

Greetings from The Herbarie!

Here at Stoney Hill Farm we are busy with our gardening! We have had more rain than usual this spring, which has brought us lush, green foliage and beautiful flowers. We have enjoyed fresh asparagus, yellow squash, radishes, broccoli, and chard---and tomatoes and sweet corn are on the way! For tomato lovers, I highly recommend a variety of called called Rose, which I first grew last year-a name that I could not resist! Fortunately it did live up to it's name. This heirloom tomato makes a big plant with large rosy-red, juicy-rich fruit. Perfect for tomato sandwiches or sliced fresh with a little salt and pepper-yummy! With all the rain, we have not been able to finish all of our spring planting, so some crops may be late this year. But with the rain, the weeds are of course thriving too-some must go, but some we keep. The Lamb's Quarters are kind of tasty in a spring salad and dandelion greens are good too. I nurture my little stand of Chickweed---very good in a salve-or a salad.

As I mentioned in our last Update, our roses have given us their first big bloom which is the highlight of Spring for me. The rains have also brought a bit of blackspot which we don't bother treating. There are some organic fungicides that can be used but I prefer to prune my roses after they bloom to help them recover. Once they rest a bit and take up more nutrients from the soil, their new foliage will be healthy and they will once again share their flowers with us. The most important thing to remember with roses--or plants or people-is to put them in a spot where they are most happy and they will usually thrive.

After the drought of last year, we are thankful for the rain; besides we get to spend more time on the porch! The hummingbirds are fairy-like and magical and a bit militant and definitely territorial in their mission to gather nectar. The call of the whippoorwill at dusk is beautiful, but melancholy. I love to hear it. Sometimes the call goes on all night in his search for a mate-poor lonely fellow!

Our bluebirds have already raised one family this spring and have hatched another. They usually raise three clutches every year. We enjoy watching the bluebird pair, they are such caring and efficient parents!

The Carolina Wren makes her nest in a hollow gourd on the back porch. They like being close to people and will make their deep nest in the bottom of most anything they find. This past weekend we watched the little ones take their first scamper-flight around the back porch---testing their wings before the full flight.

So, life goes on here at Stoney Hill Farm.

This issue of The Herbarie Update is Part I of a two part series that will focus on hair care and how to use surfactants in shampoo and body wash and other personal care cleansers. So, first we'll start with some of the basics about hair care and the

ingredients that are used.

The following article about hair care is from the files of the Cosmeticinfo group and was contributed by Lucy The Dark Angel. It's being used with permission from Pat our list-dad. Cosmeticinfo is a yahoo group that is devoted to providing accurate information for the home-based manufacturer of cosmetics. I've been a member since it's inception and think it's the best resource for anyone involved in toiletries and cosmetics. Here is the link for anyone who may wish to join this excellent and informative group:
<http://groups.yahoo.com/group/Cosmeticinfo/>

"The hair shaft is composed of two major parts, the inside and the outside. Simple enough?"

The inside of the hair is called the cortex and the outside is called the cuticle. A very good analogy would be a piece of electrical cord. On the inside, we have a bunch of fine wires twisted together and on the outside; we have the rubber or plastic insulation.

The insulation protects the fine wires on the inside just as the cuticle protects the cortex. The cuticle is made up of several layers of cells, one overlapping the other, much like shingles on a roof. In a human hair, you will usually have 7 to 12 layers of these overlapping cuticle cells.

The cuticle cells are oriented away from the scalp, so when you comb or brush the hair, you are brushing or combing in the direction of the cells.

Getting back to our electrical cord analogy. The strength of the electrical cord is due to the fine wires on the inside, and this applies to the human hair. The strength of the human hair is primarily due to the cortex.

If you scrape the insulation off the wire, you'll soon expose the fine wires. The same thing happens when you scrape off enough of the cuticle cells from the hair, you'll expose the cortex and you'll have split ends. Since the hair is the oldest at the ends, that where we have the fewest cuticle cells.

So, if you do not condition your hair properly, do not comb and/or do not brush your hair properly, because of friction, you'll lose these protective cuticle cells very quickly and have split ends very quickly. Improper combing and brushing will also cause uneven wear causing roughness in the cuticle cells. Ideally, the cuticle cells lie flat on the hair shaft; Flat cuticle cells make the hair shiny. Rough cuticle cells will make the hair dull. Smooth surfaces reflect more light than a rough surface. Did you ever notice that your hair is shiny near the root area compared to the ends?

The cuticle can also be damaged through chemical processing, perms, hair color, bleaching and hair relaxing. Chemical processing will cause the hair's cuticle to lift up making it rough (less shiny) and more susceptible to mechanical damage due to improper combing and brushing.

Chemical processing will also destroy many of the CO-VALENT BONDS found in the cortex. This irreversible damage to the cortex will make the hair weaker.

Other types of bond found in the hair are the HYDROGEN BONDS. They are very weak bonds but are very numerous. Hydrogen bonds are easily broken with water but are easily re-formed when the hair dries out.

So when you "set" your hair when it's wet, your hair will retain a curl when it dries. Also, when you blow dry your hair "straight", your hair will straighten out. Until you go outside on a humid day, your curl will droop or your frizzies will come back.

You should be especially careful when combing and brushing your hair when it's wet. Since the hydrogen bonds are temporarily destroyed, wet hair is weaker and more subject to damage.

The third types of chemical bonds found in the hair are IONIC BONDS. These bonds are not as strong as co-valent bonds but they are stronger than the hydrogen bonds. Ionic bonds are weakened when the hair is made too acidic or too alkaline. The ionic bonds, sometimes called salt bonds, are a series of positive (+) and negative (-) charges. Because of this, the hair swells when it is too acidic or alkaline.

The ideal is a pH around 5.5 to 6.5. If you've had an alkaline chemical process, you should be definitely be using an acidic conditioner or rinse to bring the hair back into shape,

Some tips for healthier looking hair:

Use a conditioner or a very good rinse. Conditioner and rinses actually lubricate the hair making the hair easier to comb. The easier the hair is to comb, the less mechanical damage. Remember, if you reduce the mechanical damage you'll reduce the cuticle damage.

When you're combing your hair, always start with a wide-tooth comb and start combing from the ends first. When the hair tangles, you have one hair rubbing on another, which will also damage the hair. Over stretching the hair can also cause irreversible damage. DON'T pull through those snarls. You can finish the combing using progressively finer tooth combs and finally a brush.

If you are using an alkaline soap to shampoo your hair, be very careful when the hair is wet. You've weakened the ionic bonds and hydrogen bonds. Always use a good acidic conditioner to strengthen your hair and to minimize subsequent mechanical damage.

Better living through chemistry.

Lucy" (end of article)

Thank you Lucy!

But as all people are different, all hair is different, so no one product is going to work for all hair types or all people. In addition, shampoo can be a bit tricky to make. Like many things, it takes a lot of practice to get it just right. It also takes some trial and error to find out what works best for your hair. All that said, it can be done and I think it's worth the effort .

I think formulating is much like creating a painting, writing a piece of music or a play. We first must learn the basic principles-in this case the science-and then it's up to the artist or formulator to paint the picture, write the play, create the product.

Part I - The Cast of Characters - Ingredients & Formulating

The key components in shampoo/body wash are the cleansing agents. These cleansing agents are categorized as surfactants (surface active agents). Cleansing surfactants typically represent 15%-50% of the shampoo/body wash formulation. Surfactants represent a very large category of ingredients and include everything from solubilizers/emulsifiers and emollients and very mild cleansers to degreasers and industrial strength cleaners. There is a lot of variability within this category of ingredients, but one characteristic is common to all surfactants. All surfactant molecules have a hydrophilic (water loving) head and a lipophilic (oil loving) tail. When using a shampoo/body wash, the lipophilic component of the cleansing surfactant is attracted to the sebum (oil from skin and hair) and residue on skin and hair; and the hydrophilic component is attracted to water. With these characteristics, the surfactant molecule can wet the hair, separate the oil molecules from the hair, surround them, and finally rinse them away. The hydrophilic/lipophilic characteristic of surfactants is an important factor not only in cleansing, but also in solubilization and emulsification.

Shampoo/body wash may contain several surfactants that function differently. Even though the cleansing surfactants are the key players in a shampoo/body wash, we may also include surfactants that offer solubilization, viscosity building and emolliency. Surfactants are classified by their ionic nature and chemical structure: Anionic, Cationic, Nonionic, Amphoteric. These categories can help us to better understand how they

function.

The Anionics have a negative charge and are most often used as the cleansing surfactants. Some examples of anionic surfactants that range from very low irritation potential to high irritation potential include alkyl lactylates, alkyl polyglucosides, sulfococates, isethionates, taurates, alkyl sulfates and alkyl ether sulfates. The most commonly used primary surfactants are by far the alkyl sulfates and alkyl ether sulfates. These surfactants are excellent cleaners/degreasers and are high foamers. These surfactants are also relatively inexpensive and easy to use. The down-side is that they can be very irritating to skin and since they are such good cleansers can strip hair of oils, leaving it overly dry and brittle. Other, less irritating surfactants--known as secondary surfactants--are often used to offset the harshness of the alkyl sulfates. Some of these very mild secondary surfactants include the sulfosuccinates, lactylates, alkyl polyglucosides, and betaines. Over the years, there have been many high quality shampoos formulated with this concept of primary and secondary surfactants. However, due to consumer and lifestyle demands, the secondary (mild) surfactants are being utilized more and more as primary surfactants-replacing the alkyl sulfates and alkyl ether sulfates. In 2003, many consumers in the US shower and wash their hair several times a week, many do so daily and some do so more than once daily. Therefore, there are some experts that believe these mild surfactants are better suited to personal care cleansing products for today's market.

Cationics have a positive charge and are primarily used as conditioners. Skin and hair, particularly damaged skin and hair, have a negative charge. Opposites attract. Cationics are therefore attracted to the skin and hair and are said to be substantive or in other words, will cling to the hair and skin. The result is often a smoother hair cuticle, easier wet-comb and less fly-away.

Nonionics do not have a charge and are often used as emulsifiers and solubilizers, thickeners, foam boosters, stabilizers and some offer light conditioning. Cocamide MEA, the PEG oils, PEG 150 distearate are all nonionic materials.

Amphoterics have both a positive and a negative charge. The charge varies depending upon the pH. They become positive (cationic) in an acidic environment. When the positive and negative charges are in balance, the molecule is referred to as a zwitterion. The best known example of an amphoteric surfactant is cocamidopropyl betaine. This mild surfactant is compatible with most other surfactants and will work synergistically to boost and stabilize foam and improve viscosity in shampoo/body wash.

One other key player in shampoo and body wash is water. Water is the number one ingredient used in all personal care products. Either deionized or distilled water is typically used for personal care products. Water is required to hydrate skin and hair. It is used as a carrier for many products including shampoo and body wash. Most shampoo and body wash contain anywhere from 50-90% water.

So, once our key players-water and our surfactant(s) are selected, then we can move

on to consider some of the supporting players. A basic cleansing product can be made with just a surfactant and water, but there are other important considerations such as viscosity, conditioning, speciality additives, fragrance, etc.

One important factor in formulating a shampoo/body wash is viscosity or thickness. The product must be thick enough so that it doesn't slip through fingers when applying, but not too thick to be unpleasant. Some of the anionics, such as sodium laureth sulfate, can be thickened by using a sodium chloride (salt) solution, but this won't work with all surfactants. Some other possibilities for thickening include PEG 150 Distearate and PEG 150 Pentaerythrityl Tetrastearate, also known as Crothix-Conditioning Thickener. Some starches, gums and cellulose-derived products can be used to increase viscosity and thickness to some extent. A few examples are VenaSilk (hydrolyzed oat starch), GuarSilk (guar hydroxypropyltrimonium chloride), hydroxyethylcellulose, and UltraMaize (hydroxypropyl starch phosphate).

It's best to start with a small percentage of these thickeners. I've found a little goes a long way. I rarely use more than 2% of PEG 150 Distearate or Crothix-Conditioning Thickener, but usually 1% -1.8% is plenty. These two thickeners should be melted with the surfactants or oil phase ingredients and can be used to make a clear gel shampoo or body wash.

The starches also have the ability to thicken shampoo, but some can leave a residue on the hair. This can be of benefit when formulating a volumizing shampoo. VenaSilk is a water soluble ingredient and can be utilized at 0.5-1% to thicken the formula and also provide conditioning. Even though it is a water soluble material, it has an oil-like feel. UltraMaize, another water soluble ingredient, is best utilized from 1-2%.

GuarSilk is an excellent water-soluble conditioner and will also add a bit of thickening to a shampoo. The recommended usage is 0.2% - 0.5%. It should be noted that these starches can also be mixed with polysorbate 20 or a PEG oil and then dispersed into water.

Any of these thickeners/conditioners can be used at a higher percentage, but these are the ranges that I have found to work best.

Conditioners can be added to shampoo. A small percentage works best-usually no more than 2-3%. They are very often cationic and make hair more manageable. The GuarSilk's primary role is as a cationic conditioner. It is perhaps one of the best hair conditioners available. It is the conditioner of choice for dry/damaged hair, hair that is too curly or unmanageable, and will help with flyaway and wet-comb. It's compatible with all the surfactants we sell at The Herbarie.

The Hydrolyzed Proteins and LiproWheat are water- soluble ingredients and all have cationic characteristics and are substantive to hair. We recommend the Hydrolyzed Proteins for hair and skin care, but the LiproWheat is best used for hair care only. The Hydrolyzed Proteins and LiproWheat are light conditioners. They are excellent for most

hair types. They will help the hair to retain moisture and will smooth the cuticle of the hair, leaving it shiny and less prone to breakage and split ends.

DL Panthenol is a water-soluble ingredient. It nourishes and conditions hair and is excellent for all hair types. Panthenol is vitamin B5-pantothenic acid---and is a natural constituent of healthy hair. It can nourish the hair, impart lasting moisturization, and increase the strength of the hair shaft, and therefore prevent damage from overheating and over drying of hair and scalp. DL panthenol can be used in both shampoos and after shampoo conditioners. Recommended usage is 1%.

Some of the nonionic PEG oils are good choices for use as emollients and foam boosters in shampoo/body wash. The PEG oils are water dispersible oils and help to disperse other oils into water. One example is the Olive Oil PEG 7 Esters. This versatile, gentle ingredient can be used as an emulsifier/solubilizer in sprayable lotion milk, dispersible bath milk, creams/lotions and other leave-on products, as well as shampoo and hair conditioner.

Emollients are usually oil-soluble ingredients. They provide lubricity to hair or skin and can increase moisture retention by preventing water loss. They can also improve the feel and slip/glide of most personal care products. Due to the light emolliency of the esters, they are often used to add shine, improve wet comb and condition hair and skin. They are suitable to use in shampoo for dry or unmanageable hair or to provide a sleek, shiny feel and look. Two examples of these esters are EmEster (C12-15 alkyl benzoate) and Fractionated Coconut Oil (caprylic/capric triglyceride). The recommended percentage is 1-2%.

Our new Botanical Complex LHC was created especially for The Herbarie for hair care. This oil soluble complex is a blend of botanicals that have been used traditionally in hair care for many years---Yarrow, Sage, Horsetail, Nettle and Lavender. This product can condition scalp and hair as well as provide a sleek and shiny look. Recommended usage is 1-3% in an after shampoo conditioner.

The silicones are also conditioning agents for hair and can improve wet-comb and add shine. The new dimethicone copolyols are exciting products for use in shampoo, as well as other applications. We plan on offering this product at The Herbarie sometime this summer. This water soluble form of dimethicone is excellent in a spray-on, leave-in hair conditioner.

A key ingredient in an after-shampoo conditioner is the Conditioning Emulsifier. This cationic, self-emulsifier makes an excellent light conditioner by forming a simple emulsion with water. Other ingredients can be added to make a deep conditioning product.

We have several formulas in our formulary for after-shampoo hair conditioners. The Geranium Conditioner with Botanical Complex is recommended for "normal" hair types. This same formula could be "kicked up a notch" with one or some of the following

ingredients: GuarSilk, Olive Oil PEG 7 Esters, EmEster, Botanical Complex LHC. Then you would have a hair conditioner that is suitable for dry/damaged hair or deep conditioning. The same formula can be varied again to provide the sleek and shiny look for long hair. In Part Two, we will take a look at these formulas.

Other shampoo ingredients include humectants, preservatives, fragrance, colorants, pH adjusters, and special additives such as botanical extracts.

Humectants are water-soluble ingredients that can attract water. Two of the better-known humectants are propylene glycol and glycerin. Humectants can help retain the moisture content of products and also will help to retain the moisture content of skin and hair. The recommended usage is 1-3%.

Liquid Germall Plus, LiquaPar Optima, Germaben II are all reliable preservatives to use for shampoo. Please check the recommended percentages for each particular preservative.

Colorants can be used in shampoo and the supplier's recommendation should be followed.

It should be noted that fragrance will have an effect on a surfactant based system. Fragrance oils will vary in their chemical composition and therefore the effects on the shampoo will vary. You can approach this potential problem a couple of different ways. Most professional formulating chemists work closely with a fragrance house to come up with a fragrance that works well within the given formula. Most of us, as homecrafters, are not able to work from this standpoint. So here are our choices: 1) Adapt and adjust the original shampoo formula to work with the fragrance or essential oil or 2) choose a fragrance or essential oil that doesn't effect the original shampoo formula. The recommended percentage used in a shampoo will vary depending on the fragrance or essential oil. I usually use 1% or less. I prefer using essential oils and have found that most of them have little effect on the shampoo/body wash. The essential oils that do not seem to have any effect on the shampoo formula are geranium, peppermint, rosemary, ylang ylang, clary sage, sandalwood, patchouli. The citrus essential oils and fragrance oils that have a citrus base will tend to thin out the shampoo. When adding essential oils or fragrance oils to shampoo, mix with a PEG oil, polysorbate 20, or some of the surfactant to help solubilize the oils into the shampoo solution/emulsion.

Perhaps one of the most important considerations in hair care products is pH. It is important to use products with a slightly acidic pH. Products with an alkaline pH, such as handmade soaps, are not good choices for hair care. Alkaline products will cause the hair shaft to swell and become brittle and therefore prone to breakage and split ends. Hair needs a lower pH to smooth the hair cuticle. One traditional hair rinse is a vinegar solution. The shampoo formulas in our formulary have a pH of 4.5 - 6.5 which is the desired range. The after-shampoo conditioners also have a slightly acidic pH, so there is no need to make any adjustment for pH in these formulas. The Herbarie's Botanical Complex HC and HCA are both pH balanced (4.5-5.5) for hair care and are excellent to

use in formulas or as a final acidic rinse (10 - 50%). They can also be used in a finishing spray to nourish and add shine and body to hair.

This completes our discussion on the basics of hair care and some of the ingredients that can be used in personal care cleansing products.

We have recently added some new ingredients and pricing categories to several of our product lines. We are in the process of uploading the new information, ingredients and pricing to our website. So, you are the first to know about these new products!

New Pricing and Categories on Surfactants will be available July 1, 2003

Cocamidopropyl Betaine

INCI Name: Cocamidopropyl Betaine

This mild, high foaming amphoteric surfactant is often used to boost and stabilize foam and improve viscosity in shampoo and body wash formulations. Cocamidopropyl Betaine can be combined with almost any other surfactant for body wash, shampoo and bubble bath. Physical Form: Gold Color Liquid.

8 oz - \$5.50

2 lbs - \$8.25 (\$4.12 per pound)

8 lbs - \$25.50 (\$3.19 per pound)

40 lbs - \$115.20 (\$2.88 per pound)

Cocobetaine/Lactylate Blend

INCI Name: Cocamidopropyl betaine (and) Sodium Caproyl Lactylate.

Mild Surfactant Blend for body wash and shampoo. Cocamidopropyl betaine and sodium caproyl lactylate. The acyl lactylates are mild, all-natural anionic surfactants that have been used for many years as dough conditioners in the food products industry and to some extent in the personal care industry. When combined with cocamidopropyl betaine, an amphoteric surfactant made from coconut oil, a very mild blend is the result. The recommended use level of this blend is 20-70%. Can be used with UltraMaize to thicken without heat or can be thickened by using the Conditioning Thickener or PEG 150 Distearate with heat to make a crystal clear shampoo. Physical Form: Amber viscous liquid.

8 oz. - \$6.00

1 lb. - \$10.75

2 lbs. - \$16.00 (\$8.00 per pound)

4 lbs. - \$30.00 (\$7.50 per pound)

9 lbs. - \$47.25 (\$5.25 per pound)

40 lbs. - \$158.00 (\$3.95 per pound)

Decyl Glucoside

INCI Name: Decyl Glucoside

This nonionic surfactant is extremely mild and gentle and is naturally derived from sugar. Recommended for sensitive skin, facial products, shampoo and body wash. For shampoo and body wash formulations, use with Cocamidopropyl Betaine or any of The

Herbarie surfactants. Physical Form: Gold Color Liquid

8 oz. - \$5.95

2 lbs. - \$17.95 (\$8.98 per pound)

9 lbs. - \$63.00 (\$7.00 per pound)

45 lbs. - \$202.50 (\$4.50 per pound)

Polyfactant DLS

INCI Name: Decyl Polyglucose (and) Disodium Laureth Sulfosuccinate

Newest of the ultra-mild surfactant blends for shampoo and body wash. Naturally derived polyglucose combined with ultra-mild sulfosuccinate! The recent popularity of the sulfosuccinates is due to the excellent foaming and extremely gentle cleansing qualities. To create a gel-like conditioning shampoo/body wash, use Conditioning Thickener-crothix and LiproWheat (conditioning). Recommended usage: 15.0 - 50.0% surfactant blend with 1.5% Conditioning Thickener-crothix and 1.0 - 2.0% LiproWheat. Other suggestions to increase substantivity for hair and skin: Hydrolyzed Proteins or Amino Acids, Jojoba oil, Glycerin. Physical Form: Amber Liquid.

4 oz. - \$4.50

8 oz. - \$6.00

1 lb. - \$10.62

2 lbs. - \$16.00 (\$8.00 per pound)

4 lbs. - \$28.40 (\$7.10 per pound)

8 lbs. - \$46.08 (\$5.76 per pound)

Polyglucose/Lactylate Blend

INCI Name: Decyl glucoside (and) Sodium Lauroyl Lactylate

An exciting new ultra-mild, all-natural blend of surfactants---decyl glucoside and sodium lauroyl lactylate. The acyl lactylates are mild, all-natural anionic surfactants that have been used for many years as dough conditioners in the food products industry and to some extent in the personal care industry. When combined with decyl glucoside, a nonionic surfactant made from sugar, a very stable, exceptionally mild, effective all-natural surfactant blend is the result. Concentrated, easy to use. Ideal for baby products and sensitive skin. The recommended use level of this blend is 20-70%. Can be used with UltraMaize to thicken without heat or can be thickened by using the Conditioning Thickener or PEG 150 Distearate with heat to make a crystal clear shampoo.. Physical Form: Amber viscous liquid.

8 oz. - \$7.00

1 lb. - \$12.95

2 lbs. - \$18.00 (\$9.00 per pound)

4 lbs. - \$33.00 (\$8.25 per pound)

9 lbs. - \$56.25 (\$6.25 per pound)

40 lbs. - \$190.00 (\$4.75 per pound)

SCI Noodles

INCI Name: Sodium Cocoyl Isethionate

Mild primary surfactant with a dense, luxurious foam. Our SCI Noodles can be combined with other surfactants to make an elegant creamy shampoo and body wash.

They can be used as the only surfactant in a cream or solid bar cleanser. In both hair and skin care applications this surfactant creates an elegant feel during use and a conditioned afterfeel. Physical Form: Easy to handle white noodles. Recommended Usage: 3%-16%

4 oz. - \$4.50

8 oz. - \$7.50

1 lb. - \$9.00

5 lbs. - \$30.00 (\$6.00 per pound)

20 lbs. - \$100.00 (\$5.00 per pound)

SCI Pearl Surfactant

INCI Name: Sodium Cocoyl Isethionate

Easy to use buttery form of the mild, anionic primary surfactant sodium cocoyl isethionate. This product has a dense, luxurious foam that leaves skin feeling soft and conditioned. In both hair and skin care applications this surfactant creates an elegant feel during use and a conditioned afterfeel. SCI Paste can be used as the only surfactant in shampoo/body wash formulations or in combination with any of The Herbarie surfactants. Can be used as the primary surfactant to create a thick, creamy shampoo. Physical Form: Pearly White Butter Consistency. Recommended Usage: 3%-16%

4 oz. - \$5.50

8 oz. - \$7.50

1 lb. - \$10.75

5 lbs. - \$37.50 (\$7.50 per pound)

30 lbs. - \$97.95 (\$3.27 per pound)

SCM Taurate Surfactant

INCI Name: Sodium Methyl Cocoyl Taurate

The Herbarie's SCM Taurate is a mild, high foaming anionic surfactant with an elegant, conditioned afterfeel. This product is excellent in shampoo and body wash and can be used to create a clear gel shampoo or body wash. It can be used alone as the only surfactant or in combination with other surfactants. Physical Form: Pearly White Butter Consistency

4 oz. - \$5.25

8 oz. - \$7.25

1 lb. - \$10.50

8 lbs. - \$48.30 (\$6.03 per pound)

40 lbs. - \$122.40 (\$3.06 per pound)

Research and development is an important part of what we do at **The Herbarie**. Much time and effort are devoted to identifying and developing the best in high quality products for personal care and offering them at affordable prices in convenient packaging and sizes.

I hope you have enjoyed learning more about hair care and all the "goodies" that go into shampoo/body wash and other personal care cleansers. Please "stay tuned" for Part

Two of this two part series where we will develop formulas for shampoo, body wash and other personal care cleansers. We will also be offering some fun recipes with ingredients that you can find in your own kitchen!

The best to you,
Angie Turner

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