



Compo-SiL® ? A Breakthrough in Overcoming the Low Surface Energy of Cured Silicone

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Silicone with a Polyurethane-based Modified Layer Allows Bonding with Surfaces during Mass Production

Hsinchu, Taiwan, November 17, 2020 - Experienced silicone products maker, General Silicones (GS), is introducing its Compo-SiL® technology to the market. Compo-SiL® solves the critical problem of the low surface energy of cured silicone by enhancing the surface energy with the help of an ultra-thin PU-based modified layer. This innovation allows the process and bonding of cured silicone efficiently during mass production with surfaces safely and in a lasting way.

Adhesion Problems of Cured Silicone Rubber

Silicone is one of the bio-friendly and sustainable materials of choice for many large volume applications in industries like health care, electronics, automotive, aerospace, industrial assembly, building, textile, etc. Despite that, the low surface energy (LSE) of 24 mN/m of cured silicone rubber makes it difficult to use for good adhesion. Finding an ideal solution is still a challenge. There is an essential need for a bio-friendly silicone substrate with good surface adhesion properties for diverse application areas.

Increasing Silicone's Low Surface Energy from 24mN/m to 38mN/m

Compo-SiL® by General Silicones resolves silicone adhesion and bonding problems from the lower surface energy of silicone by chemically bonding silicone sheets with an ultra-thin polyurethane-based modified layer. The custom patented technology of General Silicones binds the modified layer to the silicone and therewith enhancing the surface energy level to ~38mN/m.

Conventional Activation of Low Surface Energy of Silicone

Current adhesive technologies and primers from bonding LSE silicone with other surfaces have difficulty controlling reaction kinetics and the chemical composition. Other surface pretreatment techniques, including corona, plasma, flame, etc. can enhance the surface energy of silicone surface, but have the disadvantages of durability, cost, complexity and may even present environmental or safety issues.

Compo-SiL® Bonding Strength

Standard test method for peel resistance was done internally by General Silicones to evaluate the bonding strength of silicone with the PU modified layer and with other adhesives (HMA, PUR, EVA, etc.).

For all the cases of different modified PU laminate with Compo-SiL®, tests by GS showed cohesive failure within the adhesive layer or cohesive failure in the adherend, demonstrating the strong bonding between silicone and the modified layer of the Compo-SiL® technology of General Silicones.

Customization of the Silicone Layer of Compo-SiL®

GS offers a diverse series of silicone with unique properties for various applications. With high expertise in silicone formulation, several processing methods, and state of the art R&D. GS customizes silicone properties according to customer demand and ships globally. Color (transparent, translucent, or any), the hardness of silicone material (25-80 shore A), thickness (customized), tensile strength (30-100 Kgf / cm²), tear strength (10-30Kgf / cm), and elongation (200-800 %) are all customized according to specification.

Silicone-based Compo-SiL® series can:

- * Bond to other surfaces where cured silicone substrates cannot.
- * Make the manufacturing process easier for printing and lamination purposes.
- * Reduce the use of solvent, primers, and other chemicals.

* Offer long-term durability.

* Provide various designs and customizations.

* Lower manufacturing costs.

For Compo-SiL® introduction video, please visit the YouTube link <https://youtu.be/vsoK-YO3s-s>

For detailed information on Compo-SiL® , the advantages and different applications, please visit www.compo-sil.com

About General Silicones

General Silicones (GS) was founded in 1970 in Taipei, Taiwan, and is now represented worldwide ? including Europe, China, Japan, and South East Asia countries. GS is not only a major distributor of silicone materials but also an active silicone products manufacturer with ISO 9001, IATF 16949, and ISO 14001 certifications. The company has manufacturing plants in Hsinchu, Taiwan; Wujiang, China; and Bac Giang, Vietnam. With decades of experience in this field, GS has the ability and capacity to provide a wide range of silicone products for many industries, including medical, automobile, consumer products, electronics, and IT. GS listed on Taiwan's emergent stock market in 2011 (TPEX: 4730). For more information about GS, please visit www.generalsilicones.com. For more information on Compo-SiL®, please visit www.compo-sil.com

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For more information about General Silicones Co., Ltd., contact the company here: General Silicones Co., Ltd. Kayla Lee +886228825577 kayla@globalpr.agency No. 9-1, Lane 52, Nangang Street, Xiangshan District, Hsinchu City, 300, Taiwan

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Website: <http://www.generalsilicones.com/>

Email: kayla@globalpr.agency

Phone: +886228825577

