

A woman with dark hair in a ponytail, wearing a pink and white striped tank top and orange rubber gloves, is cleaning a glass shower door. She is looking up and to the right. A green sponge is visible on the glass door. In the background, there is a shower shelf with various bottles and a yellow sponge.

# Clean Like a Pro Showers





## Clean Like a Pro

### *How to Clean a Shower*

It's 6 A.M. **Your** alarm goes off and, still half-asleep, you shuffle off to take your shower. Afterwards, you feel clean and refreshed, ready for the day ahead. You turn the water off and search for your towel. That's when you see it.

Your shower is coated with soap scum. Gray, dirty stains mar the bottom and sides. Scale obscures the glass door. You grimace. I'll just have to put up with it, you think. I've tried everything, scrubbed until my arms are sore. But still, the shower remains dirty. The shower is a place for getting clean! you think. So why is it such a dirt magnet?

Yes, it's one of life's little ironies: to get ourselves clean, we must sacrifice the cleanliness of our showers, baths and tubs. While we generally try to avoid soiling our carpets, floors, windows and countertops, it's another story with showers. We aim to get them as *dirty as possible on a daily basis*. After all, the dirtier the shower is, the cleaner we are. Better them than us.

But this strange logic makes shower cleaning unique among household chores. On a daily basis, we leave dirt, grime and sweat in the shower, along with residues of soaps, detergents and water-borne minerals. And, because the shower is a moist environment, it is also a perfect environment for the growth of mold and mildew. Taken together, all of these ingredients can form a hard-to-remove soil, resistant to scrubs, powders and many chemicals. On top of that, the shower or tub is often an awkward surface to clean, requiring a lot of leaning, bending and twisting, making cleaning tiring and time-consuming. No wonder people shrink from shower cleaning. It's regularly at the top of "hardest things to clean" lists or "most hated chores".

Thankfully, Kleenco has developed a product to make this hated chore a *cinch*. Dirty showers, brace yourselves, you're about to get *rejuvenated*. And *fast!* To find out how, first we'll learn about the different materials of which showers are made, along with the particular properties of the soil found in showers. Then, we'll learn why Shower Kleen has the perfect formulation to tackle those extra-tough shower stains!

## **Shower Materials: A Source of Confusion**

Showers and bathtubs are manufactured out of a very wide range of different materials. Depending on the type of shower or tub, some materials are more common than others. But all have unique properties that make selecting the proper cleaning method a confusing task for homeowners.

According to Home and Garden Television, shower-tub combos are the most popular bathing installations in homes today. Typically, shower-tubs are constructed with fiberglass or acrylic materials.

Then there is the classic stand-alone shower. Like the shower-tub, these are often made of acrylic and fiberglass, but materials like ceramic tile and stone are also extremely common. And while many shower-tubs are equipped with curtains, glass shower doors are popular with the stand-alone variety.

Of course, the traditional cast iron tub is a mark of elegant quality and still sought after.

### **Acrylic**

First, we begin with the ubiquitous acrylic shower or shower-tub. Acrylic shower units begin first as large sheets of vinyl, and are molded into their final shape in a vacuum forming process where the sheet is heated, stretched and drawn into a mold. Afterwards, they may also be reinforced with glass fibers and resin. Because they're made of solid sheets of vinyl, the shower's color will permeate the entire wear layer, which is usually three to five times thicker than the gel-coat layer on fiberglass tubs.

Acrylic fixtures are non-porous, durable and keep their good looks if maintained on a regular basis. But, acrylic also scratches easily. So cleaning with abrasive powders, aggressive scrubbing pads or stiff bristle brushes should be avoided.

Some chemicals and cleaners may also deteriorate acrylic surfaces. Strong solvents that can be bought at hardware stores such as acetone, isopropyl alcohol, lacquer thinner, xylene and methyl ethyl ketone should never be used to clean acrylic. Softening and swelling of the surface may occur. Strong solutions of hydrochloric and sulfuric acid should not be used. And avoid strong hydrogen peroxide solutions.

It should be noted that as temperature increases, the variety of chemicals that can damage acrylic also increases. So it's important to always clean acrylic showers with solutions mixed in cold water

## Fiberglass

Although acrylic and fiberglass tubs may look similar, their materials and methods of construction are different. Vacuum-forming is not used, and neither are solid vinyl sheets. Instead, the first step in manufacturing a fiberglass shower or tub is a spray application over a mold. The first application is the gel coat, which is made of a special polyester or vinyl resin and provides a glossy, appealing finish, while also giving protection to the underlying fiberglass laminate. Gel coats are 15 to 20 mills at their thickest point (four to five times thicker than the paint on your car). But, unlike acrylic, they are porous and tend to become soiled more rapidly.

Once the gel-coat has cured, additional layers of polyester resin are sprayed on top. Fiberglass is then applied and worked into the surface.

Like acrylic, the gel-coat surface of fiberglass showers can be damaged with abrasive powders, aggressive scrubbing pads and stiff bristle brushes. These cleaning methods will wear away the gel-coat. Once that has happened, the shower will *always look dirty*. So, avoid abrasives at all costs!

And, although it is somewhat more chemical resistant than acrylic, fiberglass is still vulnerable to strong solvents such as isopropyl alcohol and xylene. Cleaners containing ammonia should also be avoided.

## Ceramic Tile

Ceramic tile is a true product of the earth: clay (white or red) is generally the main ingredient, along with other items such as sand, feldspar, quartz and water, although there are a wide variety of formulas. And, depending on the mixture, the resulting ceramic tile can have varying properties: it can be hard, dense and nonporous, or softer, porous and slip-resistant.

The first step in producing ceramic tile involves mixing and grinding material into a very fine dry powder. This powder is known as “body slip” and, once produced, is loaded into a hydraulic press. The tile is formed in the press under up to 4,000 pounds of pressure. The resulting un-baked tile is called a bisque.

Before it is baked, the bisque is subjected to a variety of other processes.

Depending on the process used, the resulting tile will be glazed or unglazed, matte or high gloss, simply colored or more elaborately decorated. Custom tiles may be hand-painted. Decoration on large-batch production tiles is applied with silk-screen or by spraying.

Glazed tile is produced using silica, which forms the glassy layer, along with pigments and various metal oxides (or “flux material”) such as sodium, potassium and calcium, which lower the melting temperature of the glaze.

After undergoing the glazing and coloring processes, the bisque is now known as “green ware”. The green ware may now be fired in a kiln at temperatures of up to 2,500 degrees Fahrenheit. During firing, the glaze is fused to the tile, forming an impact and scratch-resistant surface.

Ceramic tile is generally scratch-resistant. However, it is not scratch-proof.

Quartz, a common ingredient of scouring powders, can scratch glazed tiles (ceramic tile possesses a Mohs hardness of 5-6; quartz 7). When the glaze is scratched, worn, or eroded, the underlying undecorated bisque will be revealed. The tile will become porous, easily stained and harder to clean. Do not use harsh hydrochloric (muriatic) acid or glass-dissolving hydrofluoric acid on ceramic tile.

## **Porcelain Tile**

While ceramic is composed mostly of clay, porcelain tile is composed of up to 50% feldspar. Porcelain is also fired at a temperature much higher than ceramic, and for a longer duration. This makes porcelain tile much harder and denser than other tile products.

Higher quality porcelain tiles also have “through-body composition”. The body of a ceramic tile, exposed by chipping, for instance, will have a different color than the surface. Whereas the body of a high quality porcelain tile will match its surface.

While porcelain tile is more durable, it can still be scratched with highly abrasive cleaners. However, because of the through-body construction, scratches will be less noticeable.

Care recommendations for porcelain tile are the same as those for ceramic tile: avoid abrasive cleaners and solutions containing hydrochloric acid.

## **Porcelain Enamel**

Porcelain enamel is what constitutes the surface of cast iron tubs.

According to the Porcelain Enamel Institute, it is defined as “a substantially vitreous or glassy inorganic coating bonded to metal at a fusion temperature above 800° F.”

Porcelain enamel is no mere coating. It is actually a blend of molten glass and iron. During production, high temperature exposure dissolves iron oxide in the steel tub into the glass surface, forming an inseparable compound that merges the chemical makeup of the glass and metal, resulting in a new, chemically unique finish.

Porcelain tubs are much more chemically resistant than either acrylic or gel-coated fiberglass tubs and showers. And porcelain resists corrosion by most acids, with the exception of hydrofluoric acid cleaners. These cleaners can start to dissolve glass in minutes as they attack both the alkaline and silica components of glass.

Though it is largely resistant to acids, weaker acids and alkalis will over time erode the glass as well. Acids leach out alkaline metals. High pH alkaline cleaners attack the silica matrix of the glass surface and hydrolyze it to silica gel. In most cases, extended lengths of time are needed for these reactions to occur (but, as noted above, hydrofluoric acid takes just minutes to start to erode glass). Some others, like hydrochloric (muriatic) acid, start to erode glass within hours.

Erosion to the bare metal takes time. However, loss of gloss and increased porosity may be noticeable immediately with hydrofluoric acid, and with repeated use with hydrochloric. When using any acid or alkaline cleaner on glass coated surfaces such as porcelain sinks or tubs, be sure to limit the contact time and rinse all surfaces thoroughly with water.

It's also important to note than any chrome plated plumbing fixtures may be damaged with cleaners containing fuming acids such as hydrochloric acid, even if the acid does not directly contact the fixture.

## **Natural Stone**

The care of stone is always the same, whether it's on a floor, countertop or in a shower. Please refer to Kleenco's *Clean Like a Pro: How to Clean Stone* for detailed information on how to clean these surfaces.

Briefly, it is important to note that depending on the stone type, there are an almost endless variety of different abrasion and chemical resistance properties. However, there are two broad categories: calcareous and siliceous.

Calcareous stones are not acid resistant and will quickly be eroded by even mild acids such as lemon juice and vinegar. Siliceous stones, on the other hand, are generally resistant to mild acids. However, aggressive acids such as hydrochloric (muriatic) and hydrofluoric acid should not be used on these stones, nor on any other stone type. More information is contained in the following table.

| Stone      | Formation   | Type       | Acid Sensitivity       | Abrasion Resistance |
|------------|-------------|------------|------------------------|---------------------|
| Granite    | Igneous     | Siliceous  | Resistant (Most Acids) | High                |
| Limestone  | Sedimentary | Calcareous | Sensitive              | Medium              |
| Marble     | Metamorphic | Calcareous | Sensitive              | Medium              |
| Onyx       | Metamorphic | Calcareous | Sensitive              | Low                 |
| Quartzite  | Metamorphic | Siliceous  | Resistant (Most Acids) | High                |
| Sandstone  | Sedimentary | Siliceous  | Resistant (Most Acids) | High                |
| Serpentine | Metamorphic | Calcareous | Sensitive              | Medium              |
| Slate      | Metamorphic | Siliceous  | Resistant (Most Acids) | Medium              |
| Soapstone  | Metamorphic | Siliceous  | Resistant              | Low                 |
| Travertine | Sedimentary | Calcareous | Sensitive              | Medium              |

The above information should always be consulted when determining the proper cleaning method for a particular stone type. Shower-Kleen, or any other acid-based cleaner, for example, must not be used to clean marble. However, if the shower was constructed using soapstone, Shower Kleen can be used, since soapstone is acid-resistant, but vulnerable to abrasion.

## **Cultured Stone**

Cultured stones are mixtures of polyester resin and crushed limestone. The manufacturing process is similar to that of fiberglass showers. First, a gel-coat is applied to a mold, followed by a mixture of resin, catalyst, fillers and pigments. The resulting shower is tough, durable, non-porous and relatively easy to maintain.

Like acrylic and fiberglass, the gel-coat surface of cultured stone showers and tubs can be damaged through the use of abrasive powders, aggressive scrubbing pads and stiff bristle brushes. These cleaning methods will wear away the gel-coat. Thereafter, the shower surface will retain soil and always look dirty.

Although they are somewhat more chemical resistant than acrylic, strong solvents such as isopropyl alcohol and xylene should not be used to clean cultured stone showers. And cleaners containing ammonia should also be avoided.

## **Grout**

Not all grout is the same. Generally, grout used in wet environments such as showers or bathtubs is a mixture of Portland cement, powdered pigments, polymer additives and water. Grout may be sanded or unsanded, depending on joint width. Joints wider than 1/8" require sanded grout.

Harsh acids such as hydrochloric (muriatic) or hydrofluoric acid will erode cement-based grout. During cleaning, if grout begins to bubble or foam, acids present in the cleaning solution are chemically reacting with the grout. Avoid using solutions that react in this manner, as they will dissolve grout. The rate at which grout is dissolved increases as the concentration and temperature of an acid is raised. If needed, limit dwell time, use cold water, and neutralize with an alkaline cleaner. Be sure to rinse thoroughly.

Newer grout formulations, like epoxy grout, do not use cement. As they are water and chemical resistant, epoxy grouts are being used more extensively by today's builders and contractors.

## **Shower Soils**

Dirt, sweat, body oils, soap, detergent, minerals, bacteria: it's all found in the shower or bath, and it's all a pain to remove. Over time, these substances combine in unique ways that can be resistant to many cleaning methods. If the cleaning agent is too weak or poorly formulated it will not remove the soil. But owing to the wide variety of shower materials, some very sensitive, if the cleaning agent is too strong or contains strong harmful solvents or acids, it may damage the shower. Here we have a perplexing problem, but it is a problem with a solution. To discover that solution, we have to know about the particular soil problems present in the shower. Let's start with one of the most widely-faced shower soils: soap scum. As you'll see, removing soap scum can be a real head scratcher.

Soap scum begins as a hard water mineral, namely calcium, dissolved in water, and is introduced into the shower any time it is used. If you have ever seen a white crust on a tea kettle or spots on glasses as they come out of the dishwasher, then you've seen an example of hard water mineral deposits.

Rainwater is naturally soft. However, water is a powerful solvent, and as it travels through spongy rocks like limestone or chalk it dissolves small amounts of naturally occurring minerals and carries them into the groundwater supply.



Ground water (according to the US Geological Survey) is the source of 40% of the water used for public supply and provides domestic water for more than 97% of rural populations.

As the temperature of water increases, for example when it is heated for a shower or bath, the amount of hardness minerals it can hold in solution drops, and the minerals crystalize. Minerals will also precipitate out of cold water when pressure is decreased or when turbulence increases. This happens at control valves and through the use of low flow shower nozzles that force air into the water stream.

Although calcium is especially problematic, as it is responsible for the formation of soap scum, there are many other minerals responsible for shower fog, stains and scale.

| Mineral   | Stains   |
|-----------|--|
| Calcium   | Gray or white crystals or precipitate  |
| Copper    | Blue-green stains or scale buildup on faucets is usually caused by tap water that's slightly acidic or corrosive. This corrosion leaches copper and/or lead from pipes. Copper ions can mix with other metal ions causing multi-colored scale buildup. |
| Iron      | Brown, orange or reddish stains. Water may be clear as soluble iron does not oxidize until it contacts air.  |
| Manganese | May cause brown/black spots or stains and deposits.  |
| Magnesium | Gray or white crystals or precipitate  |

As more minerals precipitate out of the water, whether through temperature or turbulence increases, or pressure decreases, they join previously formed crystals and create scale.

The calcium present in shower water also possesses a strong positive charge. Soap molecules are negatively charged. When a negatively charged soap molecule comes in contact with the positively charged calcium atom, the two bond together and produce a new molecule with no charge. This new molecule combines with oil and, without its negative charge, can no longer be dissolved in water.

This combination of calcium, soap and oil produces a tenacious hydrophobic barrier. And, because it is a combination of different types of soil, removal generally requires different cleaning methods that are often incompatible.

For example, the mineral component of the soil can't be dissolved by ordinary cleaners. Generally, an acid is needed. Strong acids, as we have already learned, tend to harm many different types of shower surfaces. There is another option: a blend of weaker acids, each specifically targeted.

But even then, the acids have to penetrate the hydrophobic soils, such as soap scum and body oil. Although acids can dissolve most metals, they have limited effectiveness at penetrating body oils and soap.

So, to tackle the mineral deposits, the hydrophobic barrier must be addressed as well. Generally, to dissolve these types of soil, an alkaline cleaner is used. But, hold on! If an alkaline cleaner is used to remove the hydrophobic soils, it will also neutralize the acids needed to dissolve the minerals.

That's the catch of shower cleaning. There are too many soil types, demanding too many types of cleaning, with the added constraint of material sensitivity. All of these problems must be addressed. And, quite often, they aren't.

Showers are simply regarded as difficult-to-clean headaches and placed on lists that catalogue aggravating chores. The shower may go uncleaned for long periods of time. And, because it's hard to effectively clean and may go long periods without cleaning, mold, mildew and bacteria often begin to build up in the shower. One may discover "pink slime": that would be the airborne bacteria *Serratia marcescens*, which tends to grow on surfaces that are regularly moistened. Or one may come across the orange, opaque gelatinous film of iron bacteria. Whatever organism that may take root, the result is the creation an unpleasant, unsightly and unhygienic environment.

Cleaning-conscious customers understandably will not tolerate this situation, and will search for a solution. Kleenco has it.

## **The Solution to Bathtub Ring or Shower Fog**

There is a better way to clean showers and tubs. It's called Shower-Kleen.

Shower Kleen is a unique formula, designed to tackle all of the problems associated with shower maintenance.

First problem: the combination of hydrophobic soils and hard water minerals. As we've already mentioned, most cleaning methods can deal with one soil type, or the other. And sometimes, even if they're able to deal with a particular soil, the strength of solution needed to perform effectively may damage the shower.

To solve this problem, Kleenco identified a readily biodegradable solvent. Due to its hydrophilic-lipophilic nature, it is able to penetrate and emulsify oils at a relatively low concentration. It is able to not only emulsify body oils, but also solubilize soap scum. It has strong coupling performance, meaning it will also prevent the reformation of soap scum once dissolved, thus preventing recontamination of the shower surface.

Once the hydrophobic barrier is removed, acids can be used to dissolve scale deposits and shower fog. Strong acids, of course, may damage the shower surface.

But there is another way. Instead of using one strong acid, Kleenco has incorporated a synergistic blend of three mild organic acids and one highly effective mineral acid to loosen and dissolve the different mineral types that cause scale, including calcium, magnesium, iron (rust), aluminum and manganese.

Each acid present in the blend has a particular affinity for one these hardness minerals. That means that just enough of the acid can be incorporated into the formulation to effectively dissolve mineral deposits, and, at their low concentration levels, they will not attack the shower surface or dissolve grout.

To complete the cleaning action, Shower Kleen also includes several chelators, which sequester dissolved hardness minerals, preventing them from reacting with each other or redepositing on the newly cleaned surface.

### **Customer Testimonials**

Read what some of the loyal, repeat users of Shower-Kleen have to say:

*“I have arthritis and needed something to clean my shower that actually works the first time. The sales rep suggested that I try Shower Clean. It is the BEST product that I have ever used and actually removes hard water deposits, soap scum & the body oils without scrubbing.”*

*-Mary Jane*

*“I have recently been fortunate enough to use a product of yours called Shower-Kleen on my fiberglass tub and shower. I have never used anything so effective on built up scale. It is quick with very little elbow grease.”*

*Sincerely yours,*

*-Linda S, San Marcos, CA*

*“You know, it's funny. I first started using products from your store in 1991! I had just bought my home and the shower doors were clear glass. You would not have known though, because they had so much soap scum they looked frosted! I tried everything, nothing worked. None of the shower cleaners, not even scraping with a razor blade! Then I was over at a co-worker's home. His entire house was immaculate! And, when I went into his bathroom, he had crystal clear glass shower doors. I told him of my problem and asked him how he kept his shower doors so clean? He said he had a secret ... your Shower Kleen. Every product I have purchased from Kleenco has worked fabulously.*

*It's great to stop by and get the right product for the issue I need to solve”*

*-Kim Y.*

# Shower-Kleen

**Synergistic. Surface-Safe.**

Do you dread cleaning your shower? Are dirty rings on the tub and foggy buildup on shower doors putting a damper on your morning ritual? Do you put off shower cleaning because it's just too tough, or doesn't seem to do the job?

Well, we have the solution! With Shower-Kleen, you'll actually enjoy cleaning your shower, and the once dreaded chore will quickly move to the top of your to-do list!

Fortified with a special environmentally-safe solvent, Shower-Kleen quickly cuts through tough build-ups of soap scum, body oils, and other nasty bathing soils.

Shower-Kleen incorporates a mild blend of three organic and one mineral acid to safely dissolve scale and hard-water stains from ceramic tile, porcelain, acrylic and fiberglass fixtures. It will even turn fogged-over glass shower doors back into their old, sparkling selves.

Shower-Kleen contains no abrasives, so it's safe for use on the most delicate surfaces. And a fresh mint fragrance controls musty bathroom odors.

Shower-Kleen is highly concentrated, and product strength can be adjusted as needed. Diluted 1-4 with water, it's perfect for maintenance. At full strength, it will safely remove even the toughest soils from neglected tubs and showers.

All ingredients present in Shower-Kleen are readily biodegradable. It's safe for the environment and septic systems when used as directed.

And it's easy to use! After choosing the appropriate dilution, combine Shower-Kleen and water in a small bucket and, with a mild white scrub sponge or pad, apply it from bottom to top. Allow Shower-Kleen to do its work for five to ten minutes, reapply if needed for tough soils, and rinse the shower surface with cool water, working from top to bottom.

And you're done! Goodbye, bathtub ring! Farewell, shower fog! And say hello to a pristine, new-looking shower. It's easy with Shower-Kleen.

