

SageWay Solutions, LLC
Project 20088
Laundry Detergent
Normal Cycle-90°F-150ppm
Full Scale Top Load Washer
Soil Removal

Living Clean (HDL2)
Grove Collaborative
Tide Original
Seventh Generation

April 22, 2020

Gregory van Buskirk
SageWay Solutions, LLC
65 Panorama Ct
Danville, CA 94506

Dear Gregory:

We received a sample of **Laundry Detergent** identified as **Living Clean (HDL2)** for soil removal evaluations at 90°F in water of 150 ppm. We tested it against **Grove Ultra Concentrated**, **Tide Original**, and **Seventh Generation Alpine** using the Normal Cycle in a GE, Top-Load Washer. A summary of the results is below.

Tide Original performed best in Overall Soil Removal.

Samples	Overall Soil Removal Totals	% of Best
Tide-Original	549.9	Best
Grove-Free & Clear	487.1	89%
Living Clean (HDL2)	454.9	83%
Seventh Gen.-Alpine	434.3	79%

Descriptions of the test method, sample information, and summarized data from the testing are attached.

Sincerely,



Tod Losey
Sterling Laboratories

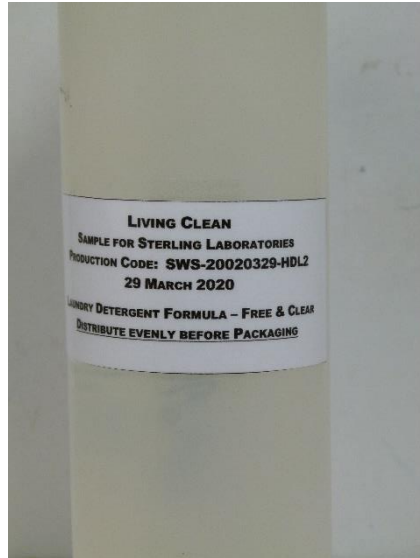
Sample Information

Laundry Detergents

1. **Living Clean**, Laundry Detergent Formula - Free & Clear,
Production Code: SWS-20020329-HDL2, 29 March 2020,
Sample For Sterling Laboratories,
Received 4-6-20 from SageWay Solutions
2. **Grove Collaborative**, Ultra Concentrated Laundry Detergent, Free & Clear,
More Than 96% Biobased, Powerful Stain-Fighting Formula (HE)
No Synthetic Fragrances, Dyes Or Optical Brighteners,
33 Loads / 24 oz. (710 mL) Refill Pouch,
Lot #: 19324D, UPC #: 8 1997802084 8
Received 2-7-20 from Grove Collaborative
3. **Tide**, Detergent, Original, HE Turbo Clean,
32 Loads / 50 fl. oz. (1.47L) Bottle,
Lot #: 003817020001, UPC #: 0 3700008875 2
Purchased 2-18-20 from Meijer, Toledo, OH
4. **Seventh Generation**, Laundry Detergent, Alpine Falls Scent,
Powered By Plants, 0% Synthetic Fragrances, Dyes, Artificial Brighteners,
(HE) For Standard And HE Machines,
USDA Certified Biobased Product / Product 97%
66 Loads / 100 fl. oz. (2.95L) Bottle,
Lot #: GC19175021 22871, UPC#: 7 3291344710 7,
Purchased 1-30-20 from Meijer, Toledo, OH

Photographs of Samples Tested

Laundry Detergents



Living Clean
Laundry Detergent Formula



Grove Collaborative
Ultra Concentrated



Tide Original
Laundry Detergent



Seventh Generation
Laundry Detergent



Sample Soil Removal

Laundry Detergent - GE Top-Load Washer
Normal Cycle - 90°F / 150ppm water

Stains on Cotton	Tide Original	Grove Free & Clear	Living Clean (HDL2)	Seventh Gen. Alpine	Sig. Dif.
	46 mL	22 mL	45 mL	45 mL	
Clay	59.7	51.3	45.4	49.3	9.2
Coffee	70.4	61.6	55.7	53.8	6.0
Dust Sebum	67.0	67.2	61.3	61.0	6.3
EMPA 112	31.9	13.0	11.1	3.0	6.6
EMPA 116	27.4	25.8	14.6	14.9	2.1
Grape Juice	82.1	67.4	72.7	64.0	8.5
Grass	50.7	48.8	37.9	41.7	9.4
Make Up	80.3	72.9	78.8	68.1	8.3
Spaghetti Sauce	80.4	79.1	77.4	78.5	7.0
Overall Soil Removal Totals	549.9	487.1	454.9	434.3	
% of Best	Best	89%	83%	79%	

See page 6 for Soil Legend

TEST METHOD

Laundry Detergent – GE Top-Load Washer Normal Cycle - 90°F / 150ppm Water

Preparation

Scientific Services supplied the clay, makeup, grass, and dust sebum cotton swatches. Test Fabrics supplied the EMPA swatches. Coffee, spaghetti and grape juice were prepared in-house. The reflectance of each soiled swatch was measured with a Photovolt 577A Reflectometer / Green filter.

Detergency

Three (3) swatches of a designated soil groups were placed in the washer. The water in each test load was adjusted to match the requested hardness levels of 150 ppm using concentrates of Magnesium and Calcium Chloride (At a 1 Mg: 2 Ca - ratio). We tested each product in a G.E. (#GTW330ASK0WW) Top-Loading Washer, using the medium wash load (15 gallons). Sample amounts are listed in the table below. The samples were run at 90°F. The Normal cycle (12 minute wash) was used for all of the testing. The swatches were pressed dry using the permanent press setting after the cycle was complete. The reflectance of each swatch was measured as before.

Wash #	Sample	Amount	Wash Temp
1	Living Clean (HDL2)	45 mL	90.6°F
2	Grove	22 mL	91.7°F
3	Tide	46 mL	90.1°F
4	Seventh Generation	45 mL	89.8°F

Calculations

The percent soil removal was computed from the reflectance values of each swatch before and after soiling and after cleaning, and averaged for each set of replicates. The higher the average, the better the soil removal. For each soil/fabric combination, we calculated the difference between the averages that is statistically significant at the 95% confidence level. The averages were totaled for each product. If two totals differ by less than 10%, they are considered comparable in performance on an overall basis.

Soil Swatch Legend

Clay
Coffee
Dust Sebum
EMPA 112 (Cocoa)
EMPA 116 (Blood/Milk/Ink)
Cran-Grape Juice
Grass
Make Up
Spaghetti Sauce