

# Executive Summary



## Testing, Efficacy and Performance

The use of ozone in laundry is not new. Thousands of installations have been conducted over the last two decades proving significant benefits to commercial institutions by using this natural oxidizer to clean and sanitize fabrics. The challenge undertaken by GreenTech was how to create a cost-effective product for home use. pureWash Pro is the culmination of over 11 years of research into the use of ozone in a residential laundry application and experience with over 50,000 pureWash 1 units in homes around the world.

Positive experiences and feedback from thousands of customers has provided evidence of the many benefits of the pureWash laundry system. To validate the anecdotal evidence, GreenTech commissioned two independent and respected labs to test the pureWash Pro:

- Sterling Laboratories, Toledo, OH - using ASTM, CSPA, and AATCC test methods
- EMSL Analytical, Inc., San Leandro, CA - FDA Registered | DEA Licensed | Accredited to ISO 17025

The following is a summary of these tests:

### Cleaning Effectiveness

The reasons most consumers wash clothes fall into two categories:

- Overall freshening, odor removal and soiling from skin and body oil
- Stain removal

**pureWash is proven to be very effective in freshening, odor removal and cleaning everyday soiling. It is not a replacement for stain treatment which requires pretreatment and/or detergent. A small amount of detergent improves the effectiveness of pureWash. pureWash is highly effective as an antimicrobial for bacteria reduction.**

Testing by Sterling Labs showed pureWash ability to improve the performance of standard detergents and pretreatment products against stains and doing so with a reduced amount of detergent.

Soils on Cotton	Purex+ pureWash 2+ Shout	Tide+ pureWash 2	Tide+ Tap Water	Purex+ pureWash 2	Purex+ Tap Water	pureWash 2 Water	Tap Water	Sig. Dif.
Clay	57	57	51	49	44	35	33	8.3
Dust Sebum	63	28	26	21	20	14	11	5.2
<b>Overall Soil Removal Total</b>	<b>120</b>	<b>85</b>	<b>77</b>	<b>70</b>	<b>64</b>	<b>49</b>	<b>44</b>	
% of Best	Best	71%	64%	58%	53%	41%	37%	

### Odor Removal

Odors in clothing is generally related to biological contaminants, specifically mold and bacteria. To show the effectiveness of pureWash on specifically removing odors testing was conducted by Sterling Labs, where they prepared soiled items obtained from Scientific Services washed and presented before a 10-member panel resulted in pureWash Pro with a decidedly higher score indicating a “fresher smell”

<u>pureWash Pro</u>	<u>Tap Water</u>
102	78

## **Softness**

An important outcome of the laundry process for the typical consumer is the softness of the clothing. PureWash aids in the removal of detergent during the rinse cycle, thereby making the clothing softer. Here are the results (Higher score shows improved softness):

<u>pureWash Pro</u>	<u>Tap Water</u>
58	52

## **Fluffiness**

A common message coming from pureWash users is how much fluffier their fabrics are, especially towels. To show the effectiveness of pureWash on increasing the stack height of towels testing was conducted by Sterling Labs. Results validated user feedback, showing pureWash provided fluffier towels over washing in detergent or detergent with softener. After 15 wash and dry cycles the stack height of seven towels was as follows:

<u>pureWash Pro</u>	<u>Detergent</u>	<u>Detergent and Softener</u>
18.5 inches	15.3 inches	12.5 inches

## **Bacteria Reduction**

Both the industry and consumers are becoming more aware of the problem with bacteria in laundry and the adverse effect of these bacteria on humans. Traditional detergents are not anti-microbial and in fact detergent can provide a breeding ground for mold and bacteria in washing machines. The effectiveness of ozone as an anti-microbial is well documented and the levels of ozone created by pureWash and dissolved in the wash water provides a significant reduction in virtually all biological contaminates.

In addition to the negative health effects of mold and bacteria in laundry, the human bacteria in the form of perspiration/body odor transferred to clothes makes up the majority of odors in soiled clothing. Our clinical studies show up to a 3.6-Log or 99.96% reduction in most common bacteria. Here are the bacteria reduction results for pureWash Pro:

<u>Bacteria</u>	<u>% of Reduction</u>
Pseudomonas aeruginosa	99.63%
Staphylococcus aureus	99.56%
Legionella Anisa	86.18%

## **Kills Mold and Mildew in Front Load Washers**

In addition to reducing bacteria, pureWash provides an additional major benefit. A problem in high-efficiency front-load washers is mold and mildew growth. This issue came to a head when Maytag settled a consumer class action suit in 2004 alleging odor, mold and mildew problems with Maytag Neptune Washers. This is due to the lack of ventilation and many manufacturers recommend the user keep the door open to allow airflow giving the inside of the washer a chance to dry out.

pureWash solves this problem by effectively killing the mold and mildew in the washer tub, keeping the washer pathogen free and smelling fresh.