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# SILICONE SYSTEM DELIVERS SENSORY EDGE:

## SHIN-ETSU SILICONES INTRODUCES NEW EMULSIFIERS, EMOLLIENTS, AND ADDITIVES FOR FORMULATORS.

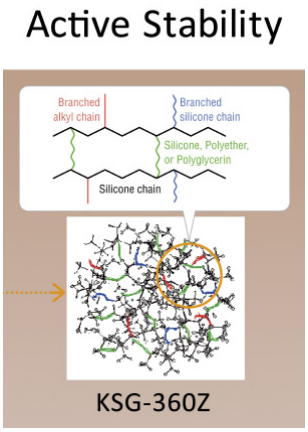
Akron, OH– June, 2011
A pioneer in the field of silicones for personal care products, Shin-Etsu Silicones of America (SESA: A U.S. subsidiary of Shin-Etsu Chemical Co. Ltd., Japan) has recently developed a new generation of cosmetic silicone system products that collectively, and independently, offer formulators distinct characteristics that deliver key stability, functionality, and sensory advantages based on their application for a wide variety of cosmetic products.

The system is comprised of the KSG-360Z silicone gel emulsifier, the KSP-441 hybrid silicone powder, and the DMF-2 high purity, low residual dimethicone fluid, respectively. Each product in the system also provides an effective, quality alternative to D5 siloxanes and D5 derivative materials. Whereas the collective products in the system work well together–each product offers independent performance property and sensory benefits including:

| Diluent Product Name | Sensory Benefits | Performance Property Benefits |
|---|---|---|
| **KSG-360Z (Silicone Gel Emulsifier)** | **Smooth Skin Feel, Broad Silicone and Organic Compatibility to Enhance and Stabilize Products with SPF Ingredients and/ or other actives** | **Active Stabilization, Low Shear Processing, No High-Energy Equipment Necessary** |
| **KSP-441 (Hybrid Silicone Powder)** | **Soft Focus, Wrinkle Reduction, Absorbs Sebum, Reduces Break-Thru Shine** | **High Swelling Capability, Low Surface Energy, Inert, Anti-Agglomeration, Easy Processing** |
| **DMF-2 (Dimethicone)** | **Comfortably Silky-Skin Feel, Light, Dry Volatile Diluent, Near-Zero Skin Irritation** | **High Purity, Low Residual Dimethicone Fluid, Volatile Fluid but High Flashpoint/Low Combustibility for Ease of Processing** |

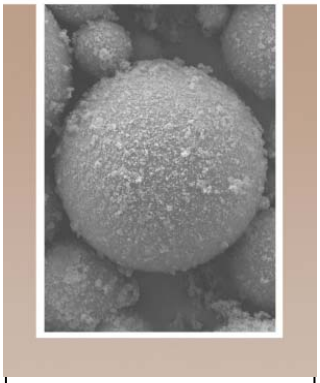
## SYSTEM / PRODUCT PROFILE:

**KSG-360Z:** This series' crosslinked elastomer silicone gels are emulsifying agents with an excellent, smooth-skin feel that can be used to produce unique water-in-silicone and water in-oil products. The products are viscous gels utilizing dimethicone, volatile silicone or isododecane as the diluent. They function as unique emulsifiers with broad compatibility to improve the active stability of personal care products such as anti-aging skin care, sunscreens, foundations, and lipsticks. The 3D crosslinked fine particles used for KSG-360Z contain 2 types of branches–silicone chains and alkyl chains–that are not involved in crosslinking. The resulting gels exhibit high swelling properties in both silicone fluids and organic oils– thus, expanding the range of choice for compatible base oils.




The KSG-360Z's unique properties (based on structure) also deliver vital active stabilization to antioxidant additives like Vitamin C–allowing it to combine with UV filters to boost the effectiveness of SPF (Sun Protection Factor). This allows formulators to easily incorporate and stabilize Vitamin C antioxidants–essentially providing an all-in-one stabilization sunscreen solution.

As the KSG-360Z contains all liquid ingredients and efficiently emulsifies with low energy, processing benefits are also achieved; no high-energy equipment or heating is necessary.



Magnified image of the KSP-441 particle.

**KSP-441:** Specifically developed for achieving high absorption of organic oils, the KSP-441 is a unique hybrid silicone powder consisting of a silicone rubber core with a silicone resin shell. This unique combination offers both the flexibility of silicone rubber and the lubricity of silicone resin. Because of their excellent absorbability of organic oils, they can be added to cosmetic-product applications to control the feeling of the finished products as well as to improve the application feeling on the skin.

The KSP-441 helps with the stability of cosmetic products while enhancing the sensory benefits of the finished products such as a matte appearance, silky skin feel, and soft-focus effect that helps realize natural and beautiful skin for an extended time. The average particle diameter is 12µm and the particles serve as microscopic sponges that absorb sebum from skin; thus providing anti-shine benefits. They also maximize specular reflectance; giving a matte look and masking fine lines. The KSP-441 powders are also highly transparent; giving a natural look.

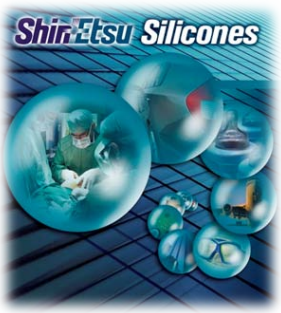
Processing benefits are also achieved as it offers excellent swelling capability, is free-flowing and easy to incorporate. They are also effective as an oil phase thickener that improves stability and doesn't agglomerate. Based on these superior characteristics, it is being used in various cosmetic products for the purpose of both improving skin feel and adding functionality in applications such as anti-aging products, skin lotions and cream, anhydrous skin treatment serums, powder foundations and blushes, liquid foundations and creams, hot pour, and mascaras.

**DMF-2:** Designed specifically to provide cosmetic formulators with an effective, quality alternative to D5 siloxanes and D5 derivative materials, Shin-Etsu's DM-Fluid-2cs (DMF-2) is a high purity, low residual dimethicone fluid. With properties of a low 2cs (centistokes) viscosity and near-zero (0.1) skin irritation rating, the volatile DMF-2 fluid delivers an enhanced sensory cosmetic solution for applications ranging from foundation and makeup products to skin care, hair care, and sunscreens. Due to its high purity/low residual composition, the INCI listed DMF-2 is a preferred non-reactive delivery agent that easily rubs in and will flash off the skin over time– leaving a comfortably silky, skin feel.

The DMF-2 diluent system has a higher flash-point than D5 –and is therefore less combustible. The flash point is high enough that there's no need for processing concerns and it can be easily heated if necessary. Cold processing is made simpler using the derivative products as they are often suitable for ambient, room-temperature processing.

According to SESA's North America Marketing Manager Eric Bishop, "The DMF-2 system represents a functional and versatile alternative for formulators. It allows them to formulate away from D5 siloxanes and D5 derivatives and still produce effective products that deliver many levels of the enhanced sensory properties of silicone."

For more detailed information on KSG-360Z/KSP-441/DMF-2 contact: **cosmetics@shinetsusilicones.com**




**CORPORATE PROFILE:**
A U.S. subsidiary of Shin-Etsu Chemical Co. Ltd., Japan, Shin-Etsu Silicones of America Inc. offers vast technical and capital resources to formulate solutions as a major supplier of silicone materials to North America's medical, automotive, electronics, aerospace, cosmetics, and manufacturing industries. Shin-Etsu's premium silicone compounds incorporate leading-edge technology, staff expertise, and value-added service; offering customers the highest levels of quality and consistency in specialty silicone materials.

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