



## Different Preservative Systems Used in Skin Care Products

Preservatives are ingredients which prevent or retard microbial gram-positive, gram-negative and fungi-[yeast & mold] growth; thus protecting cosmetic products from spoilage. Cosmetic product ingredients may support the growth of microorganisms, therefore a system must be used to prevent this possibility.

The use of preservatives is required to prevent product damage caused by bacteria and to protect the product from inadvertent contamination by the consumer during use. If you don't have a preservative in the product to retard microbial contamination, you run the risk of early spoilage of the product and in the worst case scenarios, possible bacterial infections that may result in blindness.

The topic of preservatives is always key to formulators and finished-goods marketers. They know they need to adequately preserve their products to ensure product safety. Formulating with preservatives is made more difficult with the industry demand that preservatives be "universally" acceptable, i.e. permitted in Japan, or that they have no connection to formaldehyde, making them acceptable in Germany. There is also the desire for the replacement of paraben or formaldehyde systems that will still cover all the requirements that are effective at low use levels, tasteless, odorless, colorless and effective against all possible microorganism contamination.

There are five different preserving systems being used today. The following is a brief outline of these systems.

1. **Self-Preserving Technology**, is found exclusively in Usana Health Science skin care line; Sensé's Beautiful Science skin care products. The product is the preservative in this new patent pending technology. With self-preserving, all the functional ingredients of a formula as well as the manufacturing and packaging are combined to become the preservative system. This new technology means it is no longer necessary for Sensé to use problematic chemicals like the parabens that are used by other skin care products, while still providing a preservative system that is safe for the consumer.
2. **Parabens (PHBA)**, are used as preservatives in over 13,000 cosmetic formulations. The corporations that use parabens farm out their manufacturing to many different contract manufacturers. To protect them from possible sloppy manufacturing they add large levels of parabens to their products. Concerns are being expressed by researchers that there is evidence of parabens as estrogenic and disruptive of normal hormone function. British researchers have found traces of parabens in tissue taken from women with breast cancer. While there is no evidence that parabens cause cancer, the scientists have called for the use of parabens to be reviewed, and for more comprehensive studies to explore this possibility.

**Study results:** The researchers found six different kinds of parabens in the breast cancer tissue samples. All of the samples contained some parabens. The average concentration of all types of parabens in the samples was about equal to the amount that had prompted breast cancer cells to grow in test tubes in earlier studies.

**Conclusion:** This very small study found that certain parabens used in foods, cosmetics, and medicines were present in samples of breast cancer tissue. The researchers suggested that these chemicals might make their way into breast tissue from outside sources and, once there, might accumulate in levels high enough to trigger the growth of breast cancer cells. But nothing in this study supports this hypothesis.

3. **Formaldehyde** is a colorless gas obtained by the oxidation of methyl alcohol. Vapors are intensely irritating to mucous membranes. Formaldehyde is widely used in cosmetics as a disinfectant, germicide, fungicide and preservative. Some surfactants may contain formaldehyde as a preservative without listing it on the label. Formaldehyde is an inexpensive preservative, but there are serious questions about its safety. Researchers from the Division of Cancer Cause and Prevention of the National Cancer Institute recommended in April 1983 that, since formaldehyde is involved in DNA damage and inhibits its repair it should be further investigated. Its use in cosmetics is banned in Japan and Sweden. Some cosmetic producers that advertise they do not use parabens in their products have been known to use formaldehyde as their chosen preservative.
4. **Alcohol and Volatile oils**, are used by companies that advertise they do not use any chemical or formaldehyde preservatives. They depend on the anti-bacterial properties of some essential oils such as tea tree oil, grapefruit seed oil and alcohol to preserve their products. These have limited use and at times their effectiveness as a preservative or an antimicrobial agent is questionable. Other problems with this system is after a substance is extracted from a plant, preserved, and mixed with other "natural" ingredients it is no longer identical to the plant it once came from. Also some of these natural oils have been preserved with formaldehyde or parabens before they are sold. The other concern is the ability of this process to fully cover all microorganisms. Many kinds of yeasts, fungi, and bacteria have been identified in cosmetics. In many instances a product might show no visible evidence of microbial contamination and yet contain actively growing potentially harmful germs.
5. **Using no preservative system**, is the choice of a small number of skin care manufactures to honor their product as 100% free of any preservative, and as all natural products. These products are made in very small batches and sold in very small containers. They must be kept in your refrigerator. We are very much aware that even food products that are preserved do not last long in our refrigerators, and will go moldy or bad. Besides that problem there is the human contamination problem of the daily use of dipping your fingers into the product. This is a system that would be considered an "at your own risk" situation.

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