



## Test Report

No. 3548736-CPCH01

Date: August 7, 2014

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**Sutherland Products**  
203 N. First Avenue  
Mayodan, NC 27027  
United States

The following sample(s) was/were submitted and identified by/on behalf of the client as:

One (1) Laundry Detergent Samples:

- Charlie's Soap® Laundry Liquid

Sample Received Date:

**7/28/2014**

Testing Period

**7/28/2014 – 7/29/2014**

Test Requested : ASTM D4265– Standard Guide for Evaluating Stain Removal Performance in Home Laundering

Test Method & Results : Please refer to next page(s)

:

Signed for and on behalf of SGS North America, Inc.

Tested and Prepared By:

Christina Crimi  
Laboratory Manager, Chemistry Laboratory

Jacqueline Tyma  
Laboratory Technician, CPCH Laboratory

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**Sample Pictures:**



Charlie's Soap® Laundry Liquid

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**Executive Summary:**

- The test method was performed in accordance with **ASTM D4265– Standard Guide for Evaluating Stain Removal Performance in Home Laundering.**
- Twenty-two, 5cm x 5cm Pre-Stained Swatches on a Polyester/Cotton monitor were used (see stain descriptions on next page) to evaluate the stain removal performance of the submitted liquid laundry detergents.
- Color measurement(s) of the unstained fabric area were taken prior to cleaning using a spectrophotometer, measuring on the L\*a\*b\* color scale.
- The stained monitors (1 per load / detergent) were washed with ballast fabric (100% cotton) to simulate consumer use – a large or “full wash load.”
- Color measurement(s) of each stained swatch were then evaluated after each cleaning cycle using a spectrophotometer, measuring on the L\*a\*b\* color scale.
- Residual Stain Index (RSI) was then calculated using the following formula:

$$RSI = 100 - \Delta E^*_{(UF-WS)}$$

$$\Delta E^* = \sqrt{\Delta L^{*2} + \Delta a^{*2} + \Delta b^{*2}}$$

*RSI = Residual Stain Index*

*UF = Unwashed (unstained) fabric area*

*WS = Washed Stain area*

*$\Delta E^*_{(WS-UF)}$  = Color difference between the washed stain and the unwashed fabric*

- This process was repeated two (2) additional times for a total of three (3) replicates per product.

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**Manual Cleaning Performance Test:**
**1. Test Conditions:**

<b>Test Swatches<sup>1</sup> – Soil(s):</b>	Polyester/Cotton monitor (see table below)
<b>Ballast Fabric(s):</b>	100% Cotton Standard Ballast Sheets
<b>Fabric Load:</b>	2.7 kg (6 lbs) of fresh ballast per wash cycle (replicate)
<b>Detergent Concentration:</b>	As per the instruction of the client the following detergent amounts were used for testing: <ul style="list-style-type: none"> <li>• 1 oz. of <a href="#">Charlie's Soap® Laundry Liquid</a></li> </ul>
<b>Water Hardness:</b>	120 ppm
<b>Water Temperature:</b>	82 ± 2°F (Warm Cycle) Ambient Rinse
<b>Washer Type:</b>	Front loading HE washer
<b>Washer Settings:</b>	Normal/Casual cycle
<b>Dryer Settings:</b>	Normal Setting (160 ± 10°F or 71.1 ± 6°C) for 45 minutes

<sup>1</sup> All test swatches were stored in the dark prior to use and after removal from dryer until the final evaluation was performed.

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**Stain Description:**

Description
Coffee with milk
Butterfat with colorant
Coffee
Spaghetti sauce
Blood
Beef tallow/pork lard mixture
French's brown gravy
Blueberry
Red wine
Grape juice
Sebum with dust
Mustard
Cosmetic makeup
Tea
Chocolate ice cream
Ground in clay
Ink
Used motor oil
Chocolate syrup (Hershey's)
Grass
Soot/olive oil
Hamburger drippings

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Coffee with  
milk

Butterfat with  
colorant

Coffee

Spaghetti  
sauce

Blood

Beef  
tallow/pork  
lard

French's  
brown gravy

Blueberry

Red wine

Grape juice

Sebum with  
dust

Mustard

Cosmetic  
makeup

Tea

Chocolate ice  
cream

Ground in  
clay

Ink

Used motor  
oil

Chocolate  
syrup

Grass

Soot/olive oil

Hamburger  
drippings



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Charlie's Soap® Laundry Liquid				
Stain Description	Residual Stain Index (RSI)			
	Run 1	Run 2	Run 3	Average
Coffee with milk	85.12	86.23	85.69	85.68
Butterfat with colorant	82.79	82.28	83.60	82.89
Coffee	90.68	91.13	91.16	90.99
Spaghetti sauce	92.55	92.06	92.93	92.51
Blood	70.96	72.15	70.64	71.25
Beef tallow/pork lard mixture	96.25	96.16	95.85	96.09
French's brown gravy	91.21	90.40	91.31	90.97
Blueberry	95.60	96.88	97.01	96.50
Red wine	98.58	98.49	99.12	98.73
Grape juice	95.03	95.94	95.69	95.55
Sebum with dust	92.65	94.26	93.62	93.51
Mustard	72.97	74.03	75.68	74.23
Cosmetic makeup	85.08	84.99	85.59	85.22
Tea	90.99	90.90	90.52	90.80
Chocolate ice cream	88.02	89.26	88.73	88.67
Ground in clay	93.35	94.01	92.95	93.44
Ink	84.14	81.27	83.22	82.88
Used motor oil	82.01	82.68	82.58	82.42
Chocolate syrup (Hershey's)	94.83	94.68	95.45	94.99
Grass	78.49	78.21	79.79	78.83
Soot/olive oil	78.88	79.14	76.44	78.15
Hamburger drippings	98.02	96.85	97.40	97.42
<b>Total Average RSI</b>				<b>88.26</b>

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**Sample Pictures:**



Stained Swatches Before Washing

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Charlie's Soap® Laundry Liquid, Run 1

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Charlie's Soap® Laundry Liquid, Run 2

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