The Benefits of Coldwater Washing

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Presented by
P&G Professional™
Table of Contents

- Science of Coldwater Washing
- Cost-Saving Benefits
- Environmental Impacts
- LEED Certification
- Resources
Objectives

• Gain insights into the significant cost and energy savings opportunities with coldwater washing

• Learn how utilizing a coldwater program can help satisfy LEED certification requirements

• Understand the science and efficiency behind coldwater washing in OPL facilities
Our Experts

• **Matt Heisey,**
  - Research & Development, P&G Professional

• **Steve Ashkin,**
  - President of The Ashkin Group
    - Executive Director of the Green Cleaning Network
    - Co-founder of Green Cleaning University
    - CEO of Sustainability Dashboard Tools, LLC
    - Author
    - Member of P&G Professional Advisory Council

• **Jeannie Fretwell**
  - Product Research, P&G Professional
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Matt Heisey
Research & Development, P&G Professional
Business Fundamentals

- The fundamentals of any business should be to turn a profit

- Achieved by 2 basic principles:
  - Increasing top line revenue while incrementally decreasing operational cost
  OR
  - Cutting costs without sacrificing top line revenue
What is Important as an Owner/Operator?

• Quality & Cleanliness of Linens
• Efficacy of Professional Cleaning Products
• Cost Analysis
• Eco-Friendly/Sustainable
Quality & Cleanliness of Linens

- Only thing that matters: Customer Satisfaction
  - Clean & fresh smelling linens & terry
  - Quality of linens & terry: soft and dense
  - Home-like experience
Typical Operating Cost Splits for Lodging

- Labor and linen replacement combined account for more than 2/3 of all costs
- For effective cost control focus on these two elements first

<table>
<thead>
<tr>
<th>Cost Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy</td>
<td>11.0</td>
</tr>
<tr>
<td>Linen</td>
<td>22.0</td>
</tr>
<tr>
<td>Chemicals</td>
<td>6.5</td>
</tr>
<tr>
<td>Indirect Costs</td>
<td>14.5</td>
</tr>
<tr>
<td>Labor</td>
<td>46.0</td>
</tr>
</tbody>
</table>
Managing Operating Costs

- **Labor Costs (46% of total costs)**
  - Drive efficiency by:
    - Training employees properly
    - Avoiding rework – follow proper procedures, such as sorting, proper linen filling into washing machines, etc.
  - Minimize avoidable work: e.g., need for towel matching because of uneven whiteness

- **Linen Costs (22% of total costs)**
  - Avoid excessively low pars
  - Extend linen life by keeping fabrics stronger for longer. Consider near neutral pH laundry solutions, such as Tide Professional 2X which reduces loss in tensile strength
  - Extend linen life by keeping linens whiter for longer
COST ANALYSIS

- Mistake: Only reviewing the immediate chemical expenses but forgetting the bigger picture
- Improve labor workflow: work smarter not harder
- Review linen replacement costs from quality not theft perspective
- Upgrading to better, more efficient equipment to reduce utilities
Eco-friendly

Equipment Performance and Utility Conservation
• “a poor musician blames his instruments for his performance” NOT TRUE!!!

• Use Energy-Saving Equipment
• Preventive Maintenance a MUST
• Review chemical impact on environment

Industry Trend:
The hospitality industry is increasing eco-friendly purchasing and operation. Such matters are increasingly important to patrons.

Source: Green Hotels Association
Two primary chemistry approaches, both primarily in liquid form, are being utilized in modern, automated on-premise laundry systems:

• *Alkaline Detergents*

• *Near Neutral Detergents*
### pH Scale

<table>
<thead>
<tr>
<th>pH</th>
<th>Substance Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>Liquid drain cleaner, Caustic soda</td>
</tr>
<tr>
<td>13</td>
<td>bleaches, oven cleaner</td>
</tr>
<tr>
<td>12</td>
<td>Soapy water</td>
</tr>
<tr>
<td>11</td>
<td>Household Ammonia (11.9)</td>
</tr>
<tr>
<td>10</td>
<td>Milk of magnesium (10.5)</td>
</tr>
<tr>
<td>9</td>
<td>Toothpaste (9.9)</td>
</tr>
<tr>
<td>8</td>
<td>Baking soda (8.4), Seawater, Eggs</td>
</tr>
<tr>
<td>7</td>
<td>“Pure” water (7)</td>
</tr>
<tr>
<td>6</td>
<td>Urine (6) Milk (6.6)</td>
</tr>
<tr>
<td>5</td>
<td>Acid rain (5.6), Black coffee (5)</td>
</tr>
<tr>
<td>4</td>
<td>Tomato juice (4.1)</td>
</tr>
<tr>
<td>3</td>
<td>Grapefruit &amp; Orange juice, Soft drink</td>
</tr>
<tr>
<td>2</td>
<td>Lemon juice (2.3), Vinegar (2.9)</td>
</tr>
<tr>
<td>1</td>
<td>Hydrochloric acid secreted from the stomach lining (1)</td>
</tr>
<tr>
<td>0</td>
<td>Battery Acid</td>
</tr>
</tbody>
</table>

**Alkaline Detergents**

**“Near Neutral”** e.g., Tide 2X

**Laundry Sours (acid)**

Source: chemeddl.org
Alkaline Detergents

- The high pH formulation used is effective in removing body soils, grease and the like through saponification.
- Commonly used material in formulating liquid alkaline detergents is sodium hydroxide.
- Requires multiple rinsing or use of acid (sour) rinse to return pH to close to neutral.

But...

- Are corrosive
- Safety considerations in handling by employees
- Linens retain mineral encrustation (stiff, rough-feeling fabrics)
- Linen wear and tear
Near Neutral Detergents

- Offer formulation flexibility to incorporate advanced cleaning chemistries for broad range of soils/particulates
- No need for pH correction through use of sour
- Softer feeling fabrics
- Less wear and tear on fabrics
- Non-corrosive and safe to handle by employees

But...

- Are more complex in formulation strategy
Near Neutral pH detergent (e.g., Tide 2X) reduces calcium formation and deposition on fabric.
Surfactants
• Remove greasy/oily stains including body soils. Surfactants also provide soil suspension, wetting and sudsing … the “workhorses” of the detergent formulation

Builders
• Remove water hardness ions, calcium and magnesium, the second “enemy” of clean clothes after stains and dirt
• Hardness ions come primarily from the water

Enzymes
• Proteins that catalyze the degradation of specific chemical bonds in soils/stains
• Break down soils/stains into pieces which are easily washed away

Anti-Re-Deposition Agents
• Helps prevents soils from re-depositing once it has been removed

Soil Release Polymers
• Modify the fabric surface, reducing attraction between surface and soil
• Soils are more easily removed in the next cycle

Dye Transfer Inhibitors
• Catch fugitive dyes in solution preventing them from re-depositing to fabrics

Rheology Modifying Polymers
• Help with the "structure" of liquid products (viscosity, pouring, dispersing characteristics)

Perfumes
• Consumer preferred scents
Traditional Towel Cycle Example

Over 40% reduction in WATER!

PGP Cold Water Wash Cycle – only 3 fills and drains all low fill; much less heated water

Bleach removed via dilution.

Bleach carryover is high ~25ppm. TWE is critical to have.
Coldwater Savings Example

Traditional:
- 55 gallons Cold
- 133 gallons Hot

188 gallons Total

Over 75% reduction in ENERGY!

Requires 106,255 btu

1108 pounds to heat from 60F to 140F.

1 btu = energy required to heat 1 pound of water one degree.

Cold Water:
- 65 gallons Cold
- 34 gallons Hot

99 gallons Total

Requires 22,636 btu

283 pounds to heat from 60F to 140F.
Dr. Sinner Model
Take away something?
Got to give something back!
In our case we tweaked all the levers.

Chemistry:
- Increased Tide (& formulated low temp)
- Increased Clorox

Time/Mechanical Action:
- Tide bath increased
- Clorox bath increased
- Overall bath time is the same as traditional towel and sheet cycles

Temperature:
- Decreased Main Wash and Bleach Temperatures

Traditional Cycle

Chemical Action 25%
Chemistry 25%
Temperature 25%
Time 25%

Cold Water Program

Mechanical Action 28%
Chemistry 29%
Temperature 15%
Time 28%
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Steve Ashkin
President, The Ashkin Group
Sustainable Cleaning

**Green** begins with clean

- Doing things right the first time results in avoiding rework and repeated use of products for cleaning the same linens

Additional considerations of products used:

- **Cold-water washing**
- **No phosphates**
- **Does not contain known carcinogens or reproductive toxins**
- **No APEs or NPEs**
- **Meets the California Code of Regulations** maximum allowable volatile organic compounds, **VOC**, levels
Defining Green & Green Cleaning

- Products or services that have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose.
  This comparison may consider raw materials acquisition, product, manufacturing, packaging, distribution, reuse, operation, maintenance, or disposal of the product or service.
- Cleaning to protect health without harming the environment.
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Why Buildings Are Important
Environmental Impacts

- Consume almost 40% of all energy
- Add 40% to atmospheric emissions
- Use 68% of all electricity
- Use 12% freshwater, 88% potable water
- Take up to 40% municipal solid waste stream
- Exploit significant amounts of land
- People spend 90% of time indoors
Total costs over life of building
- 2% of total costs = design & construction (D&C)
- 6% of total costs = operations & maintenance (O&M)
- 92% of total costs = personnel

Excluding personnel
- 11% of total costs = D&C
- 14% of total costs = financing
- 75% of total costs = O&M
Why Buildings Are Important
Lifecyle Costs

Results of the California Study: Average Bottom Line Savings

- **Energy Savings**: 30%
- **Water Use Savings**: 30-50%
- **Waste Cost Savings**: 50-97%
Green buildings provide operational performance, environmental sensitivity and improved health for their occupants. It's a triple bottom line great companies can relate to.

Rick Fedrizzi
US Green Building Council
LEED Rating System

• Founded 1993
• 12,800 organizational members
• 240,000 accredited professionals
• 76 Chapters
• 54,000 projects in 135 countries
• 150,000 homes (1/3 of the residential construction market by 2016)
• Certifying 2M sq ft / day
US Green Building Council
LEED Rating System: Basics

- Rating System (5)
- Prerequisites and Credits
  - Sustainable Sites
  - Energy & Atmosphere
  - Water Efficiency
  - Materials & Resources
  - Indoor Environmental Quality
  - Innovations & Regional Priorities
- 110 Total Points
  - Platinum
  - Gold
  - Silver
  - Green (Certified)
Green Cleaning Prerequisite

- Strategy on energy and water conservation
- Reduce product toxicity
- Requirements for laundry
What You Should Know About USGBC and LEED

• **LEED Version 4** isn’t required until June 1, 2015

• **LEED Version 4** is more stringent than **LEED 2009**

• **LEED-EBOM Version 4** significantly changes the cleaning prerequisite and credits

• **LEED-EBOM Version 4** can be used today and offers numerous benefits for buildings and the cleaning industry
Prerequisite

Absorbed the Policy Credit

2 Options

Strategy to Reduce Energy and Water Consumption

Strategy to Address Laundry and Ware Washing
Why Water Is Important

• 33% of the contiguous United States was in at least a moderate drought as of September 2
• 3.4 million people die each year from water, sanitation, and hygiene-related problems
• 780 million people – about one in nine – lack access to clean water.
• 2.6 billion people – half the developing world – lack even a simple 'improved' sanitary water system
• 1.6 million people die every year from diarrheal diseases
• An estimated 2.5 billion people lack access to improved sanitation (This amounts to 11% of the 7.6 million deaths of children under the age of 5)
Prerequisite Option 1
In-House Cleaning Policy

- Physical and programmatic scope
- Duration of applicability
- Responsible parties (by name or title)
- Sustainability goals and objectives
- Procedures and strategies for implementation
- Specific metrics by which performance will be measured
- Quality assurance process to evaluate and verify successful implementation
Prerequisite Option 2
Certified Cleaning Services

• Green Seal’s Environmental Standard for Commercial Cleaning Services (GS-42)

• International Sanitary Supply Association (ISSA) Cleaning Industry Management Standard for Green Buildings (CIMS-GB)

• Confirm that building was audited within 12 months of the performance period

• Develop goals and strategies for promoting the conservation of energy, water and chemicals used for cleaning the building
Tide Professional Laundry Systems

3 CORE Systems which all deliver on Tide Professional’s signature clean

All Tide Professional systems deliver CLEAN, WHITE, SOFT linens that last LONGER which drives employee and guest SATISFACTION
The new Tide Professional Coldwater System includes four products formulated to work together to deliver clean, soft linens and towels to guests while using significantly less water at colder temperatures than traditional on-premise laundry systems:

- pH near-neutral detergent
- Fabric softener
- Bleach
- Whiteness enhancer

In addition

- Advanced formula uses more enzymes designed for lower wash temperatures to help break down stains in colder water
- Innovative wash process reduces the number of fills and water used per wash
- Automatic product portioning helps avoid mistakes – no overdosing or product contact
WHY?

• We have the technology to deliver outstanding results in colder water.

• Leverage retail expertise with Coldwater detergent technology, as well as brand recognition.

• Energy and water costs continue to rise and we can help customers reduce this growing cost burden.

• Chemicals only make up 1 small slice of total costs included in a laundry room!

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*Tide Professional Coldwater System

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Standard System\(^{\dagger, \dagger}\) (Hotel Laundry Room Cost %)

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++ Data Source: Labor and Indirect costs based on Uniform & Textile Service Association’s On Premise Laundry (OPL) Processing Costs Study, February 3, 2006
Tide Professional Coldwater System Benefits

- Helps keep linen fibers stronger for longer, reducing linen replacement costs up to 15%++
- Can help cut your washing machine gas and water costs by as much as half**,+
- Switching to the new Tide Professional Coldwater System can result in savings up to $8,700* for a 150-room property
- Delivers the clean, soft, white linens you expect from Tide
- Leveraged our expertise from retail coldwater technology
- Helps promote guest and employee safety with NO harsh alkali or acids required to neutralize wash bath; NO phosphates; NON-DOT hazardous and NO APE’s or NPE’s; NO APEO surfactants

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* Annual savings based on switching from a standard alkaline system to the Tide Professional Coldwater System. Assume U.S. national average commercial water and gas costs according to Black & Veatch 2012/2013 report “50 Largest Cities Water/Wastewater Survey” and the American Gas Association 2012 “Energy Industry Analyses and Statistics”. Must have fully programmable washing machines to qualify for savings. Linen savings based on a 50-cycle test vs. the leading alkaline system. Savings assumes the standard competitive system is priced parity with Tide Professional Everyday system (Tide Detergent, Clorox and Downy) and uses linen replacement cost data based on a study among Hospitality key decision makers in April 2014.

** When you switch to the Tide Professional Coldwater System from a standard hot system. For guest room linens only. Applies to energy used to heat water in your washing machine only.

+ When you switch to the Tide Professional Coldwater System from a standard hot system. For guest room linens only. Applies to water used in your washing machine only.

++ vs. leading alkaline system in 50-cycle test.
Questions and Answers

For more information visit www.pgpro.com
or call (800) 332-7787 or 888-4PGProline (474-4465)