

SOMETHING ON SILICONES

by **BBird**

HISTORICAL PERSPECTIVE

Silicones have been an important ingredient in the human hair care industry since the 1950's when they first appeared in hair sprays as a lubricant for spray nozzles. In the 1970's, the hair conditioning properties of silicone began to play a significant role in human products. Because silicones are not rinsed off by water pressure or surfactants, they are the basis of the conditioning in two-in-one products, or conditioning shampoos. Silicone ingredients are enormously prevalent in human hair products today. Silicones are one of the foundation ingredients of the entire Paul Mitchell line of products.

Silicone ingredients began to cross over from the human cosmetic industry to the pet care product industry in the early 1980's. There were problems associated with the use of some of the first products noticed by some breeders and show groomers, including build-up, brittleness, and yellowing. This resulted in some bad press for silicones which persists today in the dog world. It is important to note that silicone ingredients of today, such as dimethicone copolyol, are much improved over those of two decades ago. Dow Chemical, the major manufacturer and supplier of silicones for all industries, is not a static company. They have intensive research ongoing to improve their products. Today's silicones are lighter weight, less oily, and more water soluble. Best Shot, EZ Groom, and Chris Christensen products, for example, use the more evolved silicone ingredients. The Best Shot line of pet products has used silicone as a foundation for their product line.

THE FEATURES OF COSMETIC SILICONES

SILICONES IN SHAMPOOS:

- Provide foam stabilization
- Improve wet combing
- Provide better shine
- Add body/volume
- Improve soft feel
- Leave hair shiny

SILICONES IN CONDITIONERS:

- Improved wet & dry combing

- Increased shine
- Improve soft feel
- Reduce fly-away
- Provide better mechanical protection
- Create perceived repair
- Condition without build-up

Specific to PET PRODUCTS, silicones will add:

- Superior Detangling
- Ultra Shine
- Ultra Soft Feel
- Significantly Reduced Drying Time
- Protection (SPF enhancement, moisturization)
- Low Odor or Improved Fragrance Retention

(Source: Dow Chemical Website)

There are at least two manufacturers of pet grooming products (Eqyss and Bark 2 Basics) that market their product lines as having "no silicones". Why would they want to avoid this class of ingredients? It is a marketing choice that usually reflects an image that the manufacturer is aiming for, either "no residue" or "all natural". To some, silicones might carry a rather industrial image or seem too chemical. In addition to some of the bad experiences on show dogs with the first silicone pet products, the choice to avoid silicones may have to do with fears of cancer, as in silicone breast implants. Some silicones, when injected into mice, have caused tumors and cancer. Dimethicone has, but dimethicone copolyol seems quite safe. There is no science to support claims that cosmetic silicones are dangerous. NONE! Silicones have not appeared to be toxic from external use, and are derived from silica that occurs abundantly in nature - sort of like coconuts.

Here is what Paula Begoun, the *Cosmetic Cop* says about silicones:

"These unsung hair-care marvels have an incredible capacity to cling to and spread over, under, and around the cuticle. Silicone's unsurpassed ability to maneuver effortlessly over the hair shaft and hold up under water pressure or styling routines makes it superior for smoothing out any of the cuticle's rough edges. Even more astonishing is silicone's luxuriant, velvety texture. Silicone is capable of imparting the most wonderful, silky-smooth feel to the hair. Not only does silicone provide temporary renewed smoothness to the hair, but the amount of research demonstrating its extraordinary safety (I can't imagine who could be allergic to these benign substances) fills several folders in my office. There almost isn't a downside, except that if you use too much of this stuff it can leave a greasy, rather than silky, feel on hair. Other oils such as mineral oil, petrolatum, and plant oils can perform similarly to silicone but they have a far more slick or sticky feeling and they also lack silicone's ability to spread evenly over the hair. Silicones have incredible movement, leaving a thin, even layer wherever you place them; other oils

don't have this ability." (source: P.Begoun, Don't Go Shopping for Hair Care Products Without Me, p. 80.

Here is another statement on the safety of silicones:

"The safety of silicone compounds is well established and the CTFA CIR (REF 8) report states that silicone compounds do not readily cross membrane barriers and are not absorbed through the skin. They are not metabolized by the body or by micro-organisms and are relatively innocuous when administered orally or parentally. Their cosmetic uses are widespread, appearing in approximately 40% of all personal care products currently on sale in the USA and their main function is as co-solvents, dispersing aids and film formers and as replacements for ethanol and isopropyl myristate in particular applications. Their chemical and physical properties may be carefully controlled in manufacture which enhances their appeal as functions can also be precisely controlled. They have been responsible for many major advances in cosmetic preparations, improving both their efficacy and their aesthetic properties and have lead to many novel applications."

<http://www.connock.co.uk/silicones>, from "Advances in the Use of Silicones in Cosmetics, Elizabeth connock BSc(Hons), Chimica Oggi (January/February 1998), pp. 38-40

Silicone ingredients can be identified by the suffix -icone at the end of the chemical name, as in simethicone, dimethicone, cyclomethicone. Some of the original silicone compounds have variations on the name siloxane. Silicone ingredients can be found in high end of the market shampoos, in conditioning shampoos, in conditioners and in detangling products. You can usually recognize their presence by statements about detangling and shine. Conditioners using silicones are usually less thick and foam less, as the silicone ingredients are not viscous and often control foam from other conditioning ingredients. Spray-on detanglers with silicone ingredients are often milky in appearance. Silicone gels are the most concentrated of silicone products and can leave hair feeling greasy if over used. The key to using any silicone based product effectively is that a little goes a long way.

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