



St. Croix Sensory, Inc.

Service Engineering Group

Onondaga

Odor Evaluation Report

Report No. 717804

06/27/07

Data Release Authorization:

Melissa McGinley  
Laboratory Associate

Reviewed and Approved:

Charles M. McGinley, P.E.  
Technical Director

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

We are a family owned and operated business providing our clients with personal customer service, flexible scheduling, timely results.

Our focus is to provide the best professional services available to help make your project or product a success.

***[www.fivesenses.com](http://www.fivesenses.com)***

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**St. Croix Sensory, Inc.**

**Odor Evaluation Report**

Client: Service Engineering Group

Report No.: 717804

Project: Onondaga

Evaluation Date: 06/27/07

#	Field No.	Sample Description	ASTM E679 & EN13725		ASTM E544	PERSISTENCY	CHARACTERIZATION		Comments
			Detection Threshold	Recognition Threshold	Intensity	Dose-Response Slope	Hedonic Tone	Principal Odor Descriptors	
1	P10	8L form 100L	170	100	25	-0.29	-1.2	Earthy, Chemical, Offensive	
2	P20	8L from 100L	270	160	40	-0.48	-2.0	Chemical, Creosote, Offensive, Earthy	
3	Q10	8L from 100L	35	19	16	-0.27	0.6	Chemical	
4	Q20	8L from 100L	50	30	21	-0.23	-0.6	Chemical, Earthy	
5									
6									
7									
8									
9									
10									

Client: Service Engineering Group

Field No.: P10

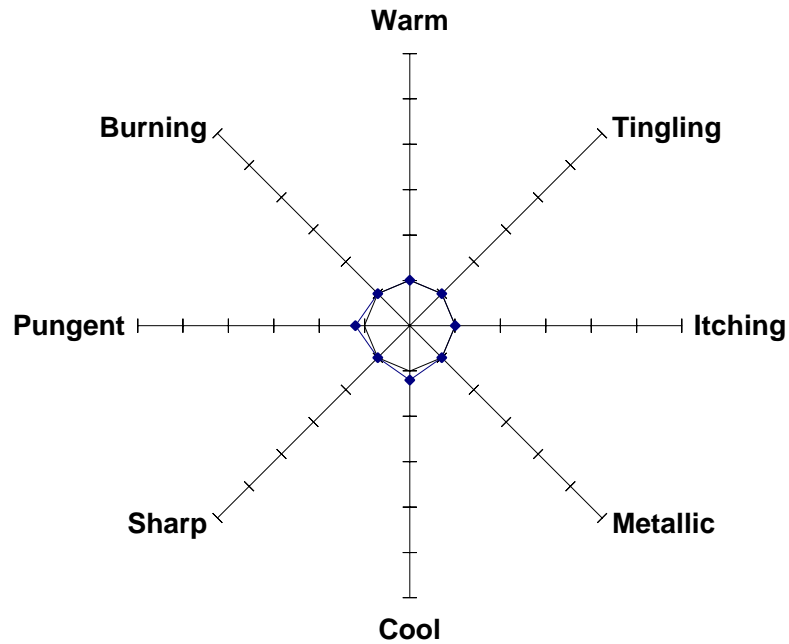
Report No.: 717804

Project: Onondaga

Description: 8L form 100L

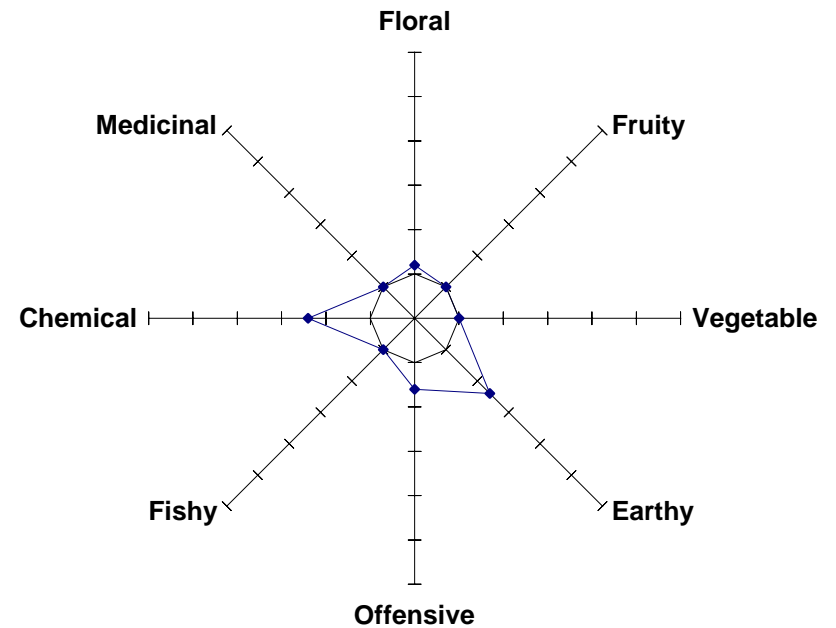
Evaluation Date: 06/27/07

### Sensation Descriptor Graph



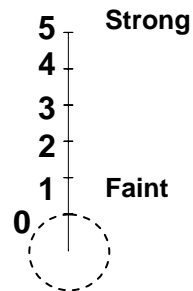
	Average Relative Strength
Warm	0.0
Tingling	0.0
Itching	0.0
Metallic	0.0
Cool	0.2
Sharp	0.0
Pungent	0.2
Burning	0.0

### Odor Descriptor Graph



	Average Relative Strength
Floral	0.2
Fruity	0.0
Vegetable	0.0
Earthy	1.4
Offensive	0.6
Fishy	0.0
Chemical	1.4
Medicinal	0.0

#### KEY



#### Relative Strength

**St. Croix Sensory, Inc.**

**Odor Evaluation Report**

Client: Service Engineering Group

Field No.: P10

Report No.: **717804**

Project: Onondaga

Description: 8L form 100L

Evaluation Date: 06/27/07

% of Assessors |\*\*\*\*\*|\*\*\*\*\*|\*\*\*\*\*|\*\*\*\*\*| 100%

- Vanilla \*\*\*\*\*
- Chemical \*\*\*\*\*:
- Creosote \*\*\*\*\*
- Offensive \*\*\*\*\*:
- Sewer \*\*\*\*\*
- Sour \*\*\*\*\*
- Burnt \*\*\*\*\*
- Earthy \*\*\*\*\*
- Musty \*\*\*\*\*
- Ashes \*\*\*\*\*
- Swampy \*\*\*\*\*

Client: Service Engineering Group

Field No.: P10

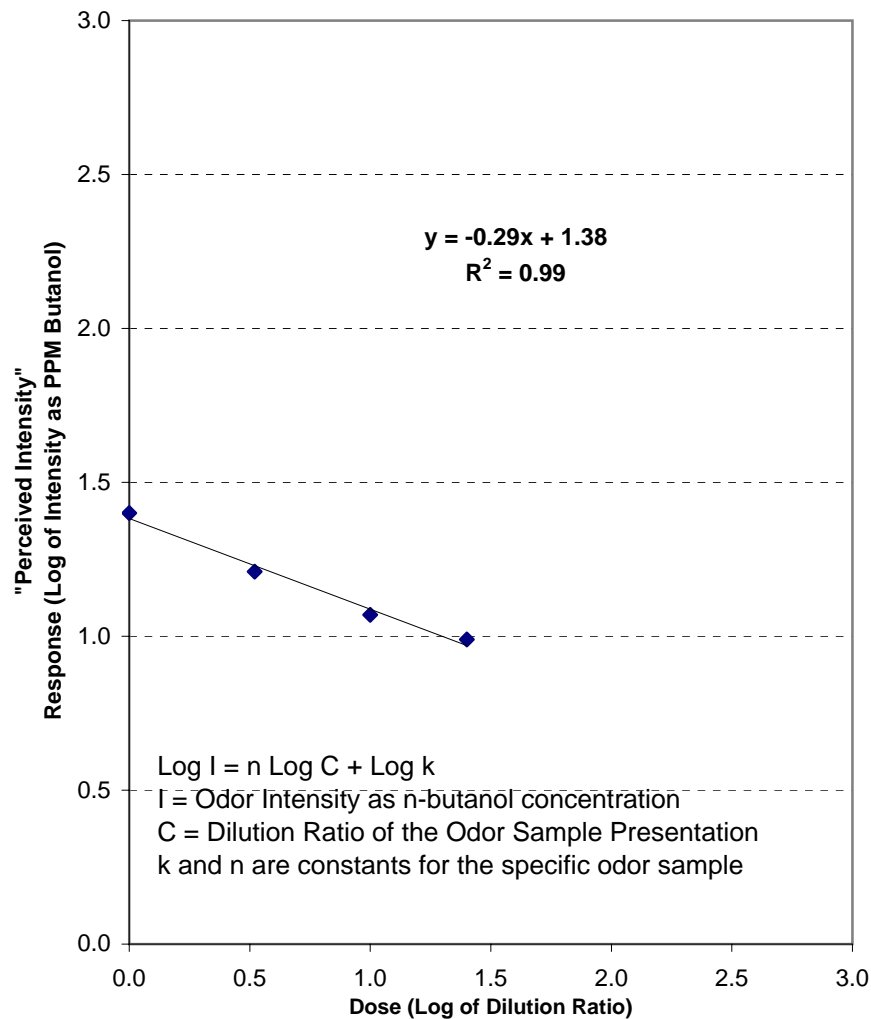
Report No.: 717804

Project: Onondaga

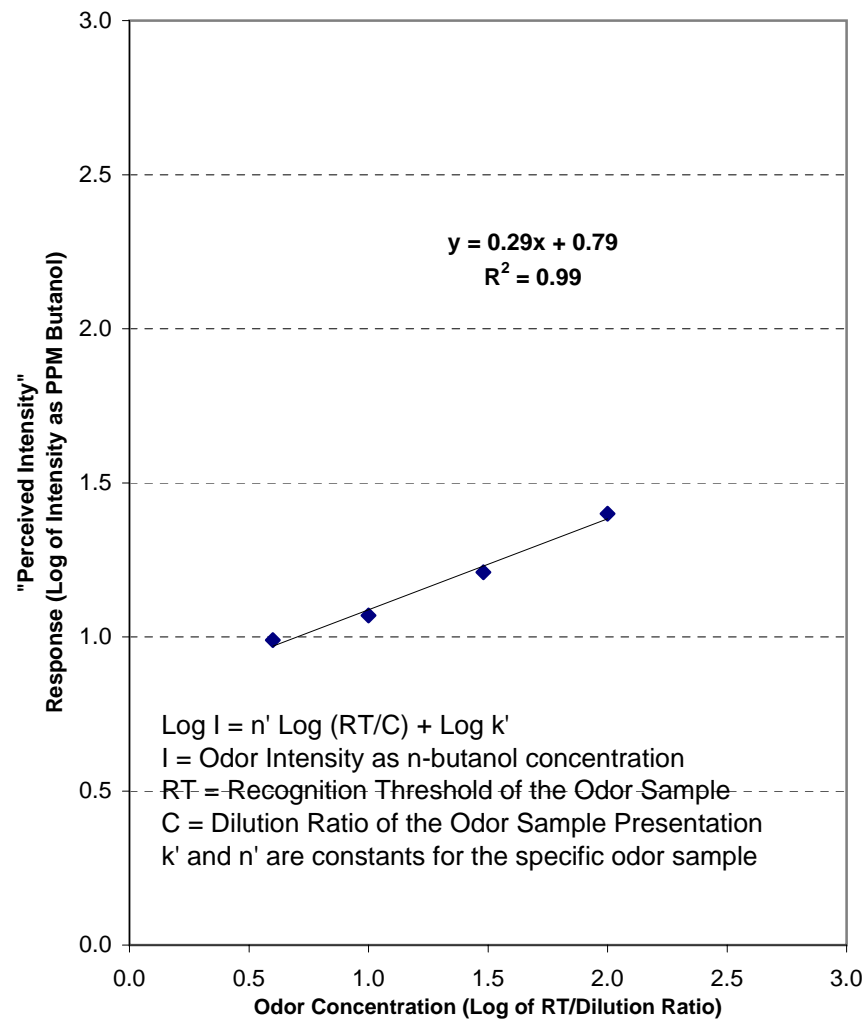
Description: 8L form 100L

Evaluation Date: 06/27/07

### Dose-Response



### Dose-Response as Power Law



Client: Service Engineering Group

Field No.: P20

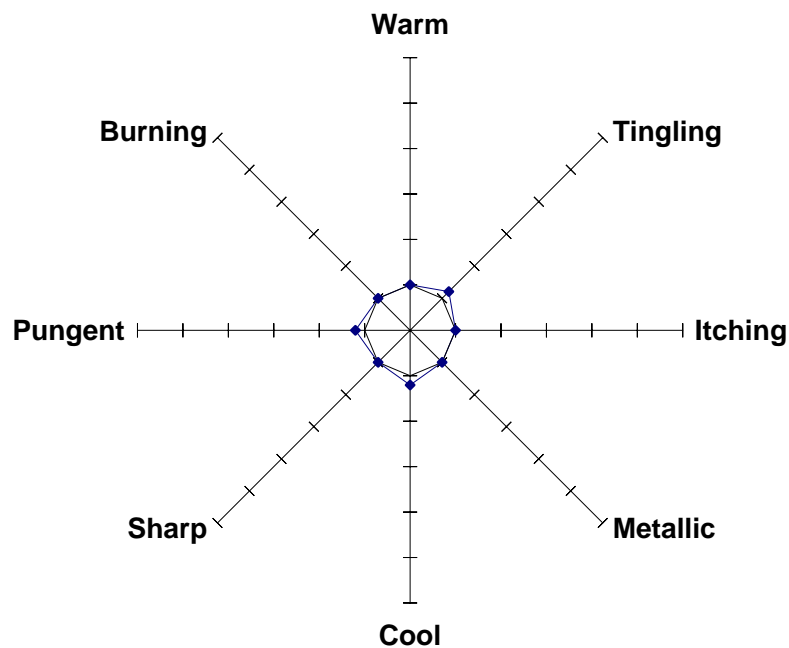
Report No.: 717804

Project: Onondaga

Description: 8L from 100L

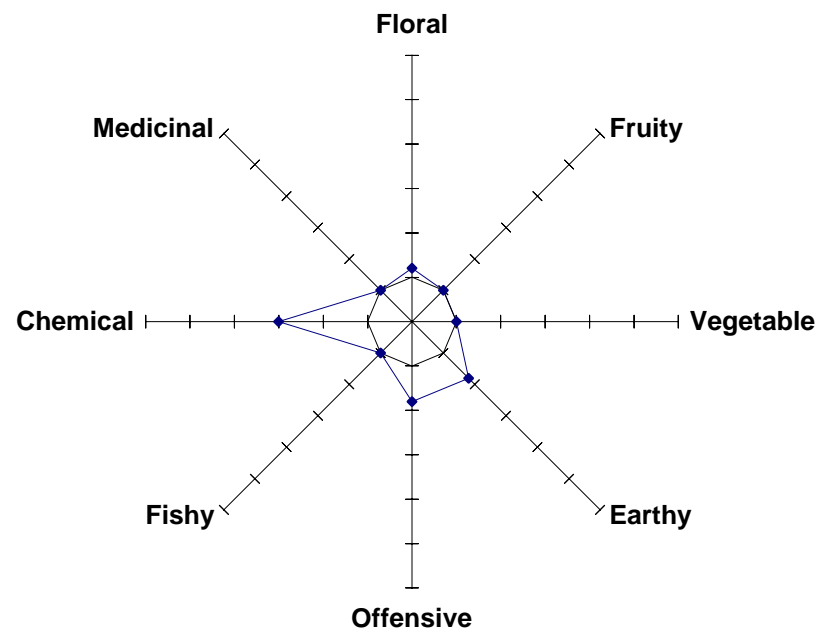
Evaluation Date: 06/27/07

### Sensation Descriptor Graph

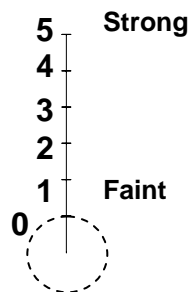


	Average Relative Strength
Warm	0.0
Tingling	0.2
Itching	0.0
Metallic	0.0
Cool	0.2
Sharp	0.0
Pungent	0.2
Burning	0.0

### Odor Descriptor Graph



#### KEY



#### Relative Strength

	Average Relative Strength
Floral	0.2
Fruity	0.0
Vegetable	0.0
Earthy	0.8
Offensive	0.8
Fishy	0.0
Chemical	2.0
Medicinal	0.0

**St. Croix Sensory, Inc.**

**Odor Evaluation Report**

Client: Service Engineering Group

Field No.: P20

Report No.: **717804**

Project: Onondaga

Description: 8L from 100L

Evaluation Date: 06/27/07

% of Assessors |\*\*\*\*\*|\*\*\*\*\*|\*\*\*\*\*|\*\*\*\*\*| 100%

- Vanilla \*\*\*\*\*
- Chemical \*\*\*\*\*:
- Creosote \*\*\*\*\*:
- Vinyl \*\*\*\*\*
- Offensive \*\*\*\*\*:
- Sewer \*\*\*\*\*
- Sour \*\*\*\*\*
- Burnt \*\*\*\*\*
- Earthy \*\*\*\*\*:
- Ashes \*\*\*\*\*
- Swampy \*\*\*\*\*

Client: Service Engineering Group

Field No.: P20

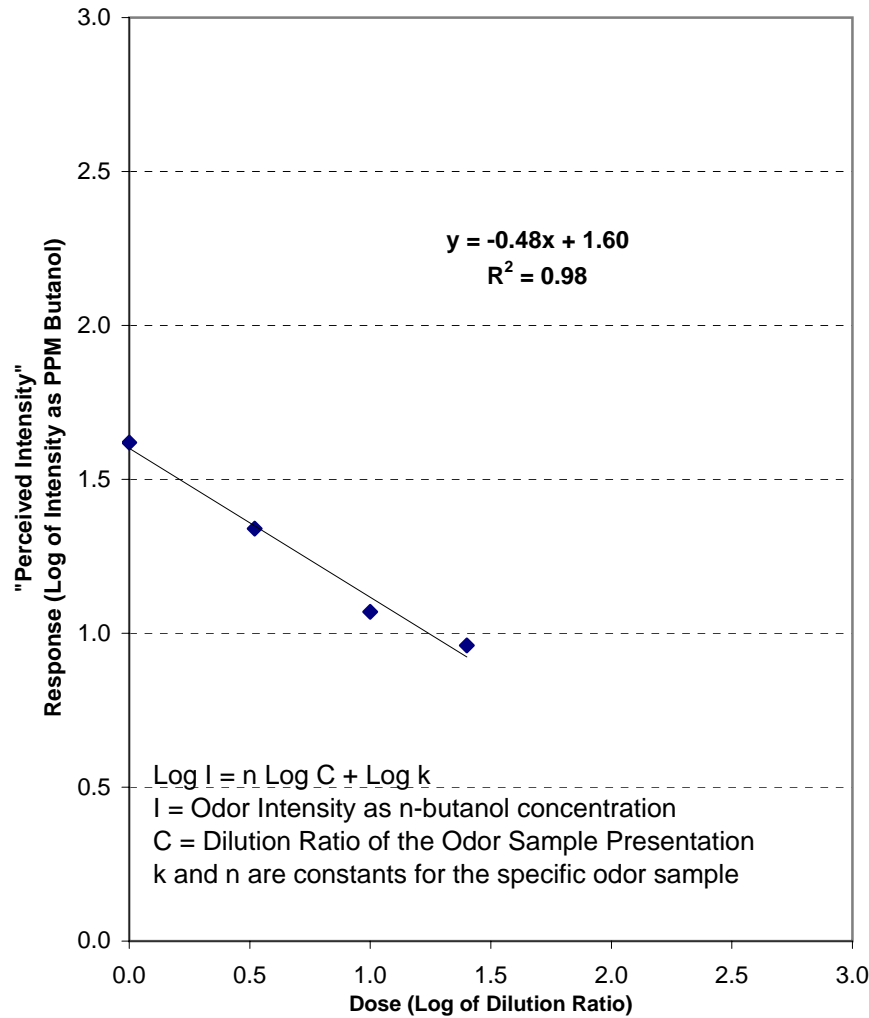
Report No.: 717804

Project: Onondaga

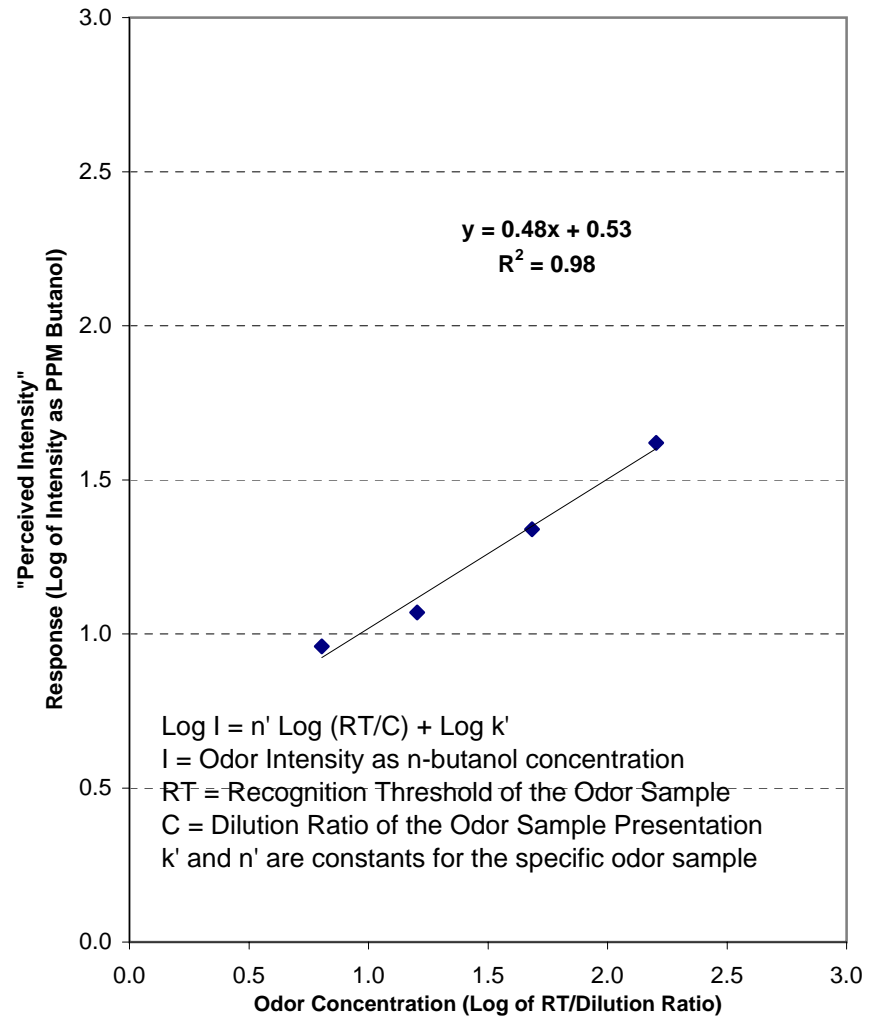
Description: 8L from 100L

Evaluation Date: 06/27/07

**Dose-Response**



**Dose-Response as Power Law**





Client: Service Engineering Group

Field No.: Q10

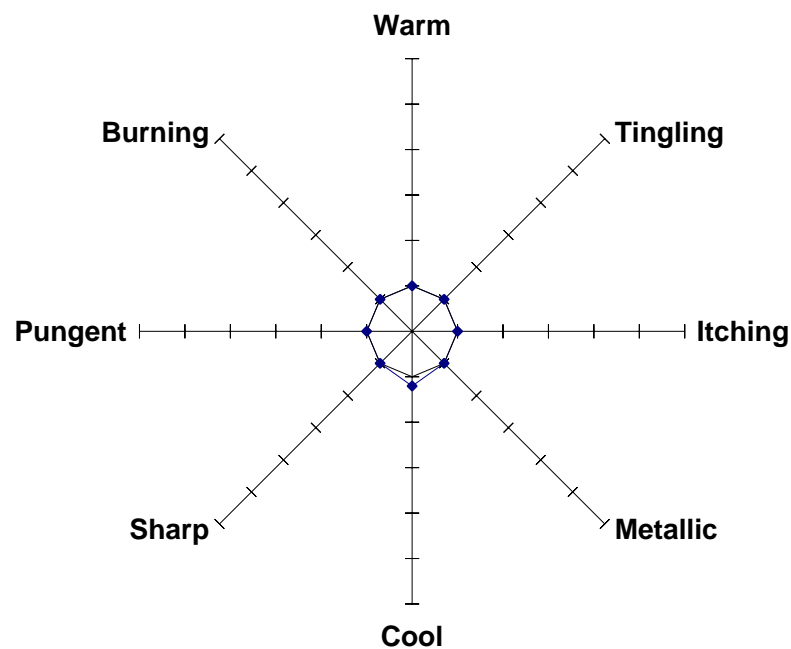
Report No.: 717804

Project: Onondaga

Description: 8L from 100L

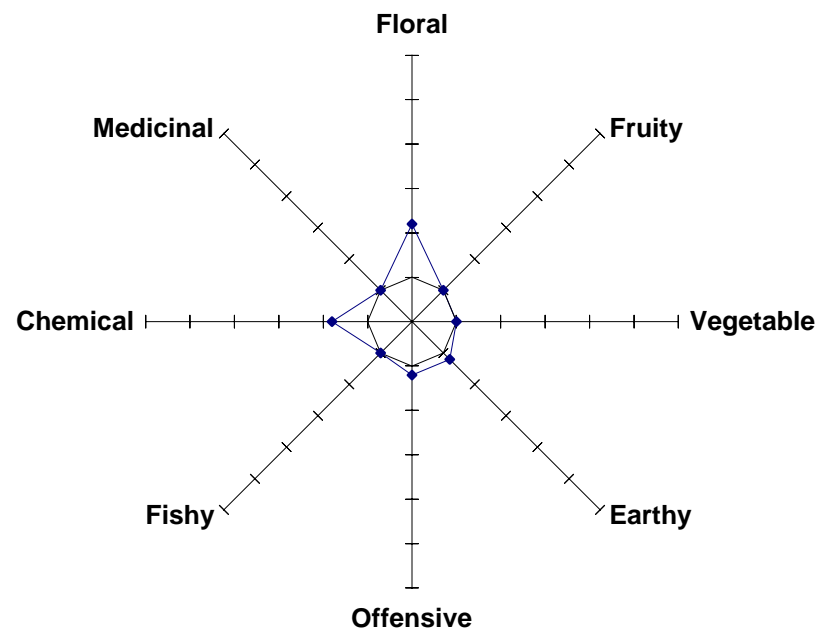
Evaluation Date: 06/27/07

### Sensation Descriptor Graph

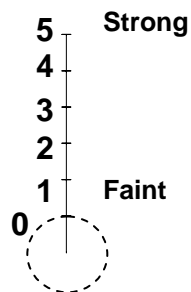


	Average Relative Strength
Warm	0.0
Tingling	0.0
Itching	0.0
Metallic	0.0
Cool	0.2
Sharp	0.0
Pungent	0.0
Burning	0.0

### Odor Descriptor Graph



#### KEY



#### Relative Strength

	Average Relative Strength
Floral	1.2
Fruity	0.0
Vegetable	0.0
Earthy	0.2
Offensive	0.2
Fishy	0.0
Chemical	0.8
Medicinal	0.0

**St. Croix Sensory, Inc.**

**Odor Evaluation Report**

Client: Service Engineering Group

Field No.: Q10

Report No.: **717804**

Project: Onondaga

Description: 8L from 100L

Evaluation Date: 06/27/07

% of Assessors |\*\*\*\*\*|\*\*\*\*\*|\*\*\*\*\*|\*\*\*\*\*| 100%

- Floral \*\*\*\*\*
- Rose-like \*\*\*\*\*
- Vanilla \*\*\*\*\*
- Chemical \*\*\*\*\*
- Vinyl \*\*\*\*\*
- Offensive \*\*\*\*\*
- Earthy \*\*\*\*\*

Client: Service Engineering Group

Field No.: Q10

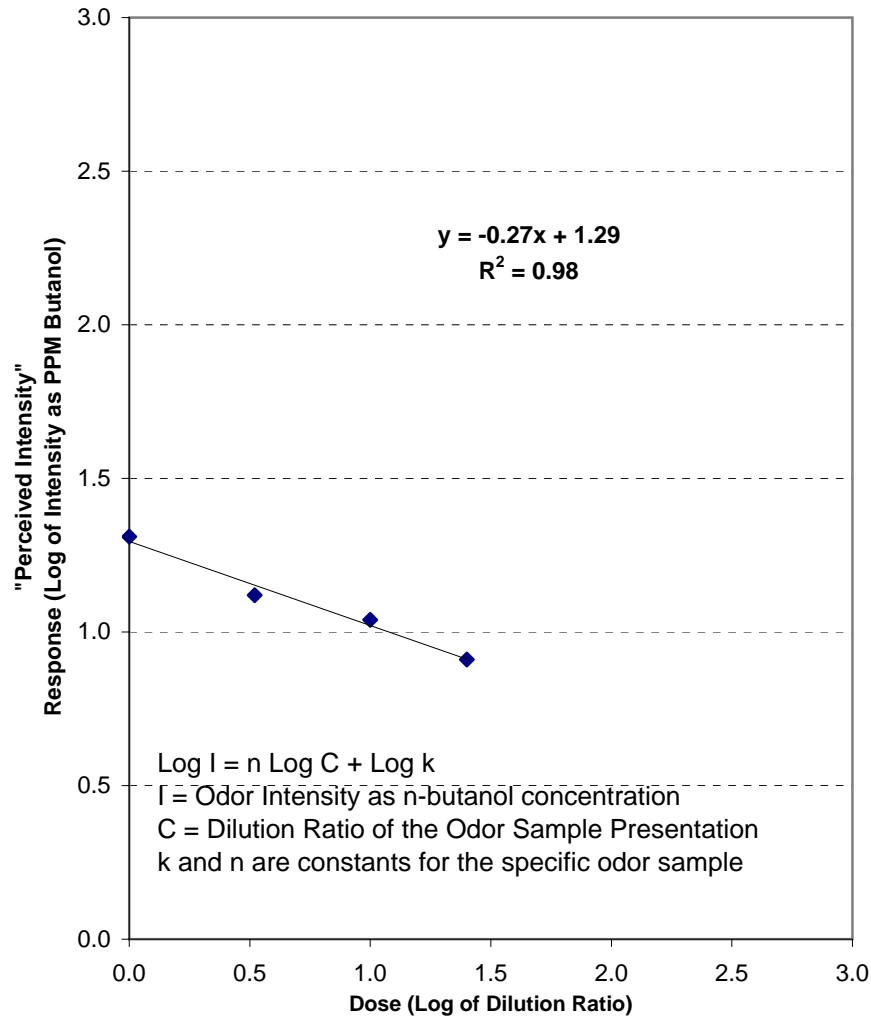
Report No.: 717804

Project: Onondaga

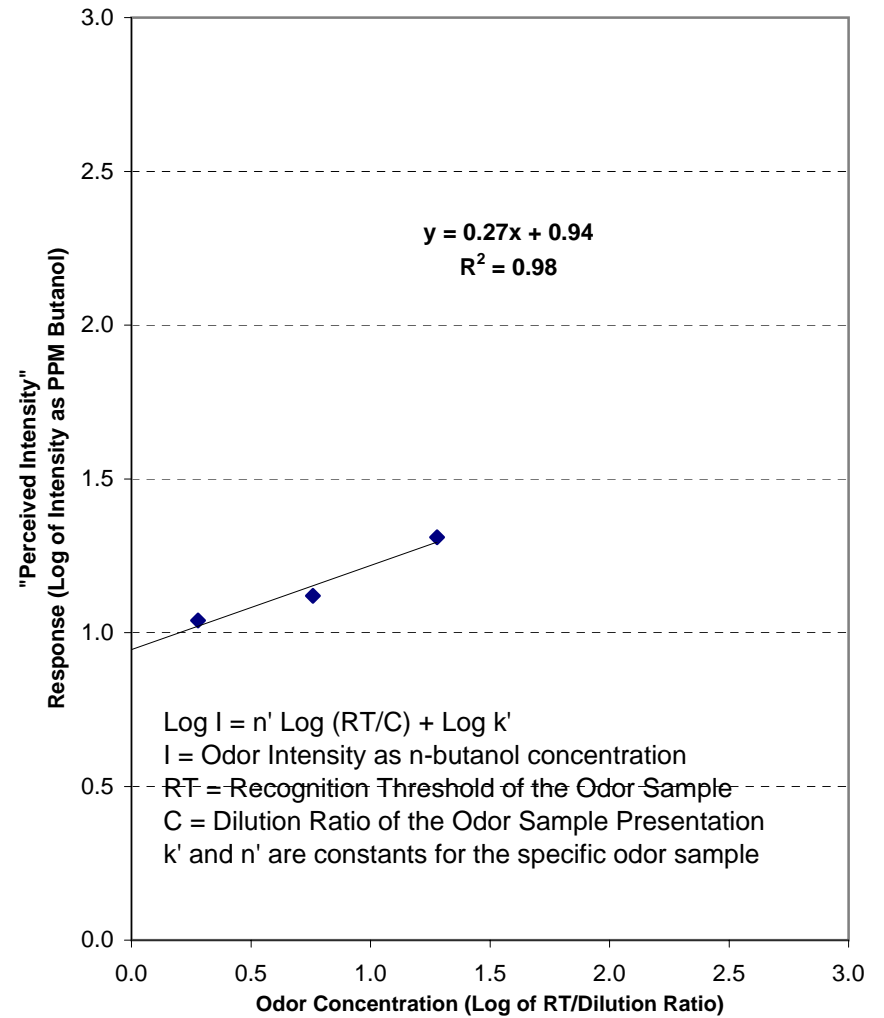
Description: 8L from 100L

Evaluation Date: 06/27/07

### Dose-Response



### Dose-Response as Power Law



Client: Service Engineering Group

Field No.: Q20

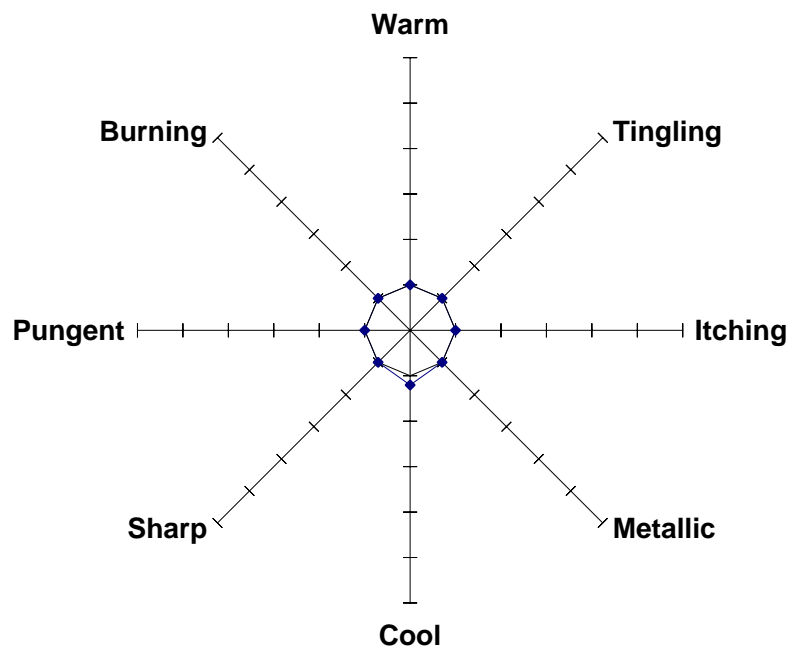
Report No.: 717804

Project: Onondaga

Description: 8L from 100L

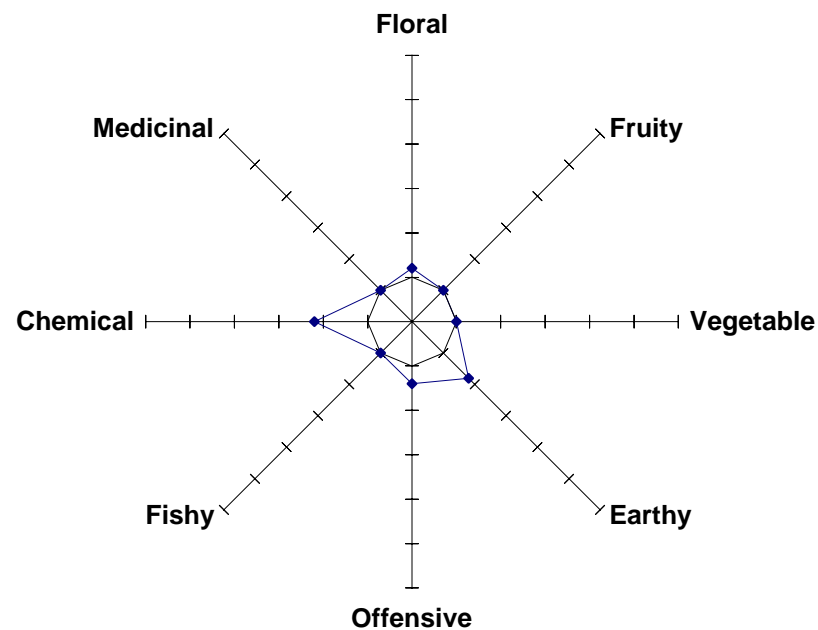
Evaluation Date: 06/27/07

### Sensation Descriptor Graph

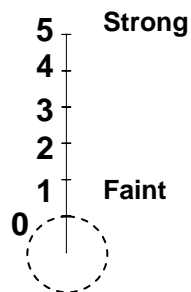


	Average Relative Strength
Warm	0.0
Tingling	0.0
Itching	0.0
Metallic	0.0
Cool	0.2
Sharp	0.0
Pungent	0.0
Burning	0.0

### Odor Descriptor Graph



#### KEY



#### Relative Strength

	Average Relative Strength
Floral	0.2
Fruity	0.0
Vegetable	0.0
Earthy	0.8
Offensive	0.4
Fishy	0.0
Chemical	1.2
Medicinal	0.0

**St. Croix Sensory, Inc.**

**Odor Evaluation Report**

Client: Service Engineering Group

Field No.: Q20

Report No.: **717804**

Project: Onondaga

Description: 8L from 100L

Evaluation Date: 06/27/07

% of Assessors |\*\*\*\*\*|\*\*\*\*\*|\*\*\*\*\*|\*\*\*\*\*| 100%

- Vanilla \*\*\*\*\*
- Chemical \*\*\*\*\*:
- Plastic \*\*\*\*\*
- Creosote \*\*\*\*\*
- Offensive \*\*\*\*\*
- Burnt \*\*\*\*\*
- Earthy \*\*\*\*\*:
- Ashes \*\*\*\*\*
- Swampy \*\*\*\*\*

Client: Service Engineering Group

Field No.: Q20

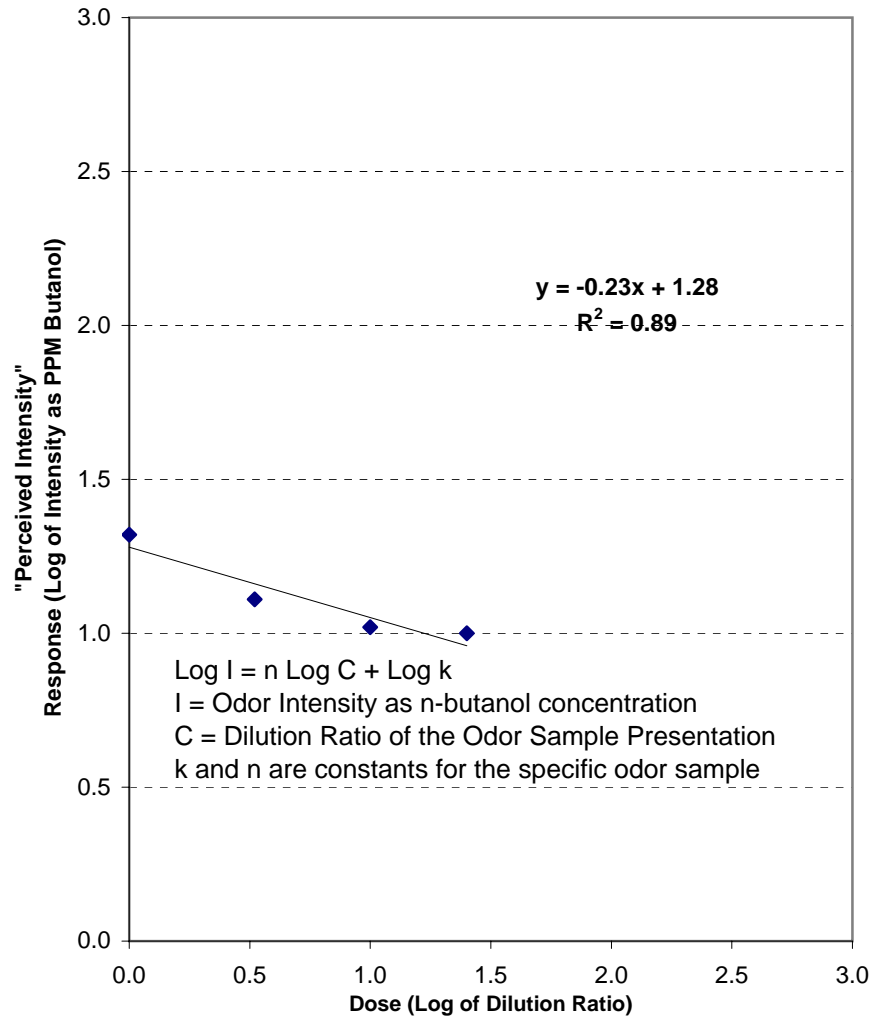
Report No.: 717804

Project: Onondaga

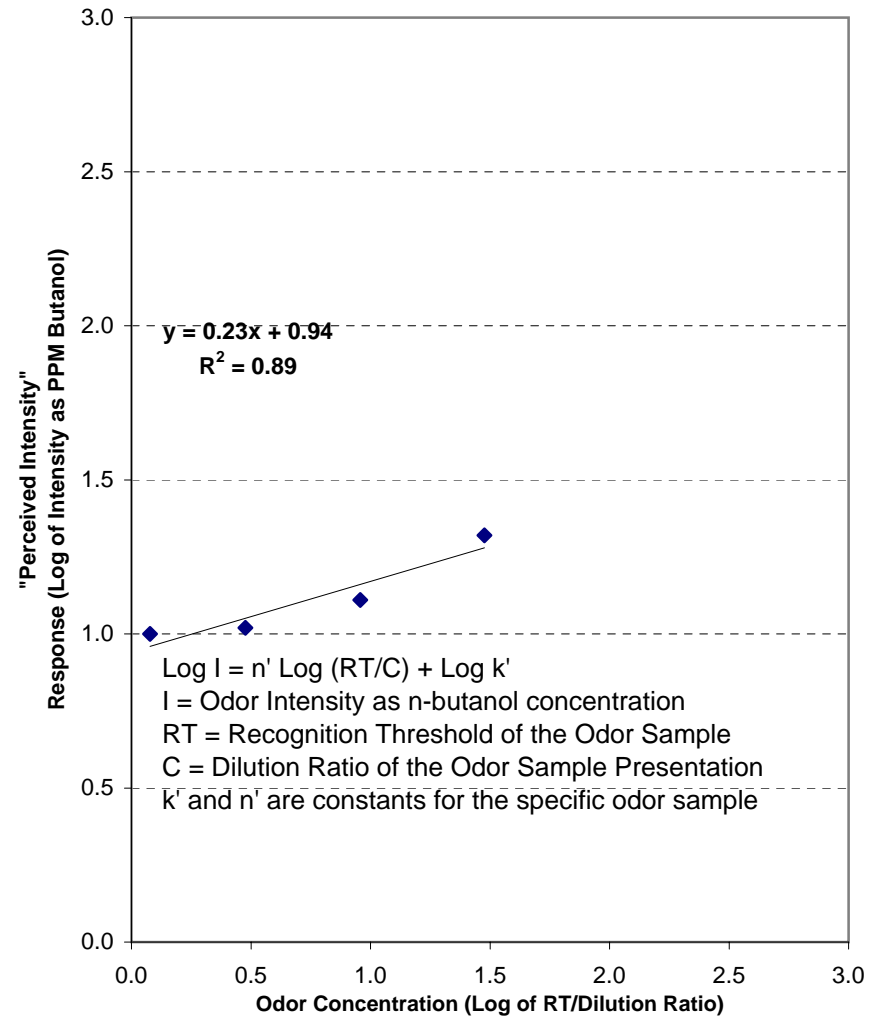
Description: 8L from 100L

Evaluation Date: 06/27/07

**Dose-Response**



**Dose-Response as Power Law**



St. Croix Sensory, Inc.

# CHAIN OF CUSTODY RECORD FOR ODOR SAMPLES



Client: Service Engineering Group      Sampled By: Alice Lay      Page 1 of 1

Project Name: Onondaga      Sampling Date: 6-27-07

Comments:

Line No.	Field No.	Sample Description	Sample Time	Field H <sub>2</sub> S (ppm)	Odor Evaluations Requested: (X)				LN	FN
					Odor Concentration* (Detection & Recognition Threshold)	Odor Intensity* (PPM 1-Butanol)	Odor Characterization (Ihedonic Tone & Descriptors)	Odor Persistence ("Dose-Response")		
1	P10	8 L from 100L	10:05		X		X			
2	P20	8 L from 100L	10:10		X		X			
3	Q10	8 L from 100L	10:25		X		X			
4	Q20	8 L from 100L	10:35		X		X			
5										
6										
7										
8										
9										
10										
11										
12										

Transmittal  
 Number of Shipping Boxes: 2

Relinquished By: Alice Lay  
 Date: 6-27-07 Time: 10:35  
 Received at St. Croix Sensory Laboratory

Accepted By: [Signature]  
 Date: 6/27/07 Time: 10:35

Comments & Exceptions Noted

\*Odor Concentration: ASTM E679-04 and EN13725:2003 and Odor Intensity: ASTM E514-99(2004)  
 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: reports@fivecsenses.com • Web: www.fivescsenses.com  
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