					
			T ==			
	1,4 Dichlorobenzene	Benzene	Hexachlorobenzene	Naphthalene (0-2 hour only)		
	Phenanthrene	Pyrene				
Field Duplicates	Field duplicates were not ar	nalyzed for this report	<u> </u>			
Method Blanks		Method blanks were not analyzed for this report.				
MS/MSD	MS/MSDs were not listed in this report.					
LCS/LCSDs	LCS/LCSD were not listed in this report.					
Surrogate Standard	Surrogate standard recoveries were not reported in this report.					
Recoveries						
Bias	The Laboratory Control Spike Duplicate was outside of Laboratory control limits. The LCSD recovery was					
	123%. The results for Hexachlorobenzene may be biased high. However, all analyses results were below the MRL					
Representativeness	Proper sampling techniques were followed at all times. All samples were analyzed within proper holding					
	times (except where noted)	and according to labor	oratory SOPs. The data ge	enerated within this task represent		
	the objectives described in the sampling plan.					
Comparability	All results are reported in comparable units within analyses (typically ug/m³) and when comparison					
	to limits or previously reported data. All results were obtained using consistent methods of analysis. Samples					
	were taken in accordance with the sampling plan with proper sampling technique.					
Completeness				x. All samples were analyzed		
	according to the Work Plan	and the percent comp	pletion for this task is 100	%.		

Abbreviations:

RPD: Relative percent deviation

MS, MSD: Matrix spike, matrix spike duplicate

LCS/LCSD: Laboratory control sample, Laboratory control sample duplicate

MDL: Method detection limit

Chemistry QC Summary – Braun Report #0506445 December 2005



Assessment Characteristic	Comments				
Holding Times	All holding times were met according to established protocols.				
Detection Limits	Reporting and Detection limits were met according to established protocols.				
Field Duplicates	Field duplicates were not analyzed for this report.				
Method Blanks	All sample results were greater than 10 times the concentrations found in the corresponding method blanks or the compounds were not detected in the method.				
MS/MSD	Results of analyses performed on the MS/MSDs are summarized below. 1) One set of SVOC MS/MSDs was analyzed with all recoveries within laboratory limits.				
LCS/LCSDs	Results of analyses performed on the LCS/LCSDs are summarized below. 1) Three sets of Mercury LCS/LCSDs were analyzed with all recoveries within laboratory. 2) Two sets of SVOC LCS/LCSDs were analyzed with all recoveries within laboratory limits with the exception of the recoveries for Pentachlorophenol in soil. 3) Two sets of VOC LCS/LCSDs were analyzed with all recoveries within laboratory.				
Surrogate Standard Recoveries	All analyzed samples had the surrogate standard recoveries within the laboratory generated control limits				
Bias	The distributions of analytical recoveries are typically centered about a value less than 100% because analytes are lost rather than gained throughout the procedures. The following accuracy results show that significant bias was not evident within the analytical results for this task: 1) All of the MS/MSD results were within the accuracy objectives for this task. 2) All of the LCS/LCSD results were within the accuracy objectives for this task. 3) The surrogate recoveries for all of the samples were acceptable.				
Representativeness	Proper sampling techniques were followed at all times. All samples were analyzed within proper holding times (except where noted) and according to laboratory SOPs. The data generated within this task represent the objectives described in the sampling plan.				
Comparability	All results are reported in comparable units within analyses (typically ug/L or mg/Kg) and when comparisons are made to limits or previously reported data. All results were obtained using consistent methods of analysis. Samples were taken in accordance with the sampling plan with proper sampling technique.				
Completeness	Quality control results that fell outside of the limits are summarized above and corresponding sample results are flagged in the laboratory reports. No deviations resulted in the exclusion of data from the report for this task. All samples were analyzed according to the Work Plan and the percent completion for this task is 100%.				

Abbreviations:

RPD: Relative percent deviation

MS, MSD: Matrix spike, matrix spike duplicate

LCS/LCSD: Laboratory control sample, Laboratory control sample duplicate

MDL: Method detection limit

Chemistry QC Summary – Braun Report #0506400 December 2005



Assessment						
Characteristic	Comments					
Holding Times	All holding times were met according to established protocols.					
Detection Limits	Reporting and Detection limits					
Field Duplicates	One field duplicate for Total Or			laboratory limits.		
Method Blanks	All sample results were greater the compounds were not detected	than 10 times the concentration	ns found in the corres	ponding method blanks or		
	Affected Sample	Compound	Sample Result (mg/kg)	Blank Result (mg/kg)		
	70015-IN-PR	1,2,3 Trichlorobenzene	ND	0.0275		
	70015-IN-PR	Bromoform	ND	0.0965		
	70015-IN-PR	Hexachlorobutadiene	ND	0.0460		
	70015-IN-PR	Methylene Chloride	ND	0.0340		
	70015-IN-PR	Vinyl Chloride	ND	0.0125		
	70010 11 (11)	, myr emeriae	1,2	0.0120		
	 Results of analyses performed on the MS/MSDs are summarized below. One set of Mercury MS/MSDs was analyzed. The mercury spike recoveries were not detected due to high background levels of mercury in the samples. One set of SVOC MS/MSDs was analyzed with 6 of 22 recoveries outside of laboratory limits due to matrix interference. The RPDs for the analysis were within laboratory limits. VOC LCS/LCSDs could not be analyzed due to high levels of background compounds in the sample. 					
LCS/LCSDs	Results of analyses performed on the LCS/LCSDs are summarized below. 4) One set of Mercury LCS/LCSDs was analyzed with all recoveries within laboratory. 5) One set of SVOC LCS/LCSDs was analyzed with all recoveries within laboratory limits. 6) One set of VOC LCS/LCSDs was analyzed with all recoveries within laboratory limits with the exception of 1,1,1,2-Tetrachloroethane and chlorodibromomethane. It was not detected in the associated sample.					
Surrogate Standard Recoveries	All analyzed samples had the su	rrogate standard recoveries wit	thin the laboratory ge	nerated control limits		
Bias	The distributions of analytical re					
	are lost rather than gained throughout the procedures. The following accuracy results show that significant bias was not evident within the analytical results for this task:					
	1) All of the MS/MSD results were within the accuracy objectives for this task with the exceptions noted					
	 above. 2) All of the LCS/LCSD results were within the accuracy objectives for this task with the exception noted above. 3) The surrogate recoveries for all of the samples were acceptable. 					
Representativeness	Proper sampling techniques were followed at all times. All samples were analyzed within proper holding times (except where noted) and according to laboratory SOPs. The data generated within this task represent the objectives described in the sampling plan.					
Comparability	All results are reported in comparable units within analyses (typically ug/L or mg/Kg) and when comparisons are made to limits or previously reported data. All results were obtained using consistent methods of analysis. Samples were taken in accordance with the sampling plan with proper sampling technique.					
Completeness	Quality control results that fell of are flagged in the laboratory rep	outside of the limits are summa orts. No deviations resulted in	Quality control results that fell outside of the limits are summarized above and corresponding sample results are flagged in the laboratory reports. No deviations resulted in the exclusion of data from the report for this task. All samples were analyzed according to the Work Plan and the percent completion for this task is 100%.			

Abbreviations:

RPD: Relative percent deviation

MS, MSD: Matrix spike, matrix spike duplicate

LCS/LCSD: Laboratory control sample, Laboratory control sample duplicate

MDL: Method detection limit

Chemistry QC Summary – Braun Report #0506408 December 2005



Assessment					
Characteristic		Comments			
Holding Times	All holding times were met according to establi				
Detection Limits	Reporting and Detection limits were met accord		S		
Field Duplicates	Field duplicates were not analyzed with this rep				
Method Blanks	All sample results were greater than 10 times the compounds were not detected in the method		ne correspond	ling method blanks or	
MS/MSD	Results of analyses performed on the MS/MSDs 1) One set of Mercury MS/MSDs was analy 2) One set of SVOC MS/MSDs was analy	alyzed with all recoveries w		•	
LCS/LCSDs	Results of analyses performed on the LCS/LCS 1) Two sets of Mercury LCS/LCSDs were 2) Two sets of SVOC LCS/LCSDs were a 3) Two sets of VOC LCS/LCSDs were ar	e analyzed with all recoveries analyzed with all recoveries analyzed with all recoveries or all the coveries or all the coveri	s within labora within laborat	atory limits. ory limits.	
Surrogate Standard Recoveries	All analyzed samples had the surrogate standard the following exceptions:	l recoveries within the labo	ratory generat	ted control limits with	
	Affected Sample	Surrogate	Recovery (%)	PR Limits	
	60028-10Q-DCN	Nitrobenzene-d5	50.4	57 – 101	
	60028-10Q-DCN, 70015-IN-DCN	Nitrobenzene-d5	52.8	57 – 101	
	60028-10Q-DCN, 70015-IN-DCN (LCS)	2,4,6-Tribromophenol	102	65 – 100	
	60028-10Q-DCN, 70015-IN-DCN (LCSD)	2,4,6-Tribromophenol	105	65 – 100	
Bias	The distributions of analytical recoveries are typically centered about a value less than 100% because analytes are lost rather than gained throughout the procedures. The following accuracy results show that significant bias was not evident within the analytical results for this task: 1) All of the MS/MSD results were within the accuracy objectives for this task. 2) All of the LCS/LCSD results were within the accuracy objectives for this task. 3) The surrogate recoveries for all of the samples were acceptable with the exceptions noted above.				
Representativeness	Proper sampling techniques were followed at all times. All samples were analyzed within proper holding times (except where noted) and according to laboratory SOPs. The data generated within this task represent the objectives described in the sampling plan.				
Comparability	All results are reported in comparable units within analyses (typically ug/L or mg/Kg) and when comparisons are made to limits or previously reported data. All results were obtained using consistent methods of analysis. Samples were taken in accordance with the sampling plan with proper sampling technique.				
Completeness	Quality control results that fell outside of the lir are flagged in the laboratory reports. No deviati task. All samples were analyzed according to the	ons resulted in the exclusion	n of data fron	n the report for this	

Abbreviations:

RPD: Relative percent deviation

MS, MSD: Matrix spike, matrix spike duplicate

LCS/LCSD: Laboratory control sample, Laboratory control sample duplicate

MDL: Method detection limit

Chemistry QC Summary – Braun Report #0506423 December 2005



Assessment					
Characteristic	Comments				
Holding Times	All holding times were met according to established protocols.				
Detection Limits	Reporting and Detection limits were met according to established protocols.				
Field Duplicates	One field duplicate for Total Organic Carbon was analyzed and the RPD was within laboratory limits.				
Method Blanks	All sample results were greater than 10 times the concentrations found in the corresponding method blanks or the compounds were not detected in the method.				
MS/MSD	Results of analyses performed on the MS/MSDs are summarized below. 1) One set of SVOC MS/MSDs was analyzed with all recoveries within laboratory limits.				
LCS/LCSDs	Results of analyses performed on the LCS/LCSDs are summarized below.				
Ectification	 Two sets of Mercury LCS/LCSDs were analyzed with all recoveries within laboratory. Two sets of SVOC LCS/LCSDs were analyzed with all recoveries within laboratory limits. Two sets of VOC LCS/LCSDs were analyzed with all recoveries within laboratory. 				
Surrogate Standard	All analyzed samples had the surrogate standard recoveries within the laboratory generated control limits				
Recoveries					
Bias	The distributions of analytical recoveries are typically centered about a value less than 100% because analytes are lost rather than gained throughout the procedures. The following accuracy results show that significant bias was not evident within the analytical results for this task: 1) All of the MS/MSD results were within the accuracy objectives for this task.				
	2) All of the LCS/LCSD results were within the accuracy objectives for this task.				
	3) The surrogate recoveries for all of the samples were acceptable.				
Representativeness	Proper sampling techniques were followed at all times. All samples were analyzed within proper holding times (except where noted) and according to laboratory SOPs. The data generated within this task represent the objectives described in the sampling plan.				
Comparability	All results are reported in comparable units within analyses (typically ug/L or mg/Kg) and when comparisons are made to limits or previously reported data. All results were obtained using consistent methods of analysis. Samples were taken in accordance with the sampling plan with proper sampling technique.				
Completeness	Quality control results that fell outside of the limits are summarized above and corresponding sample results are flagged in the laboratory reports. No deviations resulted in the exclusion of data from the report for this task. All samples were analyzed according to the Work Plan and the percent completion for this task is 100%.				

Abbreviations:

RPD: Relative percent deviation

MS, MSD: Matrix spike, matrix spike duplicate

LCS/LCSD: Laboratory control sample, Laboratory control sample duplicate

MDL: Method detection limit

Chemistry QC Summary – Braun Report #0506487 December 2005



Assessment					
Characteristic	Comments				
Holding Times	All holding times were met according to established protocols.				
Detection Limits	Reporting and Detection limits were met according to established protocols.				
Field Duplicates	Field duplicates were not analyzed for this report.				
Method Blanks	All sample results were greater than 10 times the concentrations found in the corresponding method blanks or the compounds were not detected in the method.				
MS/MSD	MS/MSDs were not analyzed for this report.				
LCS/LCSDs	Results of analyses performed on the LCS/LCSDs are summarized below.				
	1) Two sets of Mercury LCS/LCSDs were analyzed with all recoveries within laboratory.				
	2) One set of SVOC LCS/LCSDs was analyzed with all recoveries within laboratory limits.				
	3) One set of VOC LCS/LCSDs was analyzed with all recoveries within laboratory.				
Surrogate Standard	All analyzed samples had the surrogate standard recoveries within the laboratory generated control limits				
Recoveries					
Bias	The distributions of analytical recoveries are typically centered about a value less than 100% because analytes				
	are lost rather than gained throughout the procedures. The following accuracy results show that significant bias				
	was not evident within the analytical results for this task:				
	1) All of the LCS/LCSD results were within the accuracy objectives for this task.				
	2) The surrogate recoveries for all of the samples were acceptable.				
Representativeness	Proper sampling techniques were followed at all times. All samples were analyzed within proper holding times				
	(except where noted) and according to laboratory SOPs. The data generated within this task represent the				
	objectives described in the sampling plan.				
Comparability	All results are reported in comparable units within analyses (typically ug/L or mg/Kg) and when comparisons				
	are made to limits or previously reported data. All results were obtained using consistent methods of analysis.				
	Samples were taken in accordance with the sampling plan with proper sampling technique.				
Completeness	Quality control results that fell outside of the limits are summarized above and corresponding sample results				
	are flagged in the laboratory reports. No deviations resulted in the exclusion of data from the report for this				
	task. All samples were analyzed according to the Work Plan and the percent completion for this task is 100%.				

Abbreviations:

RPD: Relative percent deviation

MS, MSD: Matrix spike, matrix spike duplicate

LCS/LCSD: Laboratory control sample, Laboratory control sample duplicate

MDL: Method detection limit

Chemistry QC Summary – Braun Report #0506403 December 2005



Assessment						
Characteristic	Comments					
Holding Times	All holding times were met according to established protocols.					
Detection Limits	Reporting limits met the established NYS SGC thresholds. Reporting limits did not meet the NYS AGC thresholds for the following compounds:					
			T ==			
	1,4 Dichlorobenzene	Benzene	Hexachlorobenzene	Naphthalene (0-2 hour only)		
	Phenanthrene	Pyrene				
Field Duplicates	Field duplicates were not ar	nalyzed for this report	<u> </u>			
Method Blanks		Method blanks were not analyzed for this report.				
MS/MSD	MS/MSDs were not listed in this report.					
LCS/LCSDs	LCS/LCSD were not listed in this report.					
Surrogate Standard	Surrogate standard recoveries were not reported in this report.					
Recoveries						
Bias	The Laboratory Control Spike Duplicate was outside of Laboratory control limits. The LCSD recovery was					
	123%. The results for Hexachlorobenzene may be biased high. However, all analyses results were below the MRL					
Representativeness	Proper sampling techniques were followed at all times. All samples were analyzed within proper holding					
	times (except where noted)	and according to labor	oratory SOPs. The data ge	enerated within this task represent		
	the objectives described in the sampling plan.					
Comparability	All results are reported in comparable units within analyses (typically ug/m³) and when comparison					
	to limits or previously reported data. All results were obtained using consistent methods of analysis. Samples					
	were taken in accordance with the sampling plan with proper sampling technique.					
Completeness				x. All samples were analyzed		
	according to the Work Plan	and the percent comp	pletion for this task is 100	%.		

Abbreviations:

RPD: Relative percent deviation

MS, MSD: Matrix spike, matrix spike duplicate

LCS/LCSD: Laboratory control sample, Laboratory control sample duplicate

MDL: Method detection limit

Chemistry QC Summary – Braun Report #0506412 December 2005



Assessment					
Characteristic	Comments				
Holding Times	All holding times were met according to established protocols.				
Detection Limits	Reporting limits met the established NYS SGC thresholds. Reporting limits did not meet the NYS AGC thresholds for the following compounds:			its did not meet the NYS AGC	
	1,4 Dichlorobenzene	Benzene	Hexachlorobenzene	Naphthalene (0-2 hour only)	
	Phenanthrene	Pyrene			
Field Duplicates	Field duplicates were not a	nalyzed for this repor			
Method Blanks		Method blanks were not analyzed for this report.			
MS/MSD	MS/MSDs were not listed in this report.				
LCS/LCSDs	LCS/LCSD were not listed in this report.				
Surrogate Standard	Surrogate standard recoveries were not reported in this report.				
Recoveries					
Bias	The Laboratory Control Spike Duplicate was outside of Laboratory control limits. The LCSD recovery was 123%. The results for Hexachlorobenzene may be biased high. However, all analyses results were below the MRL				
Representativeness	Proper sampling techniques were followed at all times. All samples were analyzed within proper holding times (except where noted) and according to laboratory SOPs. The data generated within this task represent the objectives described in the sampling plan.				
Comparability	All results are reported in comparable units within analyses (typically ug/m³) and when comparisons are made to limits or previously reported data. All results were obtained using consistent methods of analysis. Samples were taken in accordance with the sampling plan with proper sampling technique.				
Completeness	No deviations resulted in the exclusion of data from the report for this task. All samples were analyzed according to the Work Plan and the percent completion for this task is 100%.				

Abbreviations:

RPD: Relative percent deviation

MS, MSD: Matrix spike, matrix spike duplicate

LCS/LCSD: Laboratory control sample, Laboratory control sample duplicate

MDL: Method detection limit

Chemistry QC Summary – Braun Report #0506504 December 2005



Assessment					
Characteristic	Comments				
Holding Times	All holding times were met according to established protocols.				
Detection Limits	Reporting and Detection limits were met according to established protocols.				
Field Duplicates	Field duplicates were not analyzed for this report.				
Method Blanks	All sample results were greater than 10 times the concentrations found in the corresponding method blanks or the compounds were not detected in the method.				
MS/MSD	Results of analyses performed on the MS/MSDs are summarized below.				
	1) Two sets of Mercury MS/MSDs were analyzed with all recoveries within laboratory.				
	2) One set of SVOC MS/MSDs was analyzed with all recoveries within laboratory limits.				
LCS/LCSDs	Results of analyses performed on the LCS/LCSDs are summarized below.				
	1) Two sets of Mercury LCS/LCSDs were analyzed with all recoveries within laboratory.				
	2) One set of SVOC LCS/LCSDs was analyzed with all recoveries within laboratory limits.				
	3) One set of VOC LCS/LCSDs was analyzed with all recoveries within laboratory.				
Surrogate Standard Recoveries	All analyzed samples had the surrogate standard recoveries within the laboratory generated control limits				
Bias	The distributions of analytical recoveries are typically centered about a value less than 100% because analytes are lost rather than gained throughout the procedures. The following accuracy results show that significant bias was not evident within the analytical results for this task: 1) All of the MS/MSD results were within the accuracy objectives for this task. 2) All of the LCS/LCSD results were within the accuracy objectives for this task.				
	3) The surrogate recoveries for all of the samples were acceptable.				
Representativeness	Proper sampling techniques were followed at all times. All samples were analyzed within proper holding times (except where noted) and according to laboratory SOPs. The data generated within this task represent the objectives described in the sampling plan.				
Comparability	All results are reported in comparable units within analyses (typically ug/L or mg/Kg) and when comparisons are made to limits or previously reported data. All results were obtained using consistent methods of analysis. Samples were taken in accordance with the sampling plan with proper sampling technique.				
Completeness	Quality control results that fell outside of the limits are summarized above and corresponding sample results are flagged in the laboratory reports. No deviations resulted in the exclusion of data from the report for this task. All samples were analyzed according to the Work Plan and the percent completion for this task is 100%.				

Abbreviations:

RPD: Relative percent deviation

MS, MSD: Matrix spike, matrix spike duplicate

LCS/LCSD: Laboratory control sample, Laboratory control sample duplicate

MDL: Method detection limit

Chemistry QC Summary – Braun Report #0506424 January 2006



Assessment					
Characteristic	Comments				
Holding Times	All holding times were met according to established protocols.				
Detection Limits	Reporting limits met the established NYS SGC thresholds. Reporting limits did not meet the NYS AGC thresholds for the following compounds:				
	1,4 Dichlorobenzene	Benzene	Hexachlorobenzene	Naphthalene (0-2 hour only)	
	Phenanthrene	Pyrene			
Field Duplicates	Field duplicates were not a	nalyzed for this report	i.		
Method Blanks	Method blanks were not an	alyzed for this report.			
MS/MSD	MS/MSDs were not listed in this report.				
LCS/LCSDs	LCS/LCSD were not listed	in this report.			
Surrogate Standard Recoveries	Surrogate standard recoveries were not reported in this report.				
Bias	The Laboratory Control Spike Duplicate was outside of Laboratory control limits. The LCSD recovery was 123%. The results for Hexachlorobenzene and Mercury may be biased high. However, all analyses results were below the MRL. The LCS and LCSD recoveries for PCBs were biased slightly high. However, since there were no PCBs present in the samples, the overall results are not affected.				
Representativeness	Proper sampling techniques were followed at all times. All samples were analyzed within proper holding times (except where noted) and according to laboratory SOPs. The data generated within this task represent the objectives described in the sampling plan.				
Comparability	All results are reported in comparable units within analyses (typically ug/m³) and when comparisons are made to limits or previously reported data. All results were obtained using consistent methods of analysis. Samples were taken in accordance with the sampling plan with proper sampling technique.				
Completeness	No deviations resulted in the exclusion of data from the report for this task. All samples were analyzed according to the Work Plan and the percent completion for this task is 100%.				

Abbreviations:

RPD: Relative percent deviation

MS, MSD: Matrix spike, matrix spike duplicate

LCS/LCSD: Laboratory control sample, Laboratory control sample duplicate

MDL: Method detection limit

Chemistry QC Summary – Braun Report #0506454 January 2006



Assessment						
Characteristic	Comments					
Holding Times	All holding times were met according to established protocols.					
Detection Limits	Reporting limits met the established NYS SGC thresholds. Reporting limits did not meet the NYS AGC thresholds for the following compounds:					
	1,4 Dichlorobenzene	Benzene	Hexachlorobenzene	Naphthalene (0-2 hour only)		
	Phenanthrene	Pyrene				
Field Duplicates	Field duplicates were not analyzed for this report.					
Method Blanks	Method blanks were not analyzed for this report.					
MS/MSD	MS/MSDs were not listed in this report.					
LCS/LCSDs	LCS/LCSD were not listed in this report.					
Surrogate Standard	Surrogate standard recoveries were not reported in this report.					
Recoveries						
Bias	The Laboratory Control Spike Duplicate was outside of Laboratory control limits. The LCSD recovery was 123%. The results for Hexachlorobenzene may be biased high. However, all analyses results were below the MRL.					
Representativeness	Proper sampling techniques were followed at all times. All samples were analyzed within proper holding times (except where noted) and according to laboratory SOPs. The data generated within this task represent the objectives described in the sampling plan.					
Comparability	All results are reported in comparable units within analyses (typically ug/m³) and when comparisons are made to limits or previously reported data. All results were obtained using consistent methods of analysis. Samples were taken in accordance with the sampling plan with proper sampling technique.					
Completeness	No deviations resulted in the exclusion of data from the report for this task. All samples were analyzed according to the Work Plan and the percent completion for this task is 100%.					

Abbreviations:

RPD: Relative percent deviation

MS, MSD: Matrix spike, matrix spike duplicate

LCS/LCSD: Laboratory control sample, Laboratory control sample duplicate

MDL: Method detection limit

Chemistry QC Summary – Braun Report #0506502 January 2006



Assessment						
Characteristic	Comments					
Holding Times	All holding times were met according to established protocols.					
Detection Limits	Reporting limits met the established NYS SGC thresholds. Reporting limits did not meet the NYS AGC thresholds for the following compounds:					
	1,4 Dichlorobenzene	Benzene	Hexachlorobenzene	Naphthalene (0-2 hour only)		
	Phenanthrene	Pyrene		• • • • • • • • • • • • • • • • • • • •		
Field Duplicates	Field duplicates were not analyzed for this report.					
Method Blanks	Method blanks were not analyzed for this report.					
MS/MSD	MS/MSDs were not listed in this report.					
LCS/LCSDs	LCS/LCSD were not listed in this report.					
Surrogate Standard Recoveries	Surrogate standard recoveries were not reported in this report.					
Bias	The Laboratory Control Spike Duplicate was outside of Laboratory control limits. The LCSD recovery was 123%. The results for Hexachlorobenzene may be biased high. However, all analyses results were below the MRL.					
Representativeness	Proper sampling techniques were followed at all times. All samples were analyzed within proper holding times (except where noted) and according to laboratory SOPs. The data generated within this task represent the objectives described in the sampling plan.					
Comparability	All results are reported in comparable units within analyses (typically ug/m³) and when comparisons are made to limits or previously reported data. All results were obtained using consistent methods of analysis. Samples were taken in accordance with the sampling plan with proper sampling technique.					
Completeness	No deviations resulted in the exclusion of data from the report for this task. All samples were analyzed according to the Work Plan and the percent completion for this task is 100%.					

Abbreviations:

RPD: Relative percent deviation

MS, MSD: Matrix spike, matrix spike duplicate

LCS/LCSD: Laboratory control sample, Laboratory control sample duplicate

MDL: Method detection limit

Chemistry QC Summary – Braun Report #0506503 January 2006



Assessment						
Characteristic	Comments					
Holding Times	All holding times were met according to established protocols.					
Detection Limits	Reporting limits met the established NYS SGC thresholds. Reporting limits did not meet the NYS AGC thresholds for the following compounds:					
	1,4 Dichlorobenzene	Benzene	Hexachlorobenzene	Naphthalene (0-2 hour only)		
	Phenanthrene	Pyrene				
Field Duplicates	Field duplicates were not analyzed for this report.					
Method Blanks	Method blanks were not analyzed for this report.					
MS/MSD	MS/MSDs were not listed in this report.					
LCS/LCSDs	LCS/LCSD were not listed in this report.					
Surrogate Standard	Surrogate standard recoveries were not reported in this report.					
Recoveries						
Bias	The Laboratory Control Spike Duplicate was outside of Laboratory control limits. The LCSD recovery was 123%. The results for Hexachlorobenzene may be biased high. However, all analyses results were below the MRL.					
Representativeness	Proper sampling techniques were followed at all times. All samples were analyzed within proper holding times (except where noted) and according to laboratory SOPs. The data generated within this task represent the objectives described in the sampling plan.					
Comparability	All results are reported in comparable units within analyses (typically ug/m³) and when comparisons are made to limits or previously reported data. All results were obtained using consistent methods of analysis. Samples were taken in accordance with the sampling plan with proper sampling technique.					
Completeness	No deviations resulted in the exclusion of data from the report for this task. All samples were analyzed according to the Work Plan and the percent completion for this task is 100%.					

Abbreviations:

RPD: Relative percent deviation

MS, MSD: Matrix spike, matrix spike duplicate

LCS/LCSD: Laboratory control sample, Laboratory control sample duplicate

MDL: Method detection limit