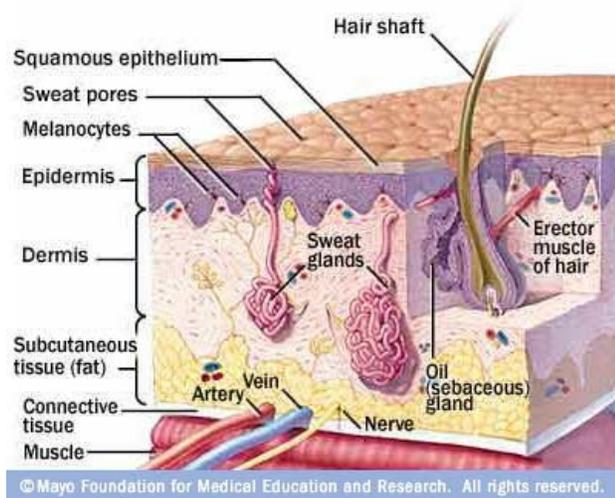


Know Your Skin



Our skin is the largest eliminating organ which helps to release toxins via excretion of toxins through rashes and sweat. Helping to balance our internal environment and is roughly 20 sq. ft. weighing around 7 lbs. on an adult. Varying in thickness from the soles of our feet to the thin skin on our eye lids. Helping to provide a barrier from ultra violet light to invaders. It is our first line of defense and usually the last to truly be cared for.

Our skin functions to assist in protecting cells by preventing moisture loss, maintain body temperature and excrete waste, and synthesize Vitamin D. We have 2 main layers to our skin with

each providing it's own unique benefits. These layers are the Epidermis and the Dermis.

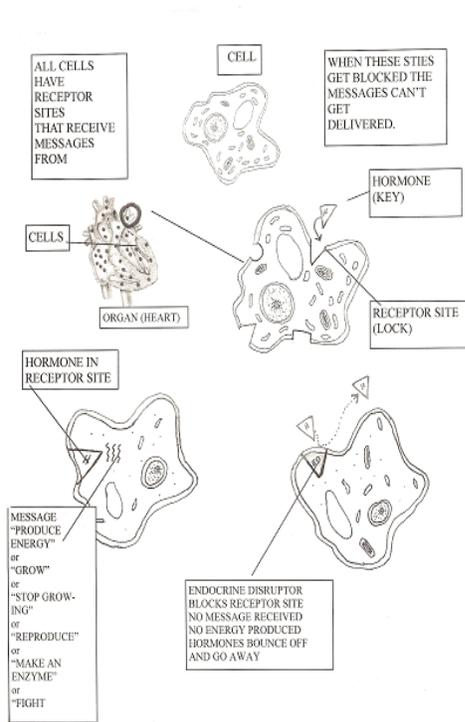
The Epidermis has 5 layers with the 5th layer continuing to divide and create the layers above. By moving upwards, they become hard and are continuously shed-our dead skin cells. The five layers are:

- Waterproof layer called stratum corneum. Our dead skin cells.
- Non-dividing layer which is thicker called the stratum lucidum.
- Flattened cells called stratum granulosum.
- Spiny or prickly cells called stratum spinosum
- layer where cells are divided and pushed upwards is called the stratum germinativum. This is where the pigment of our skin is created by cells called melanocytes.

The Dermis contains lymphatic vessels, nerve fibers, blood capillaries, sweat glands, hair follicles and sensory nerve endings. The dermis is a thicker layer of connective tissue. For every 0.155 inch of skin we have roughly 3 million cells, one yard of blood vessels, 100 sweat glands and thousands of sensory cells. This is why nourishing your skin rather than harming it is so very important.

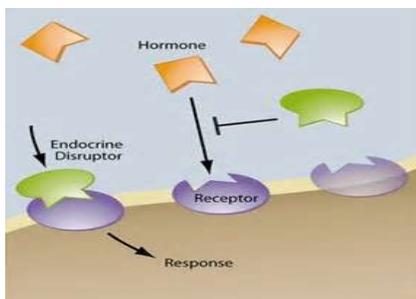
Because our skin absorbs not only beneficial nutrients with direct application, it also absorbs toxic substances like chemicals, synthetics and mineral oil. When a natural substance such as an Essential Oil is absorbed it is filtered into the dermis. From the dermis it enters into the bloodstream, lymph and cells and is then eliminated. That which is not utilized or needed is excreted through sweat or perspiration. Some Essential Oils are eliminated through the kidneys, bowels and lungs.

CERTIFIED AROMATHERAPY COUNSELOR COURSE – SESSION 5 – PRESERVATIVES

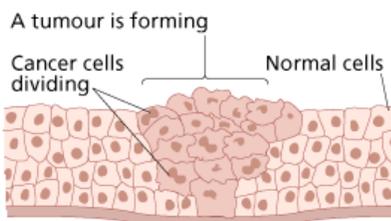


The stronger the sweat the more toxic your internal system is. Because the molecular structure of synthetic chemicals is small they too pass through our system. Upon detection of a foreign synthetic substance our system goes into a defense mode. These synthetic substances can attach themselves to healthy cells, thus disease begins. The small molecular size is what allows Essential Oils, synthetic chemicals and environmental toxins to enter our body. It is also what allows Essential Oils to cross the blood brain barrier and placenta barrier. This is the reason that we need to be aware of any contraindications or cautions when using Essential oils. Especially with children, babies, the elderly and our pets. It is also very important to understand that synthetic chemicals do have and can cross from our epidermis to our dermis and into our bloodstream. Our systems can

detect a natural substance, metabolize it and excrete what is not needed. When a synthetic chemical is introduced, your system detecting an invader goes on the attack. Synthetics once passed through the bloodstream will attach themselves to healthy cells causing a mutation.



Synthetic chemicals can interrupt the natural process of our bodies in regulating needed hormones. They can induce an allergic reaction causing rashes, sneezing and flu like symptoms not to mention adding to the possibility of getting cancer.



When these invaders attach to healthy cells within our system, they now mutate that cell. The mutation continues and has the possibility to become a growth or tumor. The use of parabens alone have been found in the tissue of the breasts.

Our Need For Preservatives



With the over use of antibacterial soaps, germs and bacteria have now begun to mimic and mutate the very bacteria they are supposed to guard against. When they mutate they have now become “immune” so to speak. With each new mutation these antibacterial products are no longer effective. Now we find a brand new strain which makes companies now add more artificial synthetic chemicals. Do you ever wonder why even after using these types of soaps, you and your family are still getting sick. Germs cannot mimic a natural plants constituents, this is what helps plants to survive year after year.

Cinnamon Zeylanicum



Cinnamon leaf has been shown to have a 92% kill rate on 25 strains of Gram Negative and Gram Positive Bacteria. It destroys germs, bacteria in staph infections and can kill airborne bacteria and viruses. It can kill typhoid bacillus at a dose of one part in 300. It is an excellent preservative and has the ability to kill pathogenic organisms. It is highly antimicrobial.

These invaders cannot mutate and mimic a natural plant, therefore an immunity is impossible and the virus, germs, bacteria and mold are killed. Studies have shown that Cinnamon Essential oil is very effective when used on and around mold to retard and destroy the growth. You have to be very careful when using cinnamon bark essential oil as your only preservative due to fact it can irritate the skin, however it is used in very low quantities.

The Safety of Preservatives

Mold grows in lotions and creams due to the addition of water. Water in itself has a host of bacteria particles. There are over 80 regulated contaminants as well as unregulated toxins like fuel and drugs in our drinking water. It contains fluoride, arsenic and chlorine, hormones and fecal matter. The EPA's primary drinking water regulations indicate that there be no more than 5 out of 39 analyzed samples a month containing coliform-positive or fecal matter.

CERTIFIED AROMATHERAPY COUNSELOR COURSE – SESSION 5 – PRESERVATIVES

Due to the bacteria already present in water we have no choice but to add a preservative to our products. These preservatives “hold back” the germs, bacteria and mold from taking over. This does not mean that a product will not spoil or become rancid. It is not a guarantee that your product with a synthetic preservative will never go bad. It can and it will. The longer it is stored the more problems can arise. Have you ever pulled out a bottle of lotion you had tucked away in the back of your cupboard? Did you notice the smell? It has turned rancid and is also now toxic.

Many of the more naturally derived preservatives also carry controversy like Potassium Sorbate. However it is much better in the long run to use as natural as possible. I would personally use a product derived from salts than of parabens. Your risks with natural preservatives are so much lower. Our system can recognize a natural based preservative, essential oil, herb or carrier oil and has to fight an invading synthetic chemical. Nature offers us so many amazing benefits that is up to use to embrace them and allow them to do the work they are intended to do.



One example of the amazing properties and power of nature is the Aloe Vera Plant. When you cut off a leaf on an Aloe Vera plant for use, activation within the plant begins and it heals itself. Once it has been cut it will seal over similar to a scar. This is why Aloe Vera is such an amazing ingredient to use in our personal care products.

We can reduce the chemical toxicity in our homes, in our lives, and in our personal care. We simply have to go back to the basics of simplicity. We can learn to create many of our own products using what nature has provided. Keep in mind Aubrey Organics has been highly successful using natural preservatives for a very long time. We can create our own healing lotions to aid dry skin, eczema, psoriasis and acne. Produce healing ointments for rashes, cuts etc. and health giving tinctures. Knowing exactly what is in your products is the first step to eliminating toxins. Our bodies know what to do, it is our job to stop feeding them toxic synthetic chemical invaders. Working with natural preservatives is a trial and error process. Some you will find easy and others will be difficult. Benzoin for example is one that is very difficult to work with and one I do not use.

From Head To Toe

SHAMPOO
AVERAGE NUMBER OF CHEMICALS: 15
MOST WORRYING: Sodium Lauryl Sulphate; Tetrasodium and Propylene Glycol.
POSSIBLE SIDE-EFFECTS: Irritation; possible eye damage.

HAIRSPRAY
AVERAGE NUMBER OF CHEMICALS: 11
MOST WORRYING: Octinoxate, Isophthalates.
POSSIBLE SIDE-EFFECTS: Allergies; irritation to eyes, nose and throat; hormone disruption, linked to changes in cell structure.

EYE SHADOW
CHEMICALS: 26
MOST WORRYING: Polyethylene terephthalate.
POSSIBLE SIDE-EFFECTS: Linked to cancer; infertility; hormonal disruptions and damage to the body's organs.

BLUSHER:
CHEMICALS: 16
MOST WORRYING: Ethylparaben, Methylparaben, Propylparaben.
POSSIBLE SIDE-EFFECTS: Rashes; irritation; hormonal disruptions.

LIPSTICK
CHEMICALS: 33
MOST WORRYING: Polymethyl methacrylate.
POSSIBLE SIDE-EFFECTS: Allergies; links to cancer.

FOUNDATION
CHEMICALS: 24
MOST WORRYING: Polymethyl methacrylate.
POSSIBLE SIDE-EFFECTS: Allergies; disrupts immune system; links to cancer.

NAIL VARNISH
CHEMICALS: 31
MOST WORRYING: Phthalates.
POSSIBLE SIDE-EFFECTS: Linked to fertility issues and problems in developing babies.

DEODORANT:
CHEMICALS: 15
MOST WORRYING: Isopropyl Myristate, 'Parfum'.
POSSIBLE SIDE-EFFECTS: Irritation of skin, eyes and lungs; headaches; dizziness; respiratory problems.

PERFUME:
CHEMICALS: 250
MOST WORRYING: Benzaldehyde.
POSSIBLE SIDE-EFFECTS: Irritation to mouth, throat and eyes; nausea; linked to kidney damage.

BODY LOTION
CHEMICALS: 32
MOST WORRYING: Methylparaben, Propylparaben, Polyethylene Glycol, which is also found in oven cleaners.
POSSIBLE SIDE-EFFECTS: Rashes; irritation; hormonal disruption.

FAKE TAN
CHEMICALS: 22
MOST WORRYING: Ethylparaben, Methylparaben, Propylparaben.
POSSIBLE SIDE-EFFECTS: Rashes; irritation; hormonal disruption.

Before we discuss the natural side and list the natural preservatives I feel it is important to give you a list of the synthetic chemical preservatives used today. Many are in the products you will find in the health food store and online. By knowing the names even if they say derived from natural sources you can avoid them. Most that use the term “derived from natural sources” only means that it began in the natural state and was chemically altered to suit the needs of the manufacturer. As long as it was derived from the natural they can add their chemicals to it to “make it more effective” if they choose. Not everything derived from natural sources remains natural. The diagram shows just how many synthetic chemicals we use on our body on a daily basis.

Toxic Chemicals Used Today

Hazardous Ingredient Glossary

<u>1,4-dioxane</u>	<u>Cetalkonium chloride</u>	<u>Dimethicone Copolyol</u>
<u>2-bromo-2-nitropropane-1,3-diol (Bronopol)</u>	<u>Cetrimonium chloride</u>	<u>Disodium Dioctyl Sulfosuccinate</u>
<u>Alcohol, Isopropyl (SD-40)</u>	<u>Chloromethylisothiazolinone</u>	<u>Disodium Laureth Sulfosuccinate</u>
<u>Ammonium Laureth Sulfate (ALES)</u>	<u>Isothiazolinone</u>	<u>Disodium Oleamide Sulfosuccinate</u>
<u>Ammonium Lauryl Sulfate (ALS)</u>	<u>Cocoamidopropyl Betaine</u>	<u>DMDM Hydantoin</u>
<u>Anionic Surfactants</u>	<u>Cocoyl Sarcosine</u>	<u>Ethoxylated surfactants</u>
<u>Benzalkonium Chloride</u>	<u>Cyclomethicone</u>	<u>FD&C Colour Pigments</u>
<u>Butylated Hydroxyanisole (BHA)</u>	<u>DEA (diethanolamine), MEA (Monoethanolamine), & TEA (triethanolamine)</u>	<u>Formaldehyde</u>
<u>Butylated Hydroxytoluene (BHT)</u>	<u>Diazolidinyl urea</u>	<u>Fragrance</u>
<u>Cationic surfactants</u>	<u>Dimethicone</u>	<u>Hydrolysed Animal Protein</u>
<u>Imidazolidinyl urea</u>	<u>Paraben preservatives (methyl, propyl, butyl, and ethyl)</u>	<u>Sodium Laureth Sulfate (SLES) Ammonium Laureth Sulfate (ALES)</u>
<u>Lanolin</u>	<u>Paraffin wax/oil</u>	<u>Sodium Lauroyl Sarcosinate</u>
<u>Lauryl dimonium hydrolysed collagen</u>	<u>Polyethylene Glycol (PEG) compounds</u>	<u>Sodium Lauryl Sulfate (SLS) Ammonium Lauryl Sulfate (ALS)</u>
<u>Lauryl or Cocoyl Sarcosine</u>	<u>Potassium Coco Hydrolysed Collagen</u>	<u>Sodium Methyl Cocoyl Taurate</u>
<u>Lauryl Sarcosine</u>	<u>Propylene/Butylene Glycol</u>	<u>Stearalkonium Chloride</u>
<u>Liquidum Paraffinum</u>	<u>PVP/VA Copolymer</u>	<u>Talc</u>
<u>MEA compounds</u>	<u>Quaternium-7, 15, 31, 60, etc</u>	<u>TEA (Triethanolamine) Laureth Sulfate</u>
<u>Methylisothiazolinone and Methylchlorisothiazolinone</u>	<u>Rancid Natural Emollients</u>	<u>TEA compounds</u>
<u>Mineral Oil</u>	<u>Silicone Derived Emollients</u>	<u>Toluene</u>
<u>Nitrosating Agents</u>	<u>Sodium Cocoyl Sarcosinate</u>	

Most of these you have probably read on countless labels, and most will be followed by “from natural sources”. If you go online and research any of the above you will then be able to know exactly what effects they have. Many sites will include what is known as MSDS sheet. This sheet will give you all the information from chemical name, supplier and toxic effects on and in the human body. It is wise to know what you are putting on and how it is effecting you. The list above is but just a handful, there are over a thousand or so in use today.

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Before we look at and describe the natural preservatives I want to go over the synthetic preservatives used today. Many so called “natural” based companies use these in their products. Just because it is in a health food store does not mean it is safe.

The Nasty Preservatives

Parabens: including: Methyl, Ethyl, Butyl and Propyl. Most widely used by natural companies and main stream companies. Most combine more than one in each product. They are also used in cough preparations and medications. They are used to extend the shelf life of products. They are toxic and found in breast tissue and in the umbilical cord of newborn babies.

Tetrasodium or EDTA: Known Carcinogen. It is formaldehyde and sodium cyanide. It is used as a “penetration enhancer”. It can break down the skin's protective barrier allowing this toxin into your bloodstream.

Urea: Contains ammonia which is toxic. It is produced from the urine of pregnant mares. Causes contact dermatitis. Can break down during shelf life. A water-soluble compound that is the major nitrogenous end product of protein metabolism and is the chief nitrogenous component of the urine in mammals and other organisms. Also called carbamide.

Propylene glycol: Used as a “penetration enhancer” and accelerates penetration. This allows it to absorb into the skin and passes to the bloodstream. It is a form of mineral oil found in automatic brake and hydraulic fluid and industrial antifreeze. In the skin and hair, propylene glycol works as a humectant, which causes retention of moisture content of skin or cosmetic products by preventing the escape of moisture or water. The Material Safety Data Sheet warns users to avoid skin contact with propylene glycol as this strong skin irritant can cause liver abnormalities and kidney damage. Eye irritation, skin irritation, skin drying, defatting. Ingestion has serious health effects similar to above. This product is added to children's cough syrup and other over the counter medications.

Triethanolamine or TEA: Causes numerous external and internal reactions. It is used to balance PH and blend oil and water in products. Harmful to lungs, eyes and causes inflammation. It has caused liver tumors in mice and damaged genetics. It causes immune and lung toxicity, carcinogenic, organ toxicity, endocrine disruptor. It causes cell mutation and tumor formation in animals. Has been linked to cardiovascular, stomach and digestive system toxicity.

Phthalates or Diethyl Phthalate: Used in nail polish, lotions and deodorants. It is known to cause birth defects in male reproductive systems. It has been found in the bloodstream, tissues and urine.. 97% of Americans have this in their bloodstream.

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Phenoxyethenol: Being used today and called “natural” in many cosmetics. As a preservative it is also used in medications. It can depress the central nervous system and can cause vomiting and diarrhea. This is according to the FDA: The FDA itself has warned against the ingredient as being potentially harmful to infants. Here is a quote directly from the FDA website: "Phenoxyethenol is a preservative that is primarily used in cosmetics and medications. It also can depress the central nervous system and may cause vomiting and diarrhea, which can lead to dehydration in infants." Avoid.

1,4 Dioxane: Eye and mucous irritant, skin irritant, central nervous system depressant and toxic to the liver and kidneys. According to the EPA: 1,4-Dioxane is used as a solvent. Acute (short-term) inhalation exposure to high levels of 1,4-dioxane has caused vertigo, drowsiness, headache, anorexia and irritation of the eyes, nose, throat, and lungs in humans. It may also irritate the skin. Damage to the liver and kidneys has been observed in rats chronically (long-term) exposed in their drinking water. In three epidemiology studies on workers exposed to 1,4-dioxane, the observed number of cancer cases did not differ from the expected cancer deaths. Tumors have been observed in orally exposed animals. EPA has classified 1,4-dioxane as a Group B2, probable human carcinogen. To read about the effects of this toxic chemical I urge you to visit: <http://www.epa.gov/ttn/atw/hlthef/dioxane.html>.

Polyethylene Glycol or PEG: Carcinogenic, can alter and reduce your skin's natural moisture factor. Can increase bacteria and aging of the skin. It is used to dissolve grease and is a major ingredient in oven cleaner.

A Natural Way – Natural Preservatives

If you see an ingredient that you do not recognize or cannot pronounce, it is in your best interest to research it. You can find MSDS sheets, information on the EPA's website, skin deep cosmetics and many other locations. By educating yourself on the synthetic chemicals used to today and the names they go by, you can begin to avoid them and eliminate them from your home.

In the following descriptions of natural safer alternatives to preservative, I will provide information courtesy of lotincrafters.com. There are many new and natural preservatives on the market today which I have not used yet. The demand to eliminate caustic chemicals from our lives current manufacturers have to produce an natural based preservative. However as you begin to make products at home, you can use any number or the listed preservatives. When making your own products it is always a good idea to create in small quantities. This way your product will be used within a short period of time eliminating the need for synthetic chemicals. You will come to know the ones that will extend the shelf life for longer periods of time. I urge you to work with all of them over time so that you can determine which ones work best for the application you desire.

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Citric Acid: You would use at a rate of 0.05% to 0.3% in your heated distilled water solution, setting this aside to dissolve and cool. This keep the pH of lotions low. It is an antioxidant, prevents rancidity, astringent, adjust pH levels, stabilizes ingredients and color, it is biodegradable and is readily metabolized and eliminated through the skin.

Geranium Essential Oil: Geranium is used to inhibit the growth of mold and yeast, it is anti-bacterial, oil soluble and mild to the skin of children. When combined with other essential oils the sweet feminine fragrance is not detected. It is combined with other natural preservatives. Essential oils must be added last after your product has cooled. It is recommended to use 1 drop per 2 oz.

Goldenseal Root: Slows the growth of yeast, mold, fungus and bacteria. Infuse in your distilled water solution at roughly 1oz herb to 10-12oz water.

Grapefruit Seed Extract: Slows the growth of mold, yeast, fungus and bacteria and is soluble in your water solution. Use at a rate of .5% to 1%. One of the best natural preservatives available.

Green Tea Extract: Very powerful antioxidant added to your water solution. Use at a rate of 0.5% to 3%. It helps fight cancer and sun damage, aides in skin cell regeneration. You can purchase this in gel capsule form and use 1 capsule. You can also infuse your distilled water with pure organic green tea then add citric acid and let cool. You can also find green tea powder. You would add the powder to your heated distilled water then strain and continue as above with the tea.

Rosemary Oil Extract: This is a natural antioxidant and is oil soluble. It does have a greenish tint that will transfer to your product. Using it at rate of 0.1% to 0.5% added to your oil solution or 1 drop per ounce. It is usually combined with Grapefruit Seed Extract or Vitamin E.

Vitamin E also called T-50: Mixed tocopherols from vegetable oils. It is a powerful antioxidant and is used at a rate of 0.04% to 0.5%. This helps oils from becoming rancid , separating or turning yellow. Excellent to add to your ointments and salves. Can extend the shelf life. Need to be combined with other natural preservatives.

Elderberry extract INCI: Sambucus Nigra Fruit Extract:

Also branded as “PhytoCide Elderberry OS”, this oil-soluble, efficacious, multifunctional natural alternate preservative can be used in cosmetics and personal care applications. Elderberries are also high in antioxidants, so this preservative brings an extra benefit. Elderberry extract is used as an antimicrobial for lip balms, lipsticks, and scrubs, as well as other cosmetic formulations containing oil. It’s also anti-aging and conditioning to the skin. Because it’s not antibacterial or anti fungal, it’s paired with a compound that is for best results. Not a commonly seen preservative, and can also be mixed with other extracts. It can be used in formulations at up to 5%.

The following information can be found at Lotion Crafters online.

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Potassium sorbate INCI name: Potassium sorbate:

This popular preservative is often touted as being all-natural since it's produced by neutralizing potassium hydroxide with sorbic acid, the latter which can be found naturally in certain berries. However, most potassium sorbate developed today are done so under synthetic means. Potassium sorbate is currently approved by the Australian Certified Organic (ACO) for use in organic beauty products. It is often used to inhibit yeast, fungus and mold growth in wine, fruit drinks and yogurt, and can do the same for beauty products. However, it's not antibacterial, so it has to be used as a co-preservative with a compound that is (such as sodium benzoate).

Benzyl alcohol INCI name: Benzyl alcohol:

Another preservative considered 'natural', it can be produced naturally by many plants and can be found in various teas and fruits. It's also found in several essential oils such as jasmine and ylang-ylang. Benzyl alcohol is prepared by the hydrolysis of benzyl chloride using sodium hydroxide, and has a mild, pleasant aroma. It is also antimicrobial, antibacterial and anti-fungal. As a preservative, benzyl alcohol is used in amounts up to 1% due to its possible toxicity when used in high dosages. In beauty products, it's most often paired with potassium sorbate, and popular due to its scent

Hydroxymethylglycinate INCI name: Sodium hydroxymethylglycinate:

Yet another preservative touted as safe and natural, hydroxymethylglycinate is derived from glycine, a naturally occurring amino acid often used in dietary supplements, or amino-ascetic acid. It is often sourced from soy or sugar. However, this preservative isn't 'natural' – the process required to produce this is heavily synthetic. It is used in extremely low amounts, usually around 0.1% since higher amounts can irritate skin and eyes. It also smells very unpleasant. Hydroxymethylglycinate serves as an effective safeguard against bacterial, mold, and yeast.

Natacide INCI name: Fragrance, parfum:

Natacide is actually the brand name of a newer vegetable derived preservative that's extremely effective at inhibiting bacteria (gram positive and negative), yeast and mold. Companies using Natacide are even calling their products 'preservative-free', so keep that in mind. It is approved by the Australian Certified Organic (ACO). It smells pleasantly of almonds and vanilla, and boasts good stability. Natacide is also a very effective antimicrobial preservative, and can be used alone or with other preservatives. It is soluble in water, glycol and alcohol. When used as the sole preservative, its recommended level is between 0.3% to 1%. As a co-preservative, it's between 0.2%-0.5%. You won't see this listed in ingredients due to the trade name. Instead, it can be listed as "fragrance" or "parfum" for INCI purposes, so if you're unsure, always ask the company! This is another reason why the term "fragrance" on personal care products aren't always automatically bad

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Honeysuckle extract INCI: Lonicera Caprifolium extract, Lonicera japonica:

Also sold under the brand name “Plantservative”, honeysuckle extract is an antibacterial and antiviral preservative in personal care products. This is also used in many teas and Chinese herbal formulas for medicinal purposes, and can help with ailments such as fever, headaches and sore throat when paired with other herbs. Honeysuckle extract contains para-hydroxybenzoic acid, and from those esters are the synthetically created paraben (note the name para-hydroxy benzoic acid). Coconuts also contain para-hydroxybenzoic acid. While the parabens we know of in personal care products and cosmetics are synthetic, honeysuckle has a ‘natural’ form of it since the molecular structure is nearly identical. Blueberries have a natural form of methylparaben as well, where it acts as a antimicrobial agent. Honeysuckle extract is not stable alone, and must be paired with a co-preservative.

Colloidal Silver OR Silver Shield:

Silver Shield disables the specific enzyme that many unwanted microorganisms need to metabolize oxygen (breathe). When this enzyme becomes disabled, the microorganisms cannot thrive. Technology has been effective against unwanted microorganisms when tested in-vitro. The amount of colloidal silver per jar of cream is 0.5% concentration (less than 0.3 mg per 60 ml jar of the cream). This means that with each application you apply approximately 0.005 mg of colloidal silver. This tiny amount will not produce any side effects. Silver doesn’t build up in the body when used as recommended. It normally excretes with urine in 4-6 hours. Here’s a bit of a history on colloidal silver. Chemically speaking, colloidal silver is a water suspension of ionic silver or silver proteins. “The antimicrobial action of silver or silver compounds is proportional to the bio-active silver ion (Ag(+)) released and its availability to interact with bacterial or fungal cell membranes,” wrote Dr. Lansdown of Imperial College Faculty of Medicine in London. “[Silver ion is biologically active and readily interacts with proteins, amino acid residues, free anions and receptors on mammalian and eukaryote cell membranes.” In natural cosmetics, colloidal silver makes a safe and nonirritating preservative with an added anti-inflammatory alternative to paraben and formaldehyde preservatives Silver has a long history as an antibiotic in human health care. Since medieval times silver has been used as a bactericidal agent that helps heal skin abrasions and burns, water purification, wound care, bone prostheses, reconstructive orthopedic surgery, cardiac devices, catheters and surgical appliances.

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PhytoCide Aspen Bark Extract Powder CAS No. 90083-05-9

PhytoCide Aspen Bark Extract is extracted from the bark of the American Aspen tree, also known as the Quaking or Trembling Aspen. It originates in the northwestern areas of North America where it grows in vast colonies that originate from a single seedling, sprouting root suckers (new stems) from the far reaching roots. Although the trees may live on average between 40 and 150 years, the root system can survive for considerably longer as their extensive root system is able to withstand the devastation of fire and new trees spring forth from the roots. In Utah, one Aspen colony is referred to as "Pando" and is said to be 80,000 years old. The bark of the Aspen tree is rich in salicylates that may function as the plant's natural defense mechanism against invading parasites. Historically, the salicylates in Aspen bark have also been used for medicinal purposes. Medicinal barks have been used as analgesics and to reduce fevers for centuries. Today, the natural salicylates in Aspen Bark have been isolated by Active Micro Technologies and standardized between 54.0 - 60% in PhytoCide Aspen Bark Extract Powder. This powder has been found to have a useful activity as an antimicrobial in cosmetic and personal care products. Initial efficacy testing has shown it to be effective at inhibiting the growth of *E. coli*, *S. aureus*, *B. subtilis*, *P. aeruginosa*, yeast and mold. Additionally, it may also impart a smooth feel to the skin.

Suggested Applications

- Skin Conditioning
- Antimicrobial

Processing Information

PhytoCide Aspen Bark Extract Powder is GMO Free and no ethoxylation, irradiation, sulphonation, hydrogenation, or ethylene oxide is used in processing. The solvent used for extraction is simply water.

Key Benefits

- Water soluble
- Naturally derived botanical extract
- Virtually odorless
- Heat stable to at 60°C (140°F)
- Broad spectrum of antibacterial activity
- REACH Status - fully compliant
- Compatible with a wide range of cosmetic ingredients
- Can be used with other antimicrobial for broad spectrum activity
- Very mild, with low to no irritation potential

Formulation Guidelines

PhytoCide Aspen Bark Extract Powder is water soluble and may therefore be added to aqueous systems, as well as the aqueous phase of emulsions. When using PhytoCide Aspen Bark Extract Powder it is recommended to maintain the formulation pH between 3 and 9. We also suggest incorporating the product at temperatures of 60°C (140°F) or below. This is especially true when using natural antimicrobial and or other "mild" antimicrobial. We recommend that every formula undergo stability and microbial testing to ensure adequate preservation.

Recommended Use Levels: 0.2% - 3.0%

Appearance: White to light yellow hygroscopic powder

Solids (1g-105°C-1hr): 92.0% Minimum

Solubility: Soluble in water

pH (3% solution in water): 3.8 – 6.2 Salicylates: 54.0 – 60% Shelf Life: 1 year

CERTIFIED AROMATHERAPY COUNSELOR COURSE – SESSION 5 – PRESERVATIVES

Willow Bark Extract INCI: Salix Nigra (Willow) Bark Extract:

The Willow tree, of the family Salicaceae and genus Salix, is common to much of North America. The Black Willow (*Salix nigra*) tree, famous for its dark brown, ridged bark which is rich in tannins and salicylic acid-like materials, is found primarily in the eastern part of the continent. Aqueous extracts of the bark made from freshly harvested bark collected in the spring are said to have analgesic, antiseptic, astringent, anti-pyretic, and anti-inflammatory properties. Willow Bark Extract is a source of natural salicylic acid-like ingredients which has been shown to contribute effects similar to those seen from synthetic salicylic acid with none of the drawbacks associated with its use, primarily irritation. As such, it is a safe way to get the benefits of a β -hydroxy acid.

Salicylic acid, when used in cosmetic formulations at 0.5% to 1%, enhances skin cell turnover by promoting exfoliation, resulting in a general improvement in the appearance of the skin and a smoothing effect with accompanying reduction of fine lines and wrinkles. Also known for its antimicrobial properties, it can be useful as a remedy for problem skin conditions. The superior exfoliation action of Salicylic acid is thought to be a result of its lipid solubility. 1 Concentrating its exfoliation action in the lipid-rich outer layers of the skin, where the natural rate of exfoliation reduces with aging, it helps to reduce the buildup of dry, dull skin flakes. Willow Bark Extract has been found to be non-irritating to the skin, even at a level of 100%, equivalent to 10% synthetic salicylic acid. Willow Bark Extract has been found to increase stratum corneum turnover more so than salicylic acid - 24% as opposed to 22%.

In vitro tests have shown Willow Bark Extract to have activity against *Staphylococcus aureus* and *Propionibacterium acne*, the two strains of bacteria implicated in the formation of acne, as such it may prove useful in targeted facial cleaners, toners and lotion formulas. In addition, challenge testing has shown that, in cosmetic formulations, of varying degrees of complexity, Willow Bark Extract, when present in concentrations of 2.5 - 5%, contributes to the preservative efficacy of formulas even when no other synthetic chemical preservatives are used. It has proven efficacy against gram positive, gram negative bacteria, yeast, and mold. The choice of preservatives for personal care formulations should be carefully considered. This is especially true when using natural antimicrobial and or other "mild" antimicrobial. We recommend that every formula undergo stability and microbial testing to ensure adequate preservation.

Key Benefits

- Aqueous extract
- Naturally derived
- Standardized to 10% Salicylic Acid
- Enhances cell turnover
- Exhibits anti-microbial capabilities
- Offers natural preservation
- Safe, non-irritating and non-sensitizing
- Natural β -hydroxy acid

Recommended Usage Level: 2.5-5%, up to 100%

pH (as supplied): 4.0 - 6.5

Appearance: Colorless to light amber liquid

Solubility: Soluble in water, glycerin and propylene glycol, immiscible with oils.

Shelf Life: 12-18 months

Storage: Sealed container away from sunlight and humidity.

Always use a sunscreen when using AHA or BHA's.

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SynerCide Asian Fusion:

SynerCide Asian Fusion is a broad-spectrum antimicrobial system using hybrid preservation techniques to combine traditional herbal extracts with hydrating glycols for effective microbial growth prevention. More than just an antimicrobial solvent, this infusion of natural herbs enhances the skin surface for unmatched conditioning. SynerCide Asian Fusion uses a pioneering method of infusing Garlic, Ginger, and Wasabi extracts with caprylyl and hexylene glycols, both known for their antimicrobial boost, to create this synergistic antimicrobial blend.

Key Benefits

- Water soluble
- GMO Free
- No Ethoxylation
- No Irradiation
- No Sulphonation
- No Ethylene Oxide treatment
- No Hydrogenation
- Broad spectrum of antibacterial activity
- Compatible with a wide range of cosmetic ingredients.
- Very mild, with low to no irritation potential

Formulating Guidelines

- pH of the formulation should be maintained between 3 and 8
- Should be added to formulations at a temperature below 70°C (158°F)

The choice of preservatives for personal care formulations should be carefully considered. This is especially true when using natural antimicrobial and or other “mild” antimicrobial. We recommend that every formula undergo stability and microbial testing to ensure adequate preservation.

Recommended Usage Level: 1.0% - 2.0%

pH (as supplied): 4.0 - 6.0

Appearance: Clear to slightly hazy liquid

Solubility: Soluble in water, glycerin and propylene glycol, immiscible with oils.

Shelf Life: 12 months from date of purchase

Storage and Use: Sealed container away from sunlight. Do not freeze, store at or near room temperature. Mix well prior to use; may sediment on standing.

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PhytoCide Elderberry OS - INCI: Sambucus Nigra Fruit Extract:

PhytoCide Elderberry OS is a new antimicrobial product developed by Active Micro Technologies. It is an efficacious, multifunctional natural alternative to the traditionally used preservatives in cosmetics and personal care applications. It is oil-soluble, and therefore, can be used in a variety of anhydrous and oil-containing applications. The super fruit trend is one of the largest growing segments in the cosmetics industry. These fruits are recognized not only for their health benefits, but also for their unique marketing appeal. Elderberry certainly fits the description of a super fruit. Several species of *Sambucus* produce this type of berry. Two common varieties of *Sambucus* are the American elder (*S. Canadensis*) and the European elder (*S. nigra*), which has been naturalized to the Americas. These two are often discussed simultaneously in the literature given that they have several components in common and therefore provide similar benefits. Elderberries have traditionally been used for making wine, syrup, and confectioneries. The flowers and berries of these plants have been used most often for medicinal purposes. Elderberries are rich in a variety of phytonutrients that exhibit both antioxidant and anti-inflammatory properties, such as caffeic acid, chlorogenic acid, ferulic acid, and quercetin. The fruit also contains anthocyanins, which have been shown to help boost the immune system.

Antioxidants, like those found in elderberries, are excellent additions to skin care regimens as they provide protection from free radicals that contribute to cell damage, aging, and wrinkle formation. Bioflavonoids, which can also be found in elderberries, exhibit astringent properties that help tighten the skin and provide additional anti-wrinkle benefits. This unique super fruit is also an excellent source of undecylenic acid, an organic fatty acid that provides broad antimicrobial benefits, but is especially effective against fungal microorganisms.

Suggested Applications

- Skin Conditioning
- Antimicrobial for anhydrous products (lip balms, lip sticks, scrubs)
- Antimicrobial for oil-containing cosmetic formulations

PhytoCide Elderberry OS is GMO Free and no ethoxylation, irradiation, sulphonation, hydrogenation, or ethylene oxide is used in processing. There are no solvents used in its extraction and it contains no added preservatives or antioxidants.

Key Benefits

- Oil soluble
- Naturally derived botanical extract
- Heat stable to at 75°C (167°F)
- REACH Status - fully compliant
- Compatible with a wide range of cosmetic ingredients
- Delivers anti-aging skin conditioning benefits
- Natural antimicrobial efficacy for cosmetic formulations
- Can be used with other antimicrobial for broad spectrum activity

Formulation Guidelines:PhytoCide Elderberry OS is oil soluble and may therefore be added to anhydrous systems, as well as the oil phase of emulsions. When using PhytoCide Elderberry OS it is recommended to maintain the formulation pH between 3 and 8 in water containing formulations. We also suggest incorporating the product at temperatures of 75°C (167°F) or below.

Recommended Use Levels: 1.0 - 5.0%

Appearance: Clear to slightly hazy, light to medium amber liquid

Solubility: Insoluble in water, soluble in oils Shelf Life: 1 year

CERTIFIED AROMATHERAPY COUNSELOR COURSE – SESSION 5 – PRESERVATIVES

Leucidal® Liquid-Approved for use in Certified Organic products-

INCI:Leuconostoc/Radish Root Ferment Filtrate:

Leucidal® Liquid is a new, natural preservative from Active Micro Technologies combining the current trends for alternative preservative systems and peptide technology. Derived from radishes fermented with *Leuconostoc kimchii*, a lactic acid bacteria that has traditionally been used to make kimchi, this product consists of an isolated peptide that is secreted from the bacteria during the fermentation process that has been shown to have antimicrobial benefits. Leucidal® Liquid is accepted by ECOCERT as a preservative in certified organic cosmetics. As with all biological materials some attention must be paid to the conditions under which Leucidal® Liquid can be used. Preliminary investigation shows that the material is stable with regard to temperature up to 60°C (140°F). Testing shows that the peptide remains active under both acidic and basic conditions, but there is a loss of activity at pH of 9. For many cosmetic formulations Leucidal® Liquid can function as a natural alternative to synthetic preservatives. It may also be useful as a topical antimicrobial when addressing problem skin or scalp conditions. While it has only a slight odor, it will impart some color to clear cosmetic products, although it is still possible to formulate "white" emulsions.

Challenge testing reveals that 2% Leucidal Liquid in a cream base is able to successfully inhibit microbial growth. Samples were inoculated with *S. aureus*, *E. coli*, *P. aeruginosa*, *C. albicans*, *A. niger*, *K. pneumoniae*, *B. cepacia*. Following 28 days of incubation samples were then re-inoculated for an additional 28 days. Minimum Inhibitory Concentrations (MIC) were determined using a standard agar dilution method. A variety of bacteria and fungus were tested to evaluate the ability of Leucidal® Liquid to protect against microbial contamination. The results indicate that Leucidal® Liquid can provide effective protection for certain cosmetic systems. The choice of preservatives for personal care formulations should be carefully considered. This is especially true when using natural antimicrobial and or other "mild" antimicrobial. We recommend that every formula undergo stability and microbial testing to ensure adequate preservation.

Key Benefits

- Water soluble
- Naturally derived
- Virtually odorless
- Heat stable to at 60°C (140°F)
- Broad spectrum of antibacterial activity
- Compatible with a wide range of cosmetic ingredients.
- Very mild, with low to no irritation potential
- Eco Cert Approved for use in Eco Cert Certified Organic products

Please note, Active Micro Concepts now recommends a usage rate of 2.0 - 4.0% for this preservative.

Recommended Usage Level: 2.0% - 4.0%

pH (as supplied): 4.0 - 6.0

Appearance: Clear to slightly hazy yellow to light amber liquid

Solubility: Soluble in water, glycerin and propylene glycol, immiscible with oils.

Shelf Life: 12 months

Storage and Use: Sealed container away from sunlight. Do not freeze, store at or near room temperature. Mix well prior to use; may sediment on standing.

CERTIFIED AROMATHERAPY COUNSELOR COURSE – SESSION 5 – PRESERVATIVES

NataPres™ - ECOCert Approved for use in Certified Organic products:

NataPres™ is an all natural compound with effective preservative properties, based on the synergy exhibited by multiple plant extracts. It combines a radish root ferment filtrate with honeysuckle and aspen bark extracts and gluconolactone in a base of glycerin. NataPres™ was developed for paraben-free and formaldehyde-free preservation with effectiveness in a broad pH range. It is easy to use and will not impart any additional color or odors to your formulation. NataPres™ provided predominantly a spectrum of activity against Gram-positive and Gram-negative bacteria. In formulations tested, it demonstrated activity against fungi and yeast when used at typical levels. However, additional protection against fungi and yeast may be necessary in some formulations. See the Technical Data for more information on Synergy Tests of NataPres™ together with other anti-fungal ingredients.

Key Benefits

- Globally approved
- Water soluble
- Made with naturally derived materials
- Virtually odorless
- Heat stable to at 60°C (140°F)
- Effective at pH levels between 2 - 8
- Broad spectrum of antibacterial activity
- Compatible with a wide range of cosmetic ingredients
- Very mild, with low to no irritation potential
- Eco Cert Approved for use in Eco Cert Certified Organic products

Applications

- Hand Creams
- Body Creams & Lotions
- Facial Products
- Shampoos
- Conditioners

NataPres™ has been tested, via HPLC, for the presence of the following common preservatives: Methyl Paraben, Ethyl Paraben, Isopropyl Paraben, Propyl Paraben, Isobutyl Paraben, Butyl Paraben, Dehydroacetic Acid and Benzoic Acid. None were identified within detectable limits, with the exception of Benzoid Acid (a natural constituent of Honeysuckle), which was found at 0.0014%. No animal testing was used in the development or testing of NataPres™ Formulation Guidelines:

- Recommended use level for cosmetic formulations: 0.5 - 2.5%
- Potential anti-acne application at concentrations of 3.0% - 10.0%
- Can be added directly to the formulation post-emulsification at or below 50°C (122°F)
- Effective in a broad pH range from 2 to 8
- Compatible with most ingredients used in the personal care and pharmaceutical industry
- Products which are highly prone to mold or yeast growth might need additional fungal protection

Recommended Usage Level: 0.5% - 3%

pH (as supplied): 4.9

Appearance: Straw to yellow colored liquid

Solubility: Soluble in water Shelf Life: 24 months

Storage and Use: Sealed container away from sunlight. Do not freeze, store at or near room temperature. Mix well prior to use; may sediment on standing.

Leucidal® Liquid SF - INCI: Lactobacillus Ferment:

Leucidal Liquid SF is another of Active Micro Technologies antimicrobials developed for the formulator looking to move away from synthetic preservatives containing parabens, formaldehyde donors and phenoxyethanol. To this end, they have developed a full line of products derived from naturally occurring compounds that provide broad spectrum antimicrobial protection. As a result, these novel natural antimicrobials are considered self-preserving cosmetic actives and therefore can be used as consumer-friendly alternatives to synthetic preservatives in a wide range of cosmetic applications. Leucidal Liquid SF is a probiotic-based ingredient created by the fermentation of Lactobacillus in a defined growth medium. Lactobacillus is one of the species of microorganisms used to produce fermented products such as sauerkraut and kimchi, a Korean dietary staple from cabbage. Like many members of the lactic acid bacteria family, Lactobacillus is capable of restricting the growth of other microorganisms by acidifying its environment. However, in addition to acidifying its environment, Lactobacillus also produces novel antimicrobial peptides, also known as bacteriocins, that are capable of providing broad spectrum antimicrobial protection. During the manufacturing process, lysozyme is added to the ferment filtrate to facilitate a controlled cell lysis. This step helps ensure the release of the antimicrobial peptides for maximized activity. Use Recommendations:

For many cosmetic formulations Leucidal Liquid SF can function as a natural alternative to synthetic preservatives. As with all biological materials some attention must be paid to the conditions under which Leucidal Liquid SF can be used. Its antimicrobial properties are effective between pH 3 and 8, with a pH below 6 being preferred. The suggested use levels are typically between 2 and 4%. The ability of Leucidal Liquid SF to inhibit the growth of a variety of bacteria and fungi was determined using the Minimum Inhibitory Concentration (MIC) test. The results indicated Leucidal Liquid SF has the ability to provide broad spectrum antimicrobial protection (please see the Technical Data Sheet for more information). A Double Challenge test using 2% Leucidal Liquid SF was conducted to evaluate the ability of the product to provide antimicrobial protection in cosmetic finished products. A basic oil-in-water emulsion was used at the base. Samples were inoculated with *S. aureus*, *E. coli*, *P. aeruginosa*, *C. albicans*, and *A. brasiliensis* and incubated for 28 days. During this period, samples were periodically collected and tested for the presence of viable microorganisms. Following the initial 28 days of incubation, the samples were re-inoculated with the microbial cultures for another 28 day period. The results indicate that Leucidal Liquid SF has the potential to provide effective protection for lotions and other cosmetic formulations.

Key Benefits

- Water soluble
- Naturally derived
- REACH Compliant
- Broad spectrum of antibacterial activity

Suggested Applications

- Skin Conditioning
- Antimicrobial

CERTIFIED AROMATHERAPY COUNSELOR COURSE – SESSION 5 - PRESERVATIVES

Leucidal® Liquid SF - INCI: Lactobacillus Ferment:

Processing Information: Leucidal Liquid SF is Salicylate Free. It is also GMO Free and no ethoxylation, irradiation, sulphonation, hydrogenation, or ethylene oxide is used in processing. The solvent used for extraction is simply water. There are no additional preservatives or antioxidants.

Formulation Guidelines

- Add it to products with a pH between 3 and 8
- Performance is best at a pH below 6
- Add it during the cooling phase of the formulation process at temperatures lower than 70°C (158°F)
- We recommend adding it at cool-down when your formulation temperature is below 40°C (104°F) to avoid destabilization issues.

Recommended Usage Level: 2.0% - 4.0%

Appearance: Clear to slightly hazy liquid

Solubility: Soluble in water, glycerin and immiscible with oils.

Shelf Life: 12 months from date of purchase

Storage and Use: Sealed container away from sunlight. Do not freeze, store at or near room temperature.

You now have all the information here on more natural preservatives and synthetic chemical based preservatives. I would suggest you visit Lotion Crafters online if you are seeking more information about any of the above. I have not used any of the new preservatives listed, however I do plan on it. I think you should consider doing the same. The only way we know if something truly works is to try it and conduct our own experiments.

CERTIFIED AROMATHERAPY COUNSELOR COURSE–SESSION 5–QUESTION & ANSWER

NAME: _____

ADDRESS: _____

PHONE: _____

FAX: _____

E-MAIL: _____

Please be sure to fill out the information above, complete the test and e-mail it back to us at sacredeartharomatics@hotmail.com. We will grade your question & answer session and will let you know if we have any questions or concerns.

- 1.) What is the purpose of the Epidermis?
- 2.) The Dermis contains what?
- 3.) Explain Mutation.
- 4.) What are the toxic effects of 1,4 dioxane?
- 5.) How would you use Green Tea?
- 6.) What are the benefits of Grapefruit Seed Extract?
- 7.) Which natural preservative is safe to use in Certified Organics?
- 8.) What is lactobacillus ferment?