



Test Report

No. 3548736-CPCH02

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 Powder

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 Powder

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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:

Test Swatches¹ – Soil(s):	Polyester/Cotton monitor (see table below)
Ballast Fabric(s):	100% Cotton Standard Ballast Sheets
Fabric Load:	2.7 kg (6 lbs) of fresh ballast per wash cycle (replicate)
Detergent Concentration:	As per the instruction of the client the following detergent amounts were used for testing: <ul style="list-style-type: none"> • 1 tablespoon of Charlie's Soap® Laundry Powder
Water Hardness:	120 ppm
Water Temperature:	82 ± 2°F (Warm Cycle) Ambient Rinse
Washer Type:	Front loading HE washer
Washer Settings:	Normal/Casual cycle
Dryer Settings:	Normal Setting (160 ± 10°F or 71.1 ± 6°C) for 45 minutes

¹ 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 Powder				
Stain Description	Residual Stain Index (RSI)			
	Run 1	Run 2	Run 3	Average
Coffee with milk	85.08	85.03	85.56	85.22
Butterfat with colorant	82.25	82.24	83.40	82.63
Coffee	90.90	89.93	91.35	90.73
Spaghetti sauce	92.95	92.89	93.68	93.17
Blood	72.46	72.54	73.19	72.73
Beef tallow/pork lard mixture	96.36	96.09	95.81	96.09
French's brown gravy	91.98	91.82	91.54	91.78
Blueberry	97.65	97.95	97.13	97.58
Red wine	94.23	95.43	95.45	95.04
Grape juice	95.91	95.90	95.97	95.93
Sebum with dust	95.28	94.70	95.27	95.08
Mustard	83.49	84.83	84.00	84.11
Cosmetic makeup	86.50	85.57	86.29	86.12
Tea	84.41	84.88	84.95	84.75
Chocolate ice cream	93.56	93.11	93.60	93.42
Ground in clay	94.55	94.36	94.55	94.49
Ink	81.93	81.65	85.62	83.07
Used motor oil	83.26	81.91	82.56	82.57
Chocolate syrup (Hershey's)	94.61	94.34	94.21	94.39
Grass	81.45	80.64	81.84	81.31
Soot/olive oil	79.53	78.28	79.70	79.17
Hamburger drippings	97.18	98.50	98.33	98.00
Total Average RSI				88.97

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Sample Pictures:



Stained Swatches Before Washing

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Charlie's Soap® Laundry Powder, Run 3

SGS authenticates the photo(s) on the original report only

**** End of Report ****

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