

**An Investigation of Green Laundry  
Products for UBC Residence**

**Cam Szarapka, Jerry Huang, Piyanut Gongsriwatanapon**

**University of British Columbia**

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An Investigation of Green Laundry  
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SEEDS Sustainability Project



Authors: Cam Szarapka, Jerry Huang,

Piyanut Gongsriwatanapon

Faculty: Applied Science

Course: APSC 261

Dr. Xiaotao Bi

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## ***Abstract***

The problem of sustainability on UBC's Vancouver campus will be tackled through student's laundry habits. The report investigates the value of 3 laundry detergents as green alternatives to a laundry detergent popularly used by UBC residence students. Of the 3 green alternatives, the best will be proposed to the SHHS to be used in stocking vending machines and mini marts on campus and residence.

The most popular laundry detergent used by UBC residence students is Tide. Tide Coldwater was chosen for a benchmark because of this. The 3 green alternatives chosen to compare against are those products made by Method, Seventh Generation and Nature Clean. Following the choices a triple bottom line analysis comparison was made of all the detergents.

Tide Coldwater had the best cleaning capabilities and best availability, but fails when it comes to toxicity or any sustainable features. Method's products are new and have not reached a point where they could be made readily available for mass consumption, nor were there cleaning abilities up to par with Tide, but they do wonders for increasing awareness of sustainability. Nature Clean and Seventh Generation have similar cleaning capabilities and ingredients, Seventh Generation's being somewhat less toxic and also having a better availability. In terms of price, all green products were relatively similar while Tide was far more expensive. Our recommendation for the SHHS of a green alternative to UBC residence students preferred laundry detergent would be products made by Seventh Generation

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## ***1.0 Introduction***

Dirty laundry is unavoidable, and Mom won't always be there to do it for us. When it comes down to buying laundry detergent, most people don't think twice; they go with what they recognize, it's just soap for clothes, right? The truth is the billion dollar detergent industry isn't nearly as clean as they promise your clothes to be. Apart from having a long list of unpronounceable chemicals, most of these detergents are intended for hot water washes. These aren't the only problems with modern detergents, but fortunately they are two that are easily fixed. And here is the solution: green laundry detergent – detergents intended for cold water, made with natural ingredients, and just less wasteful in general.

The purpose of this report is to provide the UBC Student Housing and Hospitality Services with an assessment of laundry detergent products in order to learn what products are environmentally friendly and align with UBC's commitment to the Water Action Plan and Sustainability Plan.

Using a triple bottom line comparison of a laundry detergent that is popular amongst residence student with green alternatives we will make our recommendation. After conducting a survey of UBC students and their laundry habits we found our benchmark: Tide Coldwater. With some investigation of our own we chose our green alternatives: Nature Clean, Method and Seventh Generation. The environmental, social and economic impact of these products will be discussed and compared in what follows, based on our own interpretation of the facts on each detergent. Each field will be given a score based out of 5, in regards to the benchmark.

Upon arriving at the desired result for this report we also made some interesting discoveries in the laundry detergent world. After our recommendation, we will briefly explore these discoveries, to show that it's not simply the detergent that will make our laundry habits sustainable.

## ***2.0 Triple Bottom Line Analysis***

Our Triple Bottom Line analysis will focus on very specific aspects of the environmental, social and economic impacts of each laundry detergent. For the environmental impact of each detergent, we examine the toxicity of the chemicals that are used in each detergent, whether they are certified by a third party, how they comply with UBC's Sustainability plans and how they perform in cold water. The social impact focuses on how effective each detergents is, if the product is locally produced, its company's labour standards, how available it is, and it's potential to raise awareness of sustainability. For economic impact we consider the total cost of each detergent. In each aspect, we will compare all four detergents against each other.

## 2.1 Environmental Impact

### 2.1.1 Toxicity

#### **Tide Coldwater - 1/5**

alcoholethoxy sulfate, MEA citrate, alcohol sulfate, alcohol ethoxylate, linear alkylbenzene sulfonate MEA, sodium fatty acids, polyethyleneimine ethoxylate, diethylene glycol, propylene glycol, diquaternium ethoxysulfate, borax, polyethyleneimine ethoxylate propoxylate, ethanol, sodium cumene sulfonate, fragrance, DTPA, disodium diaminostilbene disulfonate, protease, mannanase, cellulase, amylase, sodium formate, calcium formate, lauramine oxide, liquitent blue, dimethicone.

Most of these chemicals have been reported to cause skin irritation and/or asthma or respiratory problems. Being our benchmark, we rated this as a **1/5**

#### **Seventh Generation - 4/5**

sodium lauryl sulfate, laureth-6, sodium citrate, glycerin, oleic acid, sodium hydroxide, boric acid, calcium chloride, protease, mannanase, amylase.

There are a few ingredients with environmental or human health problems. Boric acid is restricted in cosmetics and are subject to concentration standards. Sodium lauryl sulfate and Laureth-6 have 1,4 dioxane contamination, a carcinogen by-product. For a full list of potential effects and level of concern see Appendix D. The product overall is rated a low to moderate hazard concern, so we have given it a **4/5**

#### **Method - 5/5**

Alcohol Ethoxylates, Alkane Sulfonate, 1-3 Propanediol, Vegetable Glycerin, Calcium Chloride, Dipropylene Glycol Monomethyl, Glycerine Carbonate, Protease, Amylase, Cellulase, Carboxylate Polyester, Phenoxyethanol, Sodium Distyrylbiphenol Disulfonate

Some of the ingredients may cause skin irritation but it is unlikely. Because of this we gave method **5/5**. For a full list of potential effects and level of concern see Appendix B.

#### **Nature Clean - 5/5**

Decyl Glucoside, Sodium Citrate, Cellulose Gum, Magnesium Nitrate, Magnesium Chloride, Sodium Chloride, Methylisothiazolinone, Methylchloroisothiazolinone

Some of the ingredients may cause skin allergy & irritation, but it is unlikely. Because of this we have given natur clean **5/5**. For full list of potential effects and level of concern see Appendix C

### **2.1.2 Third Party Certification**

#### **Tide Coldwater - 0/5**

Tide Coldwater is not certified by any third party. We made this a **0/5**

#### **Seventh Generation - 4/5**

Seventh Generation products are certified by Eco-Scale. One certification resulted in a **4/5**

#### **Method - 5/5**

Method's products are certified by Eco-Scale and Design for the Environment US EPA. Two certifications resulted in a **5/5**

#### **Nature Clean 5/5**

Nature Clean's products are certified by EcoLogo and Eco-Scale, once again resulting in a **5/5**

### **2.1.3 Compliance with UBC's Sustainability Plans**

All of these detergents are designed to work in cold water. UBC's Water Action Plan is committed to better management water on campus. By design, all of these detergents comply with the UBC Water Action Plan. In particular, Nature Clean's low foaming formula absolves the need for excessive water during rinsing. For the Sustainability Plan, tide coldwater doesn't have any other sustainable benefits other than its cold water use, contrary to its opponents. Particularly, Seventh Generation's packaging material is biodegradable and largely recycled, with 96% recycled content in their bottle (Cernansky, 2011).

### **2.1.4 Performance in Cold Water**

#### **Tide Coldwater - 5/5**

As multiple reviews have stated and by our own personal accord, this detergent



does an excellent job of cleaning clothes in cold water. We gave it a **5/5**

**Seventh Generation - 4/5**

**Method - 4/5**

**Nature Clean - 4/5**

Each of the green alternatives would remove stains, but not quite as well as tide.

## Environment Impact - Overall Results

	Tide	Method	Nature Clean	Seventh Generation
Overall Results	2/5	5/5	4.5/5	4.5/5

Table1: Overall environmental aspect result

## 2.2 Social Aspect

The effectiveness of each detergent will be based off of multiple customer reviews from varying websites. Each product's availability will be determined by its stock in major stores close to home such as Save On Foods, Shoppers Drug Mart, Walmart and Safeway.

### 2.2.1 Customer Performance

These scores were generated by reading multiple reviews from various websites.

**Tide Coldwater - 5/5**

**Method - 3.5/5**

**Nature Clean - 4.3 / 5**

**Seventh Generation - 4.3 /5**

### 2.2.2 Availability

**Tide Coldwater - 5/5**

Tide is possibly the most common detergent, as shown by our survey and by its prevalence in shopping marts.

**Method - 2 / 5**

Method is new but is effective, and has made its way into local stores, even if only

on a small scale

**Nature Clean - 4 / 5**

Although the availability of the product is pretty high, it is still lacking in comparison to Tide and Seventh Generation. Therefore we gave it a 4/5

**Seventh Generation - 5/5**

We found this product at almost every store we looked at, definitely a 5/5

**2.2.3 Local Sourcing**

Local Sourcing score is based on the manufacturing location of the product. If the product is manufactured anywhere outside of Canada, the product receives a score of 0. Score of a product manufactured in Canada will be based on the distance from Vancouver.

**Tide Coldwater - 0/5**

The manufacturing plant is in China means an increase in carbon footprint for shipping. Since the product is not produced in Canada, the product scores a 0 for local sourcing.

**Method - 0 / 5**

The manufacturing plant is in Chicago, Illinois, meaning an increase in carbon footprint (Method Inc., 2013). Since the product is not produced in Canada, the product scores a 0 for local sourcing.

**Nature Clean - 2/5**

The manufacturing plant is in Ontario, meaning that the manufacturing plant of Nature Clean is closest to UBC's compared to the other three laundry detergent products(Nature Clean Inc., 2013). Therefore, Nature Clean produce the least carbon footprint during transportation relative to the other three products. However, since it is not produced locally in Vancouver, it is only reasonable to give Nature Clean 2 stars out of 5 in local sourcing.

**Seventh Generation - 0 /5**

The manufacturing plant is in Burlington, Vermont in the U.S, meaning an increase in carbon footprint for shipping. Since the product is not produced in Canada, the product scores a 0 for local sourcing.

**2.2.4 Sustainability Advertising**

Sustainability advertising score will be based on the ability of the product to raise awareness in sustainability. The focus of sustainability, as well as the popularity of the product will be taken into consideration to determine the score.

**Tide Coldwater - 0 / 5**

The focus of Tide is only based on the performance of the product, and none at all towards sustainability. Tide automatically receives a 0 in this department.

**Method - 4 / 5**

Although Method is strongly sustainability-based, it simply isn't popular enough to raise enough awareness in sustainability. In this case, the product scores a 4 in sustainability advertising.

**Nature Clean - 3 / 5**

Although Nature Clean does attempt to raise awareness in sustainability, it is not as strongly focused in sustainability as Method nor as popular as Seventh Generation to reach the goal. Nature Clean scores 3 stars in sustainability advertising.

**Seventh Generation - 5/5**

The company scored a 2.8/3 for workers safety based off 12 audits (Seventh Generation Inc., 2008, p. 30). Seventh Generation as a whole have been the best at raising awareness for sustainability. winning the Ceres-ACCA North American Awards for Sustainability Reporting in 2006 (Griener, 2009). This award wins Seventh Generation 5 stars in sustainability advertising.

**Social Impact - Overall Results**

	Tide	Method	Nature Clean	Seventh Generation
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Overall Results	2.5/5	2.375/5	3.325/5	3.575/5
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Table2: Overall social aspect result

## 2.3 Economic Impact

The prices used below were acquired from Save On Foods on UBC's campus.

### 2.3.1 Cost Per Load

In order to compare the total cost of each detergent we considered a price per load for approximately the same sized container for each detergent.

	Tide	Method	Nature Clean	Seventh Generation
Price Per Load	\$0.61	\$0.26	\$0.32	\$0.33

Table 3: Overall economic aspect result

Clearly, Tide has the worst cost per load, Method has the best, while Nature Clean and Seventh Generation are basically a tie. We don't need to assign a value for any of these results, it is clear.

## 3.0 Results and Our Recommendation

	Tide	Method	Nature Clean	Seventh Generation
Final Results	2.1/5	4.2/5	4.2/5	4.3/5

Table 4: Overall result

When it comes down, each green alternative is fairly equal overall. Each has its benefits and pitfalls. There are however a few results that do matter more than others. Of all these detergents Seventh Generation is the best suited to be mass purchased for stocking of vending machines as it surfaces in more stores than Method or Nature Clean products do. Any of these products would be more than suitable for as a green alternative to UBC students' standard detergent and they will comply with UBC's Water Action Plan and Sustainability Plan.

## **Our Suggestion**

### **Seventh Generation**

## ***4.0 Is There More to It?***

Our group started off with a survey, with a focus on the study of UBC students' general trends and habits involving detergents and their awareness of sustainability. Overall, 30 UBC students conducted the survey through Facebook. Almost half (14/30) indicated that the environmental impacts of their decision was not a consideration into their purchase. Nearly 90% (26/30) indicated that they do not have any background knowledge

on the ingredients whatsoever and only categorizes the products according to the company names. Brand loyalty also plays a huge part in their purchase according to the survey, as Tide remains the most popular choice of all despite being the most expensive of the bunch per load.

We made an additional survey after this one to learn about student's laundry habits. Most of them either use too much detergent and have little concern for if their product is sustainable or not. Something interesting we found out about Method in our investigation was that they manufacture their container as a push-down-bottle to address the "overdose" issue that comes with the large lids of common detergents. They also offer smaller packaging by concentrating the dose and even manufacture refills all to lower the plastic consumption and carbon footprint.

The problem of sustainability when it comes to laundry detergents is not only addressed by the use of cold water, but as Method has shown, by the packaging and other methods of delivery that said detergent comes in. Imagine if every person doing laundry wasted a little amount of detergent each time. In a billion dollar industry such as this, that amounts to a large amount of plastic waste, carbon waste, and overall waste in general.

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## **Appendix A**

### **Alcohol Ethoxylates**

-moderate to high hazard

-some concerns in respiratory, skin allergies, cancer production, and developmental toxicity

### **Alkane Sulfonate**



-moderate hazard

-some concern to skin allergy and environment

**1-3 Propanediol**

-low hazard

-some concern to skin allergy, potentially toxic

**Vegetable Glycerin**

- no hazard

**Calcium Chloride**

-no hazard

**Dipropylene Glycol Monomethyl**

-no hazard

**Glycerine Carbonate**

-low hazard

**Protease**

- no hazard

**Amylase**

-low hazard

-no environmental concerns

**Cellulase**

-low hazard

-some concern to allergy, low concern to environment

**Carboxylate Polyester**

- no hazard

**Phenoxyethanol**

-low to moderate hazard

-no environmental concerns

**Sodium Distyrylbiphenol Disulfonate**

-no hazard

**Decyl Glucoside**

- low hazard
- Skin Allergies & Irritation

**Sodium Citrate**

- no hazard

**Cellulose Gum**

- low hazard
- Skin Allergies & Irritation

**Magnesium Nitrate**

- low hazard
- Skin Allergies & Irritation

**Magnesium Chloride**

- no hazard

**Sodium Chloride**

- no hazard

**Methylisothiazolinone**

- moderate hazard
- Skin Allergies & Irritation

**Methylchloroisothiazolinone**

- high hazard
- Skin Allergies & Irritation

**Sodium lauryl sulfate**

- manufacture process: 1,4 dioxane, a carcinogen by-product contamination
- moderate hazard

**Laureth-6**

- manufacture process contamination: 1,4 dioxane, ethylene oxide
- low to moderate hazard

**Sodium Citrate**

- not much environmental/contamination concerns
- no hazard

**Glycerin**

- no environmental/contamination concerns
- no hazard

**Oleic Acid**

- suspected to be an environmental toxin
- low hazard

**Sodium Hydroxide**

- expected to be toxic to body
- medium human health priority
- low to moderate hazard

**Boric Acid**

- unsafe in cosmetics, subject to concentration standards
- human endocrine disruptor
- limited evidence of environmental disruption
- moderate to high hazard

**Calcium Chloride**

- no concerns
- no hazard

**Protease**

- no hazard

**Amylase**

- low hazard
- limited evidence to human harm

**Mannanase**

- some concerns to respiratory health
- no environmental concerns
- low hazard