Carbon Footprint Study

July 2, 2015

SmartKlean Laundry Ball Vs Laundry Detergent

Photo: James Willamor via Flickr

Introduction

What is an Embodied Carbon Footprint?

All products have an embodied carbon footprint. It results from the emissions of fossil fuels burned through a product's life cycle

The Carbon Cycle

Natural Cycle: Carbon is exchanged among the oceans, atmosphere, and ecosystem. This cycle has been a closed, balanced system for hundreds of thousands of years.

Greenhouse Effect:

The Carbon Cycle is present in the atmosphere as carbon dioxide and methane. These two primary greenhouse gases uniquely allow light to pass while capturing infrared energy; directly impacting Earth's atmospheric energy and temperatures.

Man-Made Greenhouse Contributions:

Burning fossil fuels release hydrocarbons which have been outside the natural carbon cycle for millions of years. These emissions have increased atmospheric CO2 by 40%, changing the chemistry and raising the total atmospheric energy and contributing to climate change. Though unintended, our individual actions, business operations, and the supply chain our products rely on are contributing to these impacts.

The Role of Carbon Offsetting:

Though we are not in control of all of our greenhouse gas emissions, we recognize our Responsibility for them. Offsetting your emissions and being carbon neutral is about restoring what our actions disturbed. It means cleaning up after ourselves and working to leave our ecosystem as we found it for future generations. It is a statement of responsibility and about what sort of world we wish to create.

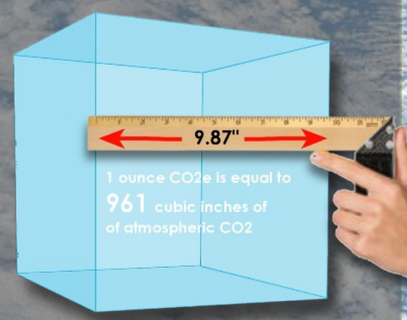
This Carbon Footprint Study

This study has been compiled to assess the comparative embodied and use-phase carbon Footprint of traditional laundry detergents against the SmartKlean laundry ball. This good-faith study draws from international academic and industry studies as well as Material, manufacture, and operational data provided by SmartKlean.

Report Terminology

CO2e: Carbon Dioxide Equivalent is a standard for expressing the impact of greenhouse gas emissions in terms of the amount of CO2 that would have the same impact.

Every 1 ounce CO2e is equal to over 960 cubic inches of Atmospheric greenhouse gas.



SmartKlean Comparison

July 2, 2015

BLUEdot register

The Carbon Footprint Of Laundry Detergent Use

An average load of laundry typically requires 1.5 ounces of liquid laundry detergent. Laundry detergents, like all manufactured goods, have an embodied carbon footprint from the energy expenditures for the creation of the raw ingredients, formula manufacture, packaging, storage, and transportation of the product to the end user.

A typical load of laundry uses 20 gallons of water each for the wash and rinse cycles, and requires 1.9 kwh of electricity To heat the water to cycle temperature and to operate the washer through the fill, agitate, drain, rinse, re-drain, and spin cycles. The typical American family requires 300 to 390 loads of laundry annually. For annual quantities, this study assumes 365 loads.

The breakdown shown represents the carbon footprint of a single, average load of laundry. Calculations exclude dryer phase impacts.

Laundry Detergent Embodied Footprint

5.78 oz CO2e per wash

sources: A Database for the Life Cycle Assessments of Proctor & Gamble Laundry Detergents
Tesco product carbon footprint summary

Fabric Softener/Dryer Sheets

1.6 oz CO2e per wash

sources: Tesco product carbon footprint summary

Water Use

7.85 oz CO2e per wash

Sources: River Network, US Environmental Protection Agency

Utilities

38.2 oz CO2e per Wash

Sources: Michaelbluejay.com, US Environmental Protection Agency

Total Carbon Footprint for Laundry Detergent Use

53.43 oz CO2e per Wash

1,218 pounds CO2e Annually

SmartKlean Comparison

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The Carbon Footprint Of SmartKlean Use

A SmartKlean laundry ball is capable of providing up to 365 loads of wash. SmartKlean, like all manufactured goods, has an embodied carbon footprint from the energy expenditures for the creation of the raw ingredients, product manufacture, packaging, storage, and transportation of the product to the end user.

A typical load of laundry using SmartKlean can eliminate the "wash" cycle and use just the cold, rinse cycle. Consequently, each SmartKlean wash uses just 20 gallons of water, and requires just 0.3 kwh of electricity to operate the washer through the fill, rinse, drain, and spin cycles. The typical American family requires 300 to 390 loads of laundry annually. For annual quantities, this study assumes 365 loads.

The breakdown shown represents the carbon footprint of a single, average load of laundry. Calculations exclude dryer phase impacts.

SmartKlean Embodied Footprint

1.07 oz CO2e per wash **(82% savings)**

sources: SmartKlean data, International Materials Science Society, Department of Energy Mining Industry Overview, Arizona State University, Utrecht University, Assessment of Carbon Footprint in Different Industrial Sectors, Volume 1

Fabric Softener/Dryer Sheets (not required)

0.0 oz CO2e per wash

Water Use

3.92 oz CO2e per wash

Sources: River Network, US Environmental Protection Agency

Utilities

6.0 oz CO2e per Wash

Sources: Michaelbluejay.com, US Environmental Protection Agency

Total Carbon Footprint for SmartKlean Laundry Ball Use

10.99 oz CO2e per Wash **(80% savings)**

251 pounds CO2e Annually

SmartKlean Comparison

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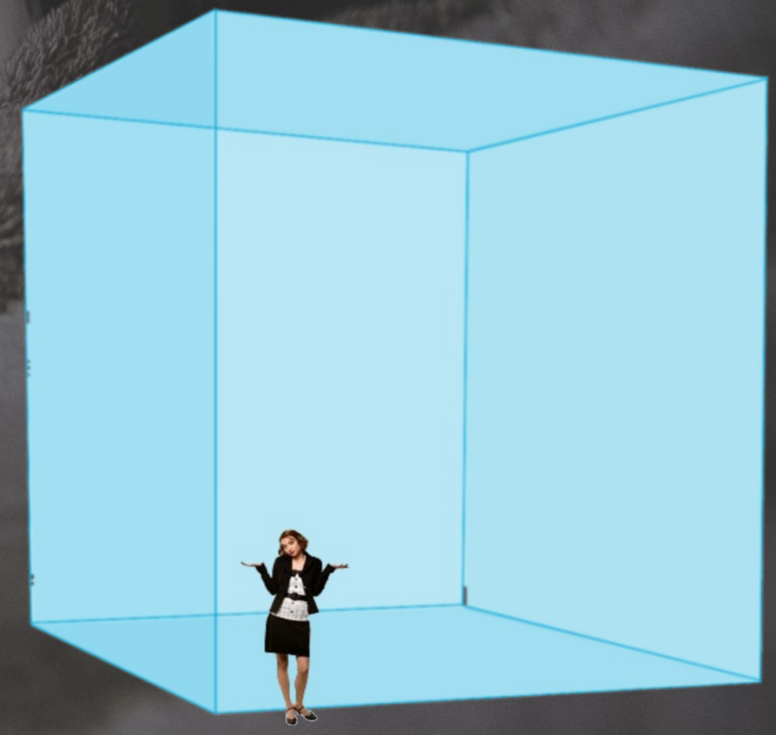
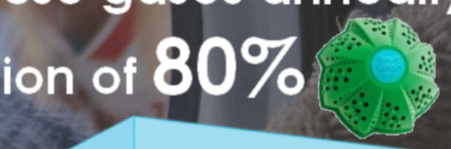
Visualizing the Carbon Footprint Savings of SmartKlean Use

Typical detergent use produces **10,846** cubic feet of atmospheric greenhouse gases annually



SmartKlean Laundry Ball produces only **2,231** cubic feet of atmospheric greenhouse gases annually

a reduction of **80%**



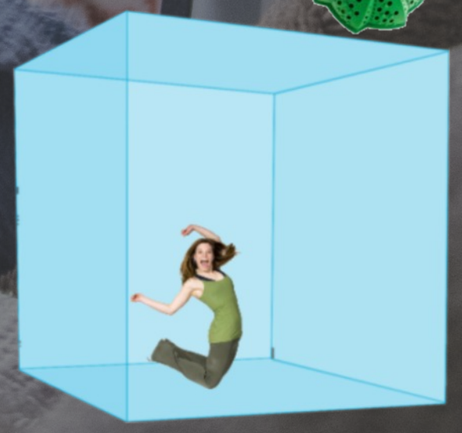


Photo: m01229 via Flickr

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Analysis provided by:

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