

Ingredient Hysteria and Misconceptions

By Carol and Rob Trow



Each and every year, there are multiple new skin care brands entering an already-overcrowded space. Many try to garner attention by touting a new, magic ingredient and others by attacking established, scientifically proven ingredients.

A simple truth that sets the stage for separating ingredient fact from fiction: It is the dose of an ingredient, more than the ingredient itself, that determines toxicity. A related corollary is that the form of an ingredient can affect its efficacy, as well as whether or not it is potentially toxic.

Is it fair to say water is a nontoxic ingredient? Yes; however, if you ingest too much water, it can have a deadly effect. You can draw the same conclusions on a plethora of ingredients.

SEPARATING FACT FROM FICTION

There are myriad ingredients that have been subject to misinformation based on shabby research, personal opinions and self-interest, including vitamin A, propylene glycol, parabens, mineral oil and disodium ethylenediaminetetraacetic acid (EDTA)

Vitamin A. If there is a universal ingredient in skin care that has received unprecedented support, it is vitamin

A. As early as 1938, researchers have documented both the need for vitamin A in skin care, and its role in constructively ameliorating photodamaged skin.¹⁻⁵

It is reasonable to assert that there have been several hundred articles that have appeared in refereed scientific journals that attest to the safety and efficacy of vitamin A.

Some websites, blogs and brands indicate that vitamin A is a known human reproductive toxicant. Yet, much research shows that vitamin A is safe for use in cosmetics. In fact, vitamin A is alleged to be one of the most effective—if not the most effective—ingredient in anti-aging skin care.¹ Like anything else, if you go to extremes and submerge the body in high doses of retinoic acid thousands of times the amount used in skin care products, it will harm you. But, is that reasonable? There is no proof, despite rumors and assertions, that the levels of vitamin A in cosmetics cause cancer or organ toxicity.

Propylene glycol. A much-maligned ingredient, propylene glycol is safe for use in cosmetics.^{6,7} According to the U.S. Food and Drug Administration's

(FDA) Cosmetic Ingredient Review's (CIR) National Toxicology Program, there is negligible, if any, concern related to its use. In fact, it is safe to eat. This ingredient comes in two forms; vegetable sources and synthetic sources, such as petroleum. It is safe in cosmetic use and no toxicity was found at dose levels used in skin care. The concentration in cosmetic preparations is normally under 2%. The CIR stated it is safe in concentrations up to 50%.⁷ There is no scientific evidence or truth to the assertions that, in the form and dose used in skin care, it causes cancer, or brain, kidney or liver damage. There are no histological refereed studies that prove the rumor that, in concentrations used in skin care, propylene glycol removes the acid mantle of the skin.

Parabens. One of the most controversial and researched preservatives are parabens. Health concerns include links to the development of breast cancer and reproductive toxicity, as well as immunotoxicity and neurotoxicity. Many are surprised to learn that parabens are nature's way of providing self-preservation for many naturally occurring fruits and vegetables, including

blueberries, strawberries and carrots. Parabens have been deemed safe, after multiple studies by the FDA, the Japanese Ministry of Health and the European Commission. Published in the *International Journal of Toxicity* in 2008, the CIR reported on more than 65 studies by independent scientific researchers, documenting that exposure to 840 times the amount of parabens found in cosmetics caused no adverse effects. Further, parabens do not accumulate in the body and, if there are any excess parabens, they are easily eliminated from the body.

Parabens have been the subject of much misinformation, rumor-mongering and unfounded hype about their dangers based on a few poorly designed studies.⁸ The FDA reviewed 110 studies and confirmed that there is no basis for concern.⁹⁻¹¹ Lastly, in order to claim an estrogenic effect from parabens, the dosage would have to be 25,000 times that found in cosmetics.¹²

Mineral oil. The highly refined, pharmaceutical-grade of mineral oil has been an effective ingredient in skin care.¹³ It has been proven that it has no adverse effect on the stratum corneum.^{14, 15} Mineral oil has been

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shown to improve skin softness and is a safe ingredient that removes excess oil and can help dissolve comedones. Its value in treating oily skin is unquestioned. The claims that today's pharmaceutical-grade mineral oil is carcinogenic are false with no data to support them.^{13, 15-17}

Disodium EDTA. Disodium EDTA and its salts are used as chelating agents in cosmetics. The typical concentration is less than 2%. The CIR expert panel recognized this ingredient as safe. A definitive research document

on the safety of disodium EDTA was published in the *International Journal of Toxicology*. Spanning 47 pages referencing more than 250 articles and research studies, this report concludes, without reservation, that the use of disodium EDTA is safe for use in cosmetic formulations. Despite this overwhelming evidence, there are still claims that question the safety of disodium EDTA.

THE IMPORTANCE OF EDUCATION

How do you separate fact from fiction, fear-mongering from science, marketing hype from truth? The best bet is to ask the right questions and follow up with a persistent search for independent, third-party scientific documentation. Too much of what is communicated to skin care professionals comes from individuals and companies driven by self-interest. Demand proof of claims and, if someone is attacking an ingredient's safety, seek out the other side of the assertion. There are always two sides to the stories you hear or read about.

When searching for information, do not stop at the first few sites that come up. Take the time to look deeper as you search for information. Visit sites that are founded in scientific research, chemistry and toxicology. Seek out information outside of the traditional skin care organizations, company information and websites. Remember, you have a responsibility to your profession, your clients and yourself to become well informed about the truth. X

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