

The Swish logo is written in a white, cursive font on a red, curved background element in the top right corner of the image.

**Ultimate Guide to:**

**Laundry**



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# LAUNDRY CARE MATTERS

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As humans, we sweat, shed skin cells, and come into contact with food, dirt, bacteria and viruses daily. These particles and pathogens settle on the soft surfaces of clothing, linens, towels and fabrics in our shared spaces which creates the risk for cross-contamination. This is particularly important to mitigate in healthcare and long-term care settings where HAIs (Healthcare-Associated Infections) require highly regulated laundering processes. In all professional settings uniforms, linens and fabrics must look bright, smell fresh, and be hygienic for the safety and reputation of the business. Traditionally to accomplish this on a large scale highly corrosive chemicals, or extreme heat to boil materials, was required. Fortunately, innovations in laundry formulas and equipment means there are more flexible options for efficient, effective and environmentally responsible choices to achieve clean, bright and safe soft surfaces.

Clean laundry can have a profound physical and psychological impact. The fragrance and perceived cleanliness through scent can give a sense of comfort and reassurance. Wearing dirty, wrinkled uniforms or seeing dingy towels, however, undermines the perception of health, cleanliness and safety.

In the hospitality and healthcare industries especially, the handling of laundry affects the overall experience of your visitors. Hallways crammed with carts of soiled linens look unprofessional yet institutional, which can lead to cross-contamination and emit odours that permeate every room.

At Swish, we understand the importance of laundry for you and your business. With so many factors that impact laundry, we have created this guide to cover the basics of effective laundry processes, including machinery, chemical selection, and overcoming common challenges.



# LAUNDRY MACHINE BASICS

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For on-premise laundry, most machines are known as **washer extractors**, which come in various sizes. An inner metal ribbed drum holds the fabric, while a stainless steel shell encases the drum and wash water.

Two types of industrial laundry machines:

**Non-programmable:** Choose from pre-set laundry cycle formulas.

**Programmable:** These may come with pre-set formulas, but you can change the number of steps and the water temperatures, water levels, and washing times for each.

For extra-large volumes, **tunnel washers** can process millions of pounds of laundry annually with connected rotating drums and compartments. Typical programmes include a pre-wash, wash (often including steam injectors for disinfection), rinse and pH neutralization in a continuous batch washing system. Different programmable versions are available based on purpose: general use, multi-purpose, hygiene and eco.

Consumer models differ not only by size, but their component materials (either plastic or ceramic-coated steel drums) and shells suspended horizontally (top-loaders) or vertically (front loaders). The mechanical action instead comes from an agitator in the drum's center, which turns and causes the fabrics to rub together. While "industrial homestyle" models are made with stainless steel drums, most consumer machines cannot handle industrial chemicals such as breaks, built detergents, institutional strength chlorine destainers, sour, and sour/softs corrosive to the machine.

## Mechanical Action

Most machines rotate the drum in 30-second blocks with a 12-3-12 action, rotating for 12 seconds, pausing for 3 seconds, then spinning in the opposite direction for 12 seconds. When turning, the drum rotates at a rate of 30 (rpm). This action takes about 30 seconds to complete with the machine filling with water, going through the cycle, then draining the used water, repeating several times.

## Laundry Cycles

A typical laundry formula can be as short as 20 minutes or as long as 60 minutes; the fabric type and soil level determine the length and cycles.

Each time a machine fills with water, washes and drains, a "bath" or "operation" occurs. A series of these steps is known as a laundry cycle. The last step in any laundry cycle is a high-speed spin of the drum called a "final extract," removing water from the fabrics by pressing them against the walls of the drum by centrifugal force.



## Machine Load Capacity

The potential number of pounds of material washed per load gives laundry machines their rating. A typical machine size is 50 pounds of "average" fabric. The machine fills with water to either a high or a low level.

1. Low level is typically the bottom of the window (typically 14 gallons of water).
2. High level is halfway or 2/3 of the way up the window (typically 22 gallons of water).

FACILITY	lbs. per room per day	lbs. avg
Hotels/Motels	6-9	8
Hotels/Motels with Food Service	9-13	11
Luxury Hotels	16-22	18
Nursing Homes	8-14	11
Hospitals	11-16	14

Washer Extractors, on average, use 2 gallons of water per pound of fabric washed. Tunnel Washers typically use 1 gallon of water per pound.

# THE LAUNDRY CLEANING PROCESS

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This section is for those who like the details. There is an impressive amount of chemistry involved in removing soils from fabrics. Before we get into the formulation details, it's best to provide some quick definitions and chemistry recap to remind ourselves of the concepts of pH, acids and bases (or alkalis).

*Compounds that produce hydrogen ions are **Acids** (like vinegar, citrus fruit, or tomatoes), while **Bases** are compounds that receive hydrogen (baking soda, toothpaste or bleach). **pH** (or potential for hydrogen) is the measurement method from a scale of 0-14 of how acidic or basic a substance is. (Water is neutral at 7.0 while human skin is a 5.5)*

**Emulsification** is the primary cleaning process in a laundry machine that breaks down soils, holds them in suspension and prevents them from depositing back onto the fabric.

**Surfactants** (Surface Active Agents) are the chemicals that emulsify soils(see above), and you can find them in Suds and Built Detergents (We'll cover those shortly). In products boosted with solvents, solvents also emulsify soils.

**Saponification** is the fast reaction of an alkaline detergent with an acidic soil, forming a water-soluble soap. Breaks and Built Detergents (covered shortly) use saponification.

**Oxidation** is a reaction that removes the colour or pigment of an organic stain. Oxidation doesn't remove soils causing stains; it only removes the colour so you can no longer see the stain. Laundry destainers commonly use chlorine or oxygen to achieve this.

**Dissolving/Neutralizing** is the reaction of an acidic detergent with alkaline soil, where the acid breaks down the alkaline soil, including proteins. All Sours use this process.

**Wetting** is the process by which water penetrates the fabric and loosens the soil. Surfactants (see above) help the water penetrate the fabric by lowering the surface tension of the water.

# LAUNDRY DETERGENTS AND HOW THEY WORK

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## Basic Ingredients in Laundry Detergent Formulas

For centuries, people washed their fabrics using soap made by saponifying fats and oils (to create fatty acid salts). It came with its issues; it wasn't kind to coloured fabrics and left a soapy scum when washed in water with high-mineral content.

Synthetic detergents have improved since then. In a commercial, high-volume setting, laundry detergents can come pre-combined as "Built Detergents," or the isolated cleaning chemicals are combined on-premise as needed, along with additional boosters and agents. Consumer formats typically come pre-built and optimized for standard or HE homestyle machines in liquid, concentrate, single-dose pods or powder form.

### 1. Breaks

Breaks are industrial-strength alkaline detergents for commercial use, formulated with three main ingredients: Alkalies, water conditioners and silicates.

#### **Alkalies - Less Friction, Better Clean**

The high pH formulation of **Alkalies** helps remove stains and soils without excessive rubbing. Alkalies lift and suspend the oil and particles away from the fabric and into the water, rinsing it away. Alkalies must be combined with Surfactants, and the different proportions of these impact the potential cleaning power. They often include Anti-Redeposition Agents to prevent the suspended soils from settling onto other fabrics. Certain materials like linens may need more rinsing or the addition of rinse or acid to return the pH to neutral. Also, as bases are corrosive and not recommended for soft metals (aluminum, gold, copper), they should be adequately dissolved.

You may need an acid booster to return them to a neutral pH. There are metal-safe versions, but they should be used as per instructions.

Common examples of alkalies:

- Mild = Baking soda
- Moderate = Household ammonia
- Strong = Washing Soda (sodium carbonate) or Lye (caustic soda).

You should not use Breaks with consumer/homestyle machines as they are typically made of soft metals.

#### **Water Conditioners - Fighting Unwanted Minerals**

Water conditioners control water hardness by removing hard water ions and helping extend the life of fabrics. We recommend [Swish Sequest Liquid Sour Soft](#).

#### **Silicates - Metal's Best Friend**

Silicates are often used as metal protectors or to help reduce machine corrosion, but they can also help emulsify oils and reduce water hardness. They can still damage soft metals if not used properly, so follow manufacturer instructions.





## 2. Suds

Suds prevent soils from depositing back onto the fabric and can include some of the following components.

### **Surfactants - The Foaming Agents**

Foaming is a crucial part of the cleaning process, and that's where surfactants come in. **Surfactants** come from a combination of words: surface-active agents, as they can interact with different types of surfaces like oil and water. They are a crucial cleaning component of laundry detergent (and cleaning products in general). Aside from creating foam, they penetrate fabric fibres, break down dirt and stains, and suspend them in water to wash away easily during rinsing. The level of foam created and required depends on the formula and is tied closely to the temperature of water needed.

If your facility suffers from hard water (the majority of Canada), you will want to consider **Nonionic Surfactants** as they work better with the water's high mineral content. With their negatively charged molecules, **Anionic Surfactants** are very good at removing oily dirt and stains but are most effective in soft water.

There are boosted Suds products for more heavy-duty tasks with either Enzymes or Solvents with Surfactants to increase the performance.

### **Enzymes - The Efficiency Proteins**

**Enzymes** are a type of protein that break down stains and soils to make them easier to remove. The addition of enzymes in laundry detergent helps clean in colder water temperatures and with less detergent. They can be natural or synthetic, and different kinds are used to treat different types of soils. They are also an essential ingredient in pre-soak products for heavily soiled fabric. Three of the most common include; **Amylase** to break down starches, **Protease** for protein-based soils, and **Lipase** for fat-based soils. Protease cannot distinguish between the proteins of soils and fabrics, so you should not use it on wool or silks as they are natural protein-based fabrics.

### **Solvents**

Degreasers or Solvents penetrate fibres to remove greasy deposits like motor oil while brightening fabric. **Swish's Sequest Power Plus Degreaser** removes motor oil and other complex materials while brightening fabrics for a fresh, clean look.



### 3. Built Detergents

Pre-combined formulas, including Break and Suds, are known as Built Detergents and are rated by alkalinity, surfactant and water conditioning ability.

### 4. Destainers - Say Goodbye to Dull and Dingy

Destainers and optical brighteners are synthetic compounds that improve the appearance of whiteness and brightness by absorbing UV light. Also known as fluorescent whitening agents (FWAs) and are modern alternatives to the blue dye added to achieve this effect.

- **Chlorine Bleach** brightens and disinfects; however, overuse can weaken and yellow the fibres and cause skin irritation. Work best in 140-160°F/60-71°C water.
- **Oxygen Bleach** can be used when chlorine bleach is not an option and avoids damaging and yellowing fabrics. Work best above 120°F/48°C in powdered form and 160°F/71°C in liquid form.

For white fabrics, chlorine destainers like **Swish's Sequest Liquid Chlorine Destainer** are excellent for stain removal.



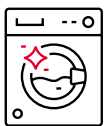
### 5. Sours - The Balancing Act

Also known as **pH modifiers** or **neutralizers**, they help create an optimal washing environment. The laundry detergent's complex combination of acids and bases needs to be balanced out. In the final rinse, Sours reduce the pH of the textiles to that similar to water or human skin (5-6), which helps reduce potential skin irritation.

In addition, if the water remains slightly acidic, it helps prevent mineral buildup, which can cause greying or fabric colour loss and make iron easier. Never use sours in a homestyle machine, as the acidity can damage the drum.

### 6. Fabric Softeners - The Softer Side

Fabric Softeners give the fabric a softer feel by lubricating and relaxing the fibres. **Softeners** help reduce static cling, fabric damage and the amount of lint generated. They also reduce the fabric's moisture content, shortening the extraction time. Fabrics should be soured (pH neutralized) before adding the Softener to ensure they can adhere to the fibres. However, always use the recommended dosage, as too much fabric softener can waterproof the fibres and increase staining.



For more product selections visit us online or connect with one of our experts at [www.swish.ca/laundry](http://www.swish.ca/laundry)

## 7. Pre-treaters

Pre-treaters are applied before the primary laundry cycle.

**Prespotting** treats only the stained or soiled area on the fabric by wetting and applying the chemical directly to the fibres. The fabric is then immediately washed. If the fabric is not wetted, fabric damage can result from direct contact with chemicals.

**Presoaking** involves a container of diluted presoak (a combination of surfactants, solvents, alkalies and enzymes) and submerging the entire fabric in the solution. This treats the entire fabric, not just the heavily soiled areas. Fabrics are usually soaked overnight before washing. It is more time-consuming, but it yields better results.

## 8. Starches and Sizings

Artificial stiffening of fabric with Starches helps clean and crisp linens, but it can reduce linen life by up to 25%. Starches and Sizings are added to the final rinse and adhere better to fabrics if soured to 5.5 - 6.5 pH.

Starches are best suited for cotton, while synthetic Sizings work well on synthetic fibres. Fabric softeners should not be used along with Starch or Sizing, as they will loosen the fibres again. Overapplication of stiffeners will cause spots or streaking and can block and damage irons if not appropriately managed.

## 9. Antichlors

Chlorine or medicinal iodine are excellent disinfectants, but the residues irritate skin and damage fabrics.

**Antichlors** neutralize the residues and avoid iodine stains for setting into the fibres.

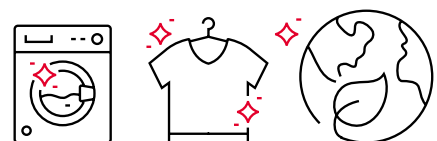
Use Antichlors to:

- Neutralize chlorine during the final rinse.
- Reduce medicinal iodine in the prewash

## 10. The Extras

Fragrances and colourants are added for a perceived clean and aesthetic appeal and do not contribute to cleaning fabrics.

In long-term care and healthcare environments, using dye-free, fragrance-free detergents may be worth considering to avoid potential skin irritations.



## Green Laundry Detergents

There are a variety of ways that detergents can be made to be environmentally-responsible.

Firstly, it could be through modifying the detergent formula and/or through the production process itself. Some may replace common ingredients with naturally-derived essential oils and active enzymes, or remove unnecessary perfumes or dyes.

“Green” detergents are typically phosphate-free, in biodegradable containers, and have not been tested on animals. Look out for Ecologo-certified products that are designed to reduce harmful impacts on the environment.

Another way detergents can be designed to be more eco-conscious is to perform well in cold water. Heating water requires a lot of energy, washing in cold water can save on energy, translating into savings for the budget and the planet.

Lastly is the use of concentrated formulas which cut down on the overall amount of packaging and water used in the detergent. **High-Efficiency Detergents** are designed to work with a lower level of water dilution and require less tumbling action, especially when used together with HE (High-Efficiency) machines.



*Sequest Liquid Green Laundry Detergent*





# HOW DETERGENTS WORK TO CLEAN CLOTHES

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Much like dishwashing, laundry requires several factors to clean, including time, water, chemical, thermal (heat) and mechanical action. When one factor is modified, one or more of the others must be changed to accommodate.

There are two basic types of soils: water-soluble and non-water-soluble. For water-soluble soils, large volumes of water help with cleaning.

## **Time**

To effectively separate heavy soils from fabrics naturally, more time is required. To do so in less time may require different chemicals and/or increased water temperature.

In programmable machines, you can change the time for each step in the cycle, allowing for varying soil levels and fabric types. The ability to control the time for each step dramatically affects the results.

On nonprogrammable machines, the time for any given step is fixed and cannot be changed, making it more challenging to adapt and achieve consistent, acceptable and economical results.

## **Water**

Less water requires appropriate chemical changes to dissolve, penetrate and flush away easily. The water mineral content also changes the types of chemicals that are needed to clean effectively. Depending on your facility's water quality, water softeners or neutralizers may be required.

## **Chemical**

The chemicals in detergents (or other laundry solutions) separate soils and allow water to remove them. Low-cost solutions tend to have fewer ingredients (particularly enzymes) and can be less effective at cleaning.

The chemical products' concentration varies based on the water quality, soil levels, the cycle you are running, and fabric type. When using a non-programmable machine, this is often the only variable you can change.

## **Thermal**

Water temperature (and dryer or flatwork press) provides thermal energy. Different detergents are formulated to work best at specific temperatures. Formulas with more Surfactants and Alkalies stick to the soil, converting faster and cleanly without high heat. Typically, higher heat is required to melt water away heavily soiled linens or provide sanitization without chemical additives.

Specific machines can be cold feed only, while other machines are plumbed with both hot and cold water, alternating hot and cold water coming through the valve. When both valves are open to fill the machine, warm water, or "split temperature" water, fills the machine. Many industrial machines also use steam to raise the temperature of the incoming hot water.

Ideal water temperatures are:

**Cold water** > 60–80°F / 60–80°C,

**Warm or "split temperature" water** > 100–120°F / 37–49°C

**Hot water** > 140–160°F / 60–71°C

### **Mechanical**

The drum and (or agitator in homestyle machines) creates friction to mix, rub, rinse and drain the detergent and linens. Overloading increases friction, so it is essential to weigh loads to avoid damaging fabrics (and equipment) faster.

Industrial machines in a standard or 2-way wash will rotate the drum in 30-second blocks of time called a 12-3-12 action. The drum will rotate for 12 seconds, pause for 3 seconds and then turn in the opposite direction for 12 seconds.

In a gentle cycle for delicate fabrics, the action is 3-12-3 and takes 20 seconds to complete.



# FACTORS TO CONSIDER WHEN CHOOSING LAUNDRY SOLUTIONS

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Choosing the detergent and laundry solutions depends on several factors that impact the effectiveness:

## 1) Type of Machine

Industrial laundry machines come in two main categories; programmable and non-programmable. Both are made to use commercial-grade chemicals; however, their setup determines whether you can use pre-combined formulas (or Built Detergents) or a custom combination of products (including breaks, suds, sours, destainers and softeners).

Along with the available cycle programs, you must consider the drum capacity to accommodate your volume and related energy requirements.

If your machine is high-efficiency (HE), you should use high-efficiency detergents designed to work with lower water levels and less tumbling action. HE detergents are typically low foaming, dissolving and wash away with less water. Regular detergents used in a high-efficiency machine could leave residue and require additional cold water cycles to rinse thoroughly.

Note - Homestyle machines cannot tolerate commercial-grade chemicals because they are corrosive to the drum and will not be appropriately diluted. You should only use consumer-grade detergents, destainers and softeners for homestyle machines.

## 2) Water Quality

### Water Hardness

Chances are that your facility has hard water (most of Canada does), which sabotages your laundry. Hard water has minerals (calcium and magnesium) that deposit onto the fabric and allow the soils and detergent residues to build up, weakening fabrics and causing discoloration.

### Hard water laundry symptoms include:

- Yellowing or greying of white fabric
- Soil Inway even with rewash
- Stiff, hardened fabrics
- Tearing or breakdown of fibres
- White or grey streaks on coloured fabrics

### Accommodating Hard water

When you test your water, if it measures over 12 GPG (grains per gallon), you will likely need separate Break and Suds products to accommodate water conditioning. Hard water also requires special softeners to ensure no residue is left behind.

**Swish® Sequest Liquid Sour Soft** counterbalances harmful chemical deposition while reducing wrinkles and static.





### **Bicarbonate alkalinity & Iron Levels**

pH measures how acidic or basic something is and is integral to the laundry cleaning process. The pH of water ranges from 4-9, and the chemicals used during a laundry cycle either increase or decrease the pH. Bicarbonates naturally occur in the earth's soil and filter into the water supply, but they make it harder to change the pH of the washing solution during a cycle.

High iron levels in your wash water usually come from older cast iron water piping systems that are eroding. Red, yellow or brown stains are common symptoms of high iron levels. Iron can also interact with chlorine bleach, causing the yellowing of white fabrics.

### **Accommodating Bicarbonate alkalinity and Iron**

To compensate for the elevated pH levels, you can separately add more Sour to decrease the pH without increasing the amount of softener. Being able to control the volume of sours and softeners is helpful as too much softener can cause waterproofing of the fabric - a buildup that does not allow the water to saturate and remove the soil.

**Swish Sequest Liquid Rust Removing Sour** helps reduce the pH to eliminate iron stains.

It's essential to find a qualified company that will test your water and provide a comprehensive plan to treat the water based on your needs. Your distributor can then work with you to determine which chemical laundry program that best accommodates the water quality.

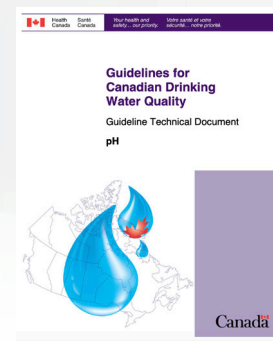
### **3) Type of Fabric**

Countless fabrics available include natural fibres (like cotton, silk or wool) and synthetic fibres (like polyester, nylon, or rayon). The various materials in fabrics react differently, including their:

**Colour-fastness:** This is the resistance to changing their colour characteristics. The dye can fade, transfer or absorb other colours.

**Resistance to abrasions:** This determines how robust the fabric is. Certain materials break down more quickly or pill (little balls of fibre that build up on the fabric). Reducing the mechanical action and using effective chemicals in shorter cycles can help increase the linen life. Microfibre cleaning cloths are uniquely woven and need particular, quick-acting detergents to keep them as effective as possible, like Enviro-Solutions® ES76 Microfibre Laundry detergent.

**Affinity for oils:** Synthetic fibres like polyester are made from petrol and are attracted to oil stains, which can set in permanently if not treated appropriately. Polyester is very resistant to chlorine, oxygen bleaches and mineral acids; however, cleaning with high alkalinity is effective.



**Water affinity:** Cotton is “water-loving,” making it easier to clean, as it attracts more water-soluble soils and repels greasy, oily ones. Polyester is water-hating and requires chemicals to help bind with the oily residues without compromising the fabric.

Before you wash any fabric, read the fabric tag to ensure proper washing conditions. Generally, most fabrics require cooler temperatures, avoiding chlorine bleach or short cycles to promote fabric life. To extend the life of your fabrics, look for those with high abrasion resistance and bursting strength (those that do not easily break under pressure).

#### 4) Type of soils

In your quest for cleaner linens and uniforms, you may use more detergent and higher heat than you need to, wasting product and money and leaving residue or detergent stains.

Heavy soils, sweat, food, and grease may need high-performance laundry detergents with the appropriate types of enzymes (Protease for proteins etc.)

We recommend **Swish Sequest Laundry Enzyme Protein**.



**Pre-treating** soils and stains help to reduce the chance of them setting in and potential rewashes.

**Prespotting** treats only the stained or soiled area on the fabric by wetting and applying the chemical directly to the fibres. The material is then immediately washed. If the fabric is not wetted, fabric damage can result from direct contact with chemicals.

**Presoaking** involves a container of diluted presoak (a combination of surfactants, solvents, alkalies and enzymes) and submerging the entire fabric in the solution. This treats fabric as a whole, not just the heavily soiled areas.

Soil classifications include;

**Soluble soils:** Easily dissolved in water like sugars, blood and starch.

**Saponifiable soils:** Typically animal fats, vegetable oils or greases that react with solutions with a high pH and are converted to water-soluble soaps, making them easier to rinse from the fabric.

**Emulsifiable soils:** Often petroleum-based, such as motor or mineral oil, these do not react with a high pH, requiring additional products like degreasers. We recommend **Swish's Sequest Power Plus Degreaser**.



**Particulate soils:** Particles like sand, dirt, or concrete are removed mainly through water and mechanical action, but detergents help to suspend the soils to make them easier to wash out.

## 5) Fragrance preference

Research has shown that humans are wired to associate certain fragrances with cleanliness, as our sense of smell is linked to the human limbic system of the brain (the region where emotions and memories also reside).

Selecting a familiar, nostalgic fragrance in bed linens can make your guests or residents feel at home. Over time, people associate certain smells (lemon, lavender, ocean breeze) with the perception of cleanliness. There is a reason that scented candles smell of “fresh laundry.” If your linens and towels smell musty, they seem dirty; but appear clean with the right kind of fragrances.



*Swish Clean & Green®  
Laundry Detergent*

You may need to or choose to use fragrance-free options to avoid potential allergic reactions. Ecologo-certified products like **Swish's Clean & Green® Laundry Detergent** use natural ingredients and have no harsh chemicals, dyes or fragrances that are easier on the skin and environment.

## 6) Price

Detergents with a higher concentration of active ingredients like surfactants and enzymes tend to cost up-front; however, you must consider the frequency of laundering and the impact on your linen life. Underperforming and misused products can lead to rejection and rewashes, shortening the life of your assets.

Using auto-dispensing systems helps to avoid the overuse of products. Always follow manufacturers' guidance. Using too much can damage fabrics, leave residue and require rewashes. Using too little also leads to rejection and rewashes, requiring more resources.

If your machine and programs allow it, using detergents optimized for cold water can help to reduce energy costs, offsetting the cost of the chemicals.

## 7) People Coming Into Contact With Your Fabrics

You will also need to consider the people coming into contact with the laundered fabrics. Who will sleep on the sheets, use the towels, or wear the uniforms? How sensitive are they to chemicals and fragrances?

High-temperature formulas or EPA-approved chemical sanitizers may be required in healthcare or long-term care facilities. Additionally, consider gentle detergents free from colourants and fragrances for sensitive skin.

Different industries create challenges - automotive garages using motor oil, restaurants with tomato sauce stains, hospitals with infectious bodily fluids. The services you provide at your facility predetermine the required laundry factors.





# IMPROVING THE LAUNDRY PROCESS

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## 1) Collection of Fabrics

When collecting, speed is vital; the longer the soils remain on the fabric, the harder they are to remove. Presorting prevents excessive handling and allows staff to safely remove objects that found their way into the soiled linens. To avoid contaminants becoming airborne, avoid excessive movements and quickly place them into your collection and transport containment. Bags or hampers should be clearly labelled and used exclusively for soiled fabrics. It's helpful to have different colour-coded bags for collection to allow for sorting and identification of unusually heavily soiled fabrics.

Staff should always wear personal protective equipment (PPE) while collecting, sorting, and loading fabrics into laundry machines. Gloves, aprons, safety glasses or goggles help prevent contamination and injuries from sharp objects, chemicals and heat.

## 2) Sorting

A second phase of sorting identifies fabrics to determine if pre-treatments are required and the most efficient and effective washing cycles. Correct matching at this phase helps reduce washing cycle times and the number of chemicals required.

Every facility will have its requirements, but there are three standard ways to sort fabric: by colour, fabric type and soil load.

- **Colour:** To avoid colour bleed and dye transfer
- **Fabric Type:** To avoid fabric damage to different materials.
- **Soil Load:** To determine the cycle temperature and chemicals. Lighter soil loads can use shorter cycle times and less aggressive chemical products.

When sorting in a laundry room, ventilation is vital to contain airborne contaminants. Again, staff should wear PPE, and their uniforms should be cleaned and disinfected daily.

Contaminated fabrics are known to contain blood, body fluids or other potentially infectious agents, are regulated by the Occupational Safety and Health Administration (OSHA) and should not be sorted. Staff should place them into special bags for transport, colour coded and only open when emptying into the laundry machine. Some procedures even have them double-bagged with an inner water-soluble bag that dissolves in the wash.

## 3) Pretreatment

Treating stains ahead of the main wash cycle is important as stains, and heavy soils that are not removed from the laundry cycle can become permanent once dried.

There are two methods of pre-treatment:

**Pre-spotting:** Wet the fabric first, then apply a small amount of chemical to the area that needs treatment only.

**Pre-soaking:** Create a presoak solution bath of water and treatment chemicals, and immerse the entire fabric into the solution. Soak times range from 15 minutes to overnight.

#### 4) Loading

Overloading and underloading are the most common causes of poor results and wasted time, chemicals and money; overloading leads to rejection and re-washes, too little, and it is a waste of water and energy. However, washing at a reduced capacity may be required for heavily soiled loads to allow for mechanical cleaning action.

In general, machines should be loaded to the correct weighted capacity of dry fabric.

##### Methods to ensure proper loading:

- **Check fabric tags:** certain fabrics, like polyester, can only be washed at 80% capacity.
- **Weigh the fabric with scales:** only load the recommended weight in dry fabric
- **Allocate load by piece count:** follow a chart to determine the pieces your machine can take
- **Load to an identified height of the machine drum:** this can be 4-6 inches from the top depending on the type of machine

#### 5) Washing

First and foremost, always follow the fabric care instruction tags to avoid potential damage.

##### The Washing Solution

You should always wash fabrics in a formula that is appropriate for their material type and soil load. If you are not using a Built Detergent (a pre-combined set formula), a goodall-purpose washing formula uses high alkalinity, surfactant-based products, chlorine bleach, softener and souring to restore a pH of 5.5 – 6.5 at the end of the cycle. Chlorine bleach shouldn't be used on colours, and fabric softeners shouldn't be used on water-repellent materials like visa polyester.

##### Water Temperature

If using hot water, 140-160°F/ 60-71°C should be available for "hot" portions of the cycle. Otherwise, the chlorine will kill bacteria and other microorganisms in the laundry cycle.

##### Final Extraction

The high-speed spin (or final extract) at the end of the cycle should be long enough to remove the right amount of water from the fabrics; too much can cause wrinkling, and too little means more drying time and more energy costs. Water-loving fabrics like Cotton absorb more, while synthetics retain less moisture. Delicate fabrics should not be extracted at high speed, so always check the fabric tags.



## 6) Drying

After the final extract, you should remove the fabric immediately from the machine so they do not wrinkle or allow microorganisms (like mould) to grow. A generally recommended temperature range from 180- 200°F/C for cotton or 160-180°F/C for synthetics.

Overdrying causes fabric damage, static, wrinkling, and not to mention wastes energy. Investing in machines that have moisture sensors help to stop the cycle at the appropriate time. The fabric should be slightly damp when it comes out of a dryer, with the remaining water evaporating as it cools.

If you use presses to dry fabrics, avoid setting them to temperatures over 400°F/71-82°C to avoid melting (or glazing) the materials.

## 7) Storage

To prevent recontamination or re-soiling of your newly cleaned fabrics, store them in clean, protected areas. It is best to allow fabrics to rest before reuse, so investing in a three-tier inventory system helps maintain a constant flow; one set in use, another in storage and a third in washing at any time.

## 8) Surveying

One of the essential steps to a successful laundry program is regularly assessing and adapting. The top five areas to consider are:

### 1. Procedures

Ensure that your staff follows agreed procedures correctly. This can include assessing the product levels versus laundry volume, quality control of the laundered fabrics, and machinery inspections.

### 2. Water Quality

Regularly test the water quality, particularly for the main three factors that impact laundry; water hardness, bicarbonate alkalinity and iron. Inspect finished laundry for common issues like yellowing (hard water) or red-dish stains (iron).

### 3. Equipment

Are there any issues or warnings on the machinery? Are the parts all free, clear and cleaned?

### 4. Nature of Soil

What types of soils are you treating most often, and how are they reacting to the process? Which soils pose the biggest challenges for your team?

### 5. Type of Fabric

What types of fabrics are you washing, and how resistant are they to damage? Are there any that require special attention based on their fabric tags?



# CONCLUSION

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Understanding the complex nature of commercial laundry helps to determine the best processes for your facility, and can help identify efficiencies. Education and following fabric care, product and manufacturers' recommendations are critical to achieving the best results. We always recommend working with your supplier to assess your requirements and provide tailored solutions continually.

A specialist from the Swish Laundry & Warewash team would be happy to help if you would like further support for your facility.

You can find out more about our laundry products and services at [www.swish.ca/laundry](http://www.swish.ca/laundry)

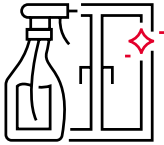
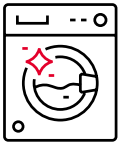


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