



Marketing Trends in Delivery Systems for Cosmetic Preparations

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The skin is a barrier for a reason: to protect the body. Therefore, we should be careful when modifying the normal skin barrier and try to create reversible and rapid barrier changes. The cosmetic industry is currently facing the challenge of meeting growing consumer demands for safe and efficacious cosmetic products that will erase wrinkles in a short period of time, permanently and without surgical involvement. The ancient Greek philosopher Plato said, "Necessity is the mother of invention." The need for products to deliver perceivable qualities, be long lasting, and safer encourages cosmetic companies such as Estée Lauder and L'Oreal to seek ideas from other fields, such as pharmaceuticals, food, and paint. Cosmetics is now not only about unique active compounds to benefit skin appearance, but also ways to deliver them to the skin. Innovation, however, is not the only driving force in the growth of delivery systems in the marketplace. Since research and development costs are on the rise, efficacy and safety are essential in order to assure a product's sustainability in the market and repetitive purchases. This has created increased interest in delivery systems, which has been growing at a double-digit rate since 2002. In fact, the U.S. market for delivery systems has increased from \$19 billion in 2000 to more than \$41 billion projected for 2007 (1).

The extensive competition is also fueled by the combination of different market trends, such as anti-aging, and the use of plant-derived products. In addition, although the cosmetic industry is self-regulated, the same need to elevate the therapeutic window that exists in pharmaceuticals is desired in cosmetics. Moreover, the use of delivery systems addresses many practical problems, and these systems are being used to improve the stability of compounds, prevent incompatibilities by creating a physical barrier between components, change the form of a compound (e.g., from liquid to powder), and improve skin tolerance, as well as for consumer appeal (2).

The cosmetic industry appears to go through a change in perception with regard to what is considered a "delivery system." While a few years ago delivery systems were perceived mainly as particles that can be observed visually, today additional concepts are included under this category, such as sophisticated emulsions, creams with skin permeation enhancers, etc. When developing a formulation for treating cellulite, for example, one should design ways to deliver the active ingredients to the skin; however, this is not the only driving force in the growth of delivery systems in the marketplace. Since research and development costs are on the rise, efficacy and safety are essential in order to assure a product's sustainability in the market and repetitive purchases. This has created increased interest in delivery systems, which has been growing at a double-digit rate since 2002. In fact, the U.S.

contains a plant extract to combat fat cell hypertrophy, one of the causes for "orange peel" looking skin (3).

There are many other examples of compounds included in cosmetic formulations that are known to affect biochemistry and, therefore, need to interact with viable sub-tissues in the epidermis. These include topical retinoids and anti-oxidants to slow skin aging and plant extracts that are rich in phytoestrogens to help reactivate the production of collagen and restore the skin's capacity to retain moisture. One can even find claims that some preparations affect skin cells on their DNA level. Another European company developed a formulation to support skin's natural DNA repair process. It contains a unique combination of vitamins and enzymes designed to imitate the skin's immune system.

The twentieth-century consumer is looking for more than elegance in the product; sensory attributes such as feel and odor are not enough any more. Consumers desire a broader variety of products, but also look for single products with multiple benefits. A cosmetic product is expected to deliver true noticeable benefits in order to drive consumers to repetitive purchases.

In order to find solutions and build strong market strategies, companies are looking for teamwork. One recent example is the collaboration established between Dow Corning and Lipo Technologies, Inc. Lipo Technologies has developed a variety of eight different encapsulation technologies to allow controlled release of compounds by friction, formulations with incompatible materials, and conversion of liquids into solids (4). These are being used in treatment products, cleansers, fragrances, and color cosmetics.

As for future developments, it conceals complicated challenges. The development of delivery systems can assist in extending anti-aging trends into the mass market, where there is a need for effective yet affordable noninvasive alternatives to cosmetic surgery. The diversity in applications creates a requirement to target actives to the skin sub-tissues. A unique patented delivery technology developed by Lipo Chemicals, Inc. is based on a lamellar delivery system. This system can be tailored to create a reservoir of the active compound either in the stratum corneum, as needed for cosmetics, or in the live epidermis and dermis system.

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