This Personal Care Guide Gives Brief Descriptions of Wacker Products and their Intended Applications. Included are;

- **Antiperspirant and Deodorant**
- **Bath Care**
- **Color Cosmetics**
- **Hair Care**
- **Oral Care**
- **Skin Care**
- **Sun Care**

PERSONAL CARE GUIDE

WACKER products fulfill many tasks in cosmetics. Here we can draw on fifty years of experience that is more than skin-deep. We offer advice, research, and tests and help you find the very best formulations.

Silicones in Antiperspirant and Deodorant Products:

Wacker-Belsil® CM products are widely used as carriers or diluents for antiperspirant and deodorant formulations. They provide excellent spreading and lubricity characteristics and quickly evaporate from the skin without producing a cooling or stinging effect. They also provide a dry, smooth feel during application and lubricate spray valves and roller ball applicators. Wacker-Belsil® DM fluids improve skin feel, pay out from stick compositions and reduce whitening or soaping effects during application. Phenyl-modified silicones - Wacker-Belsil® PDM fluids - are used as a refractive index match to improve transparency of gels, sticks and roll-on products.

DMC and SPG compounds offer emulsification benefits and improved skin feel. Alkyl-modified silicones provide rheology modification as well as help to maintain stick integrity and improve application properties. HDK® fumed silicas are good suspending agents for AP salts and impart thixotropic benefits to gel compositions; and shear thinning to provide excellent slip during application.

Silicones in Bath Care Products:

Cleansing with products such as liquid soaps, shower gels and body washes tends to dry out the skin by removing natural lipids and oils. The alkyl-modified silicones available from WACKER SILICONES will impart an occlusive barrier, reducing transepidermal water loss and maintaining a soft, supple feeling. Wacker-Belsil® DM and PDM polymers will coat the skin with a thin, lubricious film, adding softness and shine. Additionally, the DMC products are extensively used in personal cleansing applications for their profoaming action, their ability to reduce irritation to skin and mucous membranes.

Silicones in Color Cosmetics:

Color-cosmetic compositions have been widely used since ancient times to promote attractiveness, conceal imperfections, improve skin feel and protect the skin from environmental factors. Wacker-Belsil® silicones are employed in cosmetic formulations for a myriad of reasons, including improved aesthetics, flow properties, water resistance, emolliency, spreading characteristics, stability and to provide protective, occlusive barriers on the skin.

Use of Wacker-Silicones in formulations for the Area Around the Eyes:

From powders to pencils to mascaras, Wacker-Belsil® silicone resins and HDK® enhance pigment-grinding and water-resistant properties. The DM and PDM fluids improve spreading qualities and impart a velvety-soft feel to the skin. In under-eye cover sticks, alkyl-modified silicones provide excellent moisturization benefits for this sensitive-skin area.

Use of Wacker-Silicones in Lipstick Formulations:

Wacker-Belsil® silicone resins and the elastomer gel Wacker-Belsil® RG 100 impart a transfer-resistant film and improve pigment-grinding properties. The DM and PDM fluids enhance luster and "pay-out", while the alkyl-modified products provide moisturization benefits to lipsticks and protective lip balms. The fluids are also compatible with a number of sunscreens to provide even greater protective properties for the lips. Volatile silicones incorporated into the formulation may improve setting of the pigments and reduce bleeding or feathering of the color to surrounding skin.

Use of Wacker-Silicones in Make-Up Formulations:

Whether pressed or loose powders, cream-to-powder products, cover sticks or liquid foundations, Wacker-Belsil® silicones can improve processing, application and wear of decorative cosmetic products. The silicone resins and the elastomer gel Wacker-Belsil® RG 100 will assist in pigment-grinding applications, impart a water-resistant film on the surface of the skin and maintain free-flowing properties in loose powders. The DM fluids reduce whitening or soaping effects during application, improve spreading characteristics and provide emolliency as well as impart a protective, breathable barrier on the skin. The alkyl-modified silicones in the Wacker-Belsil® line act as rheology modifiers, improve stability and provide moisturization benefits. The CM fluids enhance smooth and uniform coverage. PDM fluids provide shine and good compatibility with other cosmetic ingredients. The HDK® fumed silicas are excellent choices for thickening creams and for suspending pigments in liquid compositions.

Additives for Nail Polishes:

Our new thermoplastic silicone elastomer GENIOMER® 80 improves chip off and scratch resistance, but also provides a better feel and better smoothness.

Silicones in Hair Care:

Human hair can be easily damaged by grooming, styling, oxidative treatments and environmental exposure. Formulating hair care products and hair treatment compositions containing Wacker-Belsil® silicones can reduce the negative effects of damaged hair, while imparting consumer-desirable attributes such as combing ease, soft feel and enhanced shine, body and manageability.

WACKER also produces and commercially markets the amino acid cysteine, and is the only corporation which produces this product from non-human / non-animal renewable resources. Cysteine can be used as an effective aid in perm preparations to create permanent waves.

Use of Wacker-Silicones in Hair Conditioner Applications:

Conditioning compositions are expected to reduce tangling, wet and dry combing forces and triboelectric charging effects, while improving feel, appearance, body and manageability of the hair. Wacker-Belsil® DM and ADM fluids and emulsions are available in a wide range of molecular weights and amine contents, providing benefits in conditioning formulations ranging from daily-use products to intensive, durable treatments. The DMC compounds offer emulsification and light conditioning benefits, while the PDM materials enhance shine or apparent luster of the hair. Wacker-Belsil® SM and TMS products may improve body and manageability.

Use of Wacker-Silicones in Hair Fixative and Styling Applications:

The most widely used silicone materials in fixative and finishing products are the Wacker-Belsil® DMC compounds, which act as resin plasticizers, cosolubilizers and profoaming agents (in mousses). Additionally, the ADM polymers provide a heavier conditioning benefit in setting lotions and gel compositions. Volatile silicones (CM and some DM grades) are used as carriers or part of the delivery system, particularly in finishing products. Wacker-Belsil® PDM polymers are generally employed as shine enhancing additives.

Use of Wacker-Silicones in Hair Color Applications:

Temporary or semi permanent foam-in color products are often composed of Wacker-Belsil® DMC products for their profoaming action as well as their emulsification and light conditioning benefits. High amine content ADM polymers provide conditioning benefits when employed as pretreatments for oxidative processing, and as after-dye conditioners, these products may reduce shampoo removal of temporary and semi permanent colors. Wacker-Belsil® DM polymers provide conditioning benefits when incorporated into the dye base, or when applied from after-dye rinses. For rheology modification and enhanced product stability in cream and gel products, Wacker-Belsil® SM, SDM and HDK® products are excellent choices.

Use of Wacker-Silicones for Perm Preparation:

WACKER FINE CHEMICALS, a division of WACKER, produces and commercially markets the amino acid cysteine, and is the only corporation which produces this product from non-human / non-animal renewable resources.

L-Cysteine HCl H20 Pharma Grade is effective in creating permanent waves by cleaving the S-S-bonds in keratin, the main constituent of hair.

Our Application Laboratories can help you develop new or improved products.

Use of Wacker-Silicones in Shampoo Applications:

The primary function of a shampoo is to clean the hair. Additionally, the product should produce copious amounts of thick, creamy lather without causing irritation to skin and mucous membranes and easily rinse away, leaving the hair in good condition. Wacker-Belsil® DMC materials act as profoaming agents while reducing irritation to skin and mucous membranes caused by primary surfactants. Additionally, these materials act as cosolubilizers, promoting formation of clear products. Wacker-Belsil® DM and ADM polymers reduce combing forces and triboelectric charging effects, while imparting a soft, silky feel to the dry hair.

Silicones in Oral Care Products:

HDK® can be used as thickening agent and antisetting aid can be added to creams and lotions. They are especially suited for the formulation of transparent gels and toothpastes. HDK® can be used as an active substance carrier or free-flowing additive in the filling of powders in tins.

Silicones in Skin Care:

The skin is the largest human organ, and healthy skin is vital for well-being and survival of the body. Stress, aging and environmental factors - such as sun, wind and chemical exposure - may cause the skin to loose its moisture, becoming dry, wrinkled and damaged. WACKER products can lessen these harmful effects by imparting protective, occlusive and water-resistant film; providing emolliency and lubricity; and improving aesthetics and the feel of the skin.

Use of Wacker-Silicones Antiwrinkle Products:

WACKER produces and markets a range of products from its Biotech section for use in anti-wrinkle products.

The cyclodextrin complexes CAVAMAX® W6 / Linoleic Acid Complex, CAVAMAX® W8 / Retinol Complex, CAVAMAX® W8 /D-Alpha Tocepherol Complex and the amino acid derivative N-acetyl cysteine are used to good effect in anti-wrinkle skin care products. The cyclodextrin stabilizes well known active ingredients (linoleic acid, retinol and tocopherol) and releases them at a controlled rate to the skin.

CAVAMAX® W6 / Linoleic Acid Complex is an alpha-cyclodextrin-stabilized form of linoleic acid that enables oxidation-sensitive linoleic acid to be used in cosmetic formulations as a molecular inclusion complex for the first time. Small amounts of linoleic acid suffice to supplement the skin's essential fatty acids and prevent the skin from losing too much moisture or forming premature wrinkles.

CAVAMAX® W8 / Retinol Complex is an inclusion complex of pharmaceutical grade gamma-cyclodextrin and retinol (Vitamin A). Retinol has been proven effective in reducing wrinkles and regenerating UV-damaged skin tissue.

The CAVAMAX® W8 / Tocopherol Complex is an inclusion complex of pharmaceutical grade gamma-cyclodextrin and tocopherol. D-alpha tocopherol (natural Vitamin E) is known to prevent the signs of premature aging, regenerating UV-damaged skin tissue, and is nature's best lipophilic anti-oxidant.

Due to enhanced absorption, these complexes develop their beneficial effect when applied to the skin.

Our application laboratories can help you develop new or improved products.

Use of Wacker-Silicones Cosmetic Formulations:

WACKER produces and markets a range of cyclodextrin products.
Cyclodextrin products can be used in cosmetic creams, gels, and lotions. Cyclodextrin inclusion complexes are an efficient way of stabilizing skin care active ingredients and releasing them via the skin.

Each category of cyclodextrin products has a different purpose and function. The parent (natural) CAVAMAX® cyclodextrins provide increased stability, effective entrapment of malodors, and the controlled release of active ingredients. CAVASOL® cyclodextrin derivatives improve the solubility of lipophilic active ingredients and ensure the quick release of active ingredients. They also enhance the skin feel of the formulation. The use of cyclodextrin complexes, however, depends entirely on the specific guest molecule, or active ingredient, which is complexed.

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Use of Wacker-Silicones in Face and Body care Applications:

Wacker-Belsil® DM polymers are used to reduce whitening or soaping effects when being applied. These materials provide a breathable, protective film on the surface of the skin, improving aesthetics and feel of the composition of the skin. The alkyl-modified silicones impart an occlusive barrier, reducing transepidermal water loss and maintaining a soft, supple feeling.

Wacker-Belsil® CM and PDM fluids improve spreading characteristics, provide emolliency and reduce tack during rub-in-particularly in formulations thickened with acrylic acid polymers. The DMC and SPG product facilitate emulsification in oil-in-water or water-in-oil compositions. For rheology modification and enhanced product stability in creams, ointments and gel products, HDK® fumed silicas are excellent choices.

Use of Wacker-Silicones in Facial Cleansing Products:

Cleansing products tends to dry out the skin by removing naturals lipids and oils. Wacker-Belsil® DM and PDM polymers will coat the skin with a thin, lubricious film, adding softness and shine. Additionally, the DMC products are extensively used in personal cleansing applications for their profoaming action, their ability to reduce irritation to skin and mucous membranes and their emulsification properties, which promote formation of clear systems.

Use of Wacker-Silicones for Shaving Products:

Shaving is not only hard on the skin, it also makes it much more sensitive to chemical substances.

Silicones are a good way to reduce the risk of irritation while producing a permanently pleasant feeling on the skin. This is because silicones cause the razor blade to glide more effectively, thus producing a very gentle shave.

The alkyl-modified Wacker-Belsil® grades produce a supple protective film that prevents transepidermal water loss and keeps the skin soft and supple. Wacker-Belsil® CM and DM oils enhance product spreadability, imparting a pleasant feeling to the skin and reducing tackiness, particularly in formulations that contain acrylate-based thickeners (e.g. Carbopol). Wacker-Belsil® DMC products act as co-emulsifiers and significantly lower the irritative potential of other surfactants. The use of volatile silicones makes modern alcohol-free formulations possible.

Silicones in Sun Care:

Wacker-Belsil® resins and high molecular weight DM fluids form a water-resistant film on the skin, improving the protective properties of sunscreen formulations during swimming.

The Wacker-Belsil® CM and low molecular weight Wacker-Belsil® DM fluids improve application characteristics of suncare products, and facilitate uniform spreading and even coverage.
The Wacker-Belsil® DMC products improve emulsification benefits, and they can improve efficacy of sunscreen compositions without necessitating additional UV filters.

Physical sun filters like Titandioxid need to be spread equally on the skin. To help at this issue, we introduced some month ago our new product Wacker-Belsil® VSR.

The alkyl-modified silicones in the Wacker-Belsil® line offer moisturization benefits, rheology modification and enhanced product stability.

WACKER's cyclodextrin products, are effective in stabilizing, solubilizing, capturing and delivering active ingredients used in various sun care products, such as those used after uv exposure, and those used in self-tanning formulations.

Use of Wacker-Silicones in After Sun Products:

WACKER produces and commercially markets a range of cyclodextrin products from its Biotech group.

The cyclodextrin complexes of l-Menthol W7, and the Tocopherol W8 can be effectively used in sun care products. The cyclodextrin stabilizes Tocopherol (natural Vitamin E), deodorizes Menthol and delivers them as needed on the skin.

l-Menthol Complexes are inclusion complexes with either pharmaceutical grade beta- or gamma-cyclodextrin and Menthol, which is a well known and effective cooling agent. This technology reduces volatility, increases water solubility and controls release on the skin. The Tocopherol Complexes are inclusion complexes with pharmaceutical grade gamma-cyclodextrin and Tocopherol (natural Vitamin E). This product has been proven effective in preventing the signs of premature aging, restoring uv damaged skin tissue and is nature's best lipophilic anti-oxidant.

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Use of Wacker-Silicones in Self Tanning Products:

WACKER produces and commercially markets a range of cyclodextrin products from its Biotech group.

CAVAMAX W8 Pharma is pharmaceutical grade gamma-cyclodextrin. It is used in self-tan products to capture and trap the undesirable odors produced by, and normally associated with the self-tanning process.

The Tocopherol Complexes are cyclodextrin inclusion complexes with pharmaceutical grade beta- or gamma-cyclodextrin and Tocopherol (natural Vitamin E). In this application, it is used as a moisturizer. It is nature's best lipophilic antioxidant and is effective in restoring uv damaged skin.

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