

Compo-SiL®: An emerging substrate for Bio-electronics, sensing and healthcare Applications

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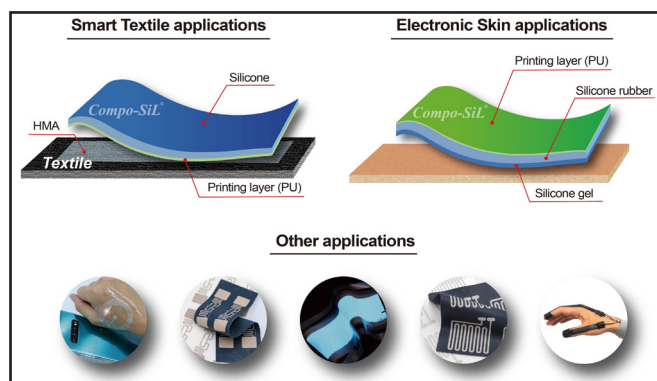
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Abstract:

The demand for flexible, stretchable and wearable bio-electronics has been growing up rapidly in recent years. With five decades of silicone materials experience and after an intensive research following an innovative patented technology, we have developed Compo-SiL®[1], a transparent composite material with a layered-structured produced in a large scale, roll to roll manufacturing process, can act as an emerging eco-friendly substrate as well as encapsulate that fully exhibits the characteristics of sustainable, skin friendly, reusable and biocompatible silicone materials and can be integrated with other materials in a variety of processing methods for the development of bio-electronics sensors and other bio medical applications. Different kinds of conductive printing and process could be done according to the application areas. Owing to its well-known biocompatibility, it could act as a flexible, stretchable and printable substrate directly attachable to textile and skin. Several other applications like NFC skin, printed RFID circuits, flexible electroluminescent device, wearable heater, wound healing LEDs, stretch sensor [2] have already been prototyped. In health care industry, E-skin patches [3] have shown unlimited possibilities for healthcare like pulse sensor [4], drug delivery system and ECG temperature sensor [4]. Flexibility, high resolution, high sensitivity, roll to roll production capability and integration with real time data monitoring are the most challenging parts for early stage detection and remote health care monitoring. The revolutionary Compo-SiL® series could act as an emerging substrate for bio-sensing platforms for healthcare and biomedical monitoring.

Biography:

Dr. Mukherjee has a multidisciplinary background of achievements in synthetic organic chemistry, material science for optoelectronic applications and silicone materi-



als & technology and it's production and diverse applications. He obtained his PhD in NTHU in Taiwan in 2011 and then pursued a postdoctoral research in CYCU in Taiwan till 2014. Currently, in General Silicones as Technical Director of R&D Center, he is engaged in corporate entrepreneurship to develop new ideas and opportunities within established business and carrying out investigations on design and development of various innovative large-scale manufacturing of high value added silicone products following multi manufacturing processes.

Recent Publications:

1. A. Mukherjee, S. P. Yeh, Y. W. Chen, H. Y. Yang P085001-PCT-386, TW107118941, CN201810568629.4., PCT/CN2018/099971
2. A. Mukherjee, S. P. Yeh, H. Y. FLEX Southeast Asia 2019, Singapore, invited speaker. b) S. P. Yeh, Y. W. Chen, H. Y. Yang, A. Mukherjee. P085002-CN-525.
3. G. Nunes*, M. Reis, M. Rosa, L. Peixoto, A. Rocha, S. Rosa Res. Biomed. Eng. 2016 March; 32(1): 3-13.
4. Tyler R. Ray, J. Choi, A. J. Bandodkar, S. Krishnan, P. Gutruf, L. Tian, R. Ghaffari, J. A. Rogers Chem. Rev. 2019, 119, 5461-5533
5. Z. Ma, S. Li, H Wang, W Cheng, Y. Li, L. Pan, Y. Shi J. Mater. Chem. B, 2019, 7, 173

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