

Lactic Acid – An Alpha-Hydroxy Acid

Lactic acid is an alpha hydroxy acid that exfoliates cells on the surface of skin by breaking down the material that holds skin cells together. It may irritate mucous membranes and cause irritation. It is also used to hydrate and smooth dry, flaking skin. Lactic acid is a colorless transparent liquid with a characteristic odor. It is supplied as a 88% solution and is water, alcohol and glycerol soluble.

The typical use level for lactic acid is 1-5%. – Add or Use Sunscreen

With increasing research into what causes wrinkles and the effects of photoaging, alpha hydroxy acids have increased greatly in popularity. Alpha hydroxy acids have been used for thousands of years as a skin rejuvenating product. Cleopatra is reported to have bathed in sour milk (lactic acid) to improve her complexion. Now hydroxy acids are a common additive to numerous skin care products including moisturizers, cleanser, toners, and masks.

Alpha Hydroxy Acids Defined

Alpha hydroxy acids are derived from fruit and milk sugars. The most commonly used alpha hydroxy acids are glycolic acid and lactic acid because they have a special ability to penetrate the skin. They also have the most scientific data on their effectiveness and side effects. The following are the 5 major types of alpha hydroxy acids found in skin-care products and their sources:

- glycolic acid - sugar cane
- lactic acid - milk
- malic acid - apples and pears
- citric acid - oranges and lemons
- tartaric acid - grapes

How Alpha Hydroxy Acids Work

Alpha hydroxy acids work mainly as an exfoliant. They cause the cells of the epidermis to become "unglued" allowing the dead skin cells to slough off, making room for regrowth of new skin. Alpha hydroxy acids may even stimulate the production of collagen and elastin. Alpha hydroxy acids are reported to improve wrinkling, roughness, and mottled pigmentation of photodamaged skin after months of daily application. Alpha hydroxy acids found in skin-care products work best in a concentration of 5% to 8% and at a pH of 3 to 4.

Side Effects of Alpha Hydroxy Acids

The two major side effects of alpha hydroxy acids are irritation and sun sensitivity. Symptoms of irritation include redness, burning, itching, pain, and possibly scarring. People with darker colored skin are at a higher risk of scarring pigment changes with alpha hydroxy acids. The use of alpha hydroxy acids can increase sun sensitivity by 50% causing an interesting dilemma. It appears that alpha hydroxy acids may be able to reverse some of the damage caused by photoaging, but at the same time they make the skin more susceptible to photoaging. It is clear that anyone using alpha hydroxy acids must use a good sunscreen that contains UVA and UVB protection.

FDA Guidelines on Alpha Hydroxy Acids

Because of concerns over the side effects of alpha hydroxy acids, the FDA in 1997 announced that alpha hydroxy acids are safe for use by consumers with the following guidelines:

- The AHA concentration is 10% or less
- The final product has a pH of 3.5 or higher
- The final product must have an effective sunscreen in the formulation or warn people to use sunscreen products

Water, alcohol and glycerol soluble.

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Reorder Contact: Anita Nelson

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