OUTSTANDING SILICONE PROPERTIES IN A NEW SHAPE: ELASTOSIL® FILM

The new ELASTOSIL® Film range of thin, 100%-silicone films is an innovative product form that greatly extends the reach of high-tech silicone technology and offers key groundbreaking advantages.

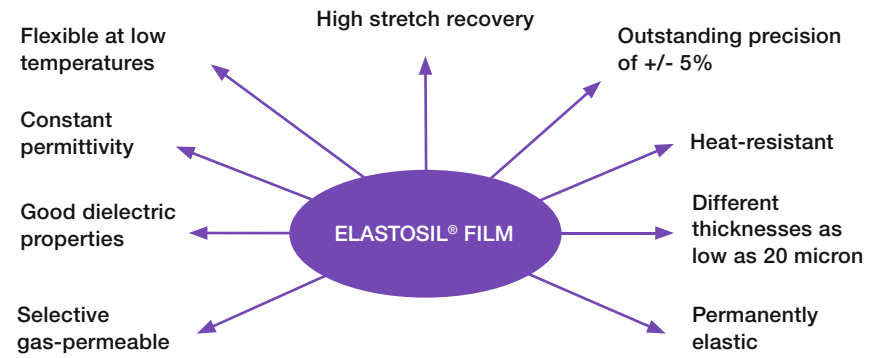
New: Thin Precision Silicone Films

Produced from addition-curing silicone rubber grades in a patented process, ELASTOSIL® Film products from WACKER are silicone roll-stock films available in thicknesses as low as 20 micrometers. These 100% silicone films are manufactured under cleanroom conditions, which yields extremely homogeneous, flawless films of uniform thickness. The film thickness deviates from the specification by no more than plus or minus 5 percent across the entire width and length of the web. At the same time, ELASTOSIL® Film products display all of the characteristics typical of silicone elastomers. This combination provides the key to technical applications that manufacturers find it difficult to achieve on an industrial scale, if at all.

WACKER: Your Development Partner

WACKER is one of the world's largest silicone producers and most research-driven chemical companies. The Group's portfolio currently contains over 3,000 silicone products. WACKER can now produce the innovative silicone films of its ELASTOSIL® Film range on an industrial scale. We will be happy to give you the support you need for implementing your application concepts at any of our worldwide technical centers. Contact us at www.wacker.com/elastosil

Properties of ELASTOSIL® Film



ELASTOSIL® Film: Ideal for EAPs ...

ELASTOSIL® Film is especially suited for use as a dielectric medium in applications that employ electroactive polymers (EAPs), such as:

- Sensor technology
- Actuator technology ("artificial muscle")
- Generator technology (energy harvesting)

... and beyond EAP

Since the novel ELASTOSIL® silicone films are highly transparent, chemically inert and highly permeable to gas and water vapor, even completely novel applications in electronics, packaging, protective films and functional membranes are possible.

ELASTOSIL® FILM IN EAP APPLICATIONS

ELASTOSIL® Film is ideal for use as a dielectric precision layer in innovative, future-oriented electronics applications based on so-called EAPs – electroactive polymers.

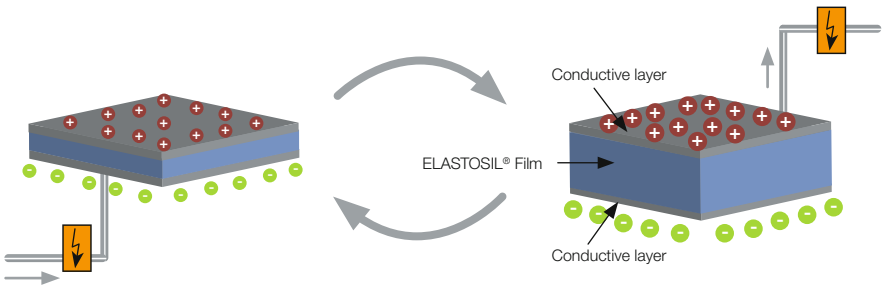
When stimulated by an electric field, these polymers change their size or shape. Conversely, when EAPs undergo change by compression, the corresponding changes in the electric field can be measured. The graphic on the right explains the structure and underlying physics in a schematic way. Thanks to this property, deformable EAPs can be used in different operational modes.

Sensors: Sensors made of ELASTOSIL® Film enable the development of motion capture clothing and sensor gloves, so called wearables. They are increasingly in demand in sectors such as consumer electronics, health care, sports, rehab, leisure and wellness.

Actuators: ELASTOSIL® Film creates new possibilities for manufacturers of electro-mechanical actuators. In this case, electrical power is converted into mechanical movement, following the same electroactive principle. The entire process is silent and can be repeated as often as desired. This can be used to develop a wide array of novel products and technologies, such as pumps, switches, electrical relays, valves, artificial muscles, grippers or even loudspeakers.

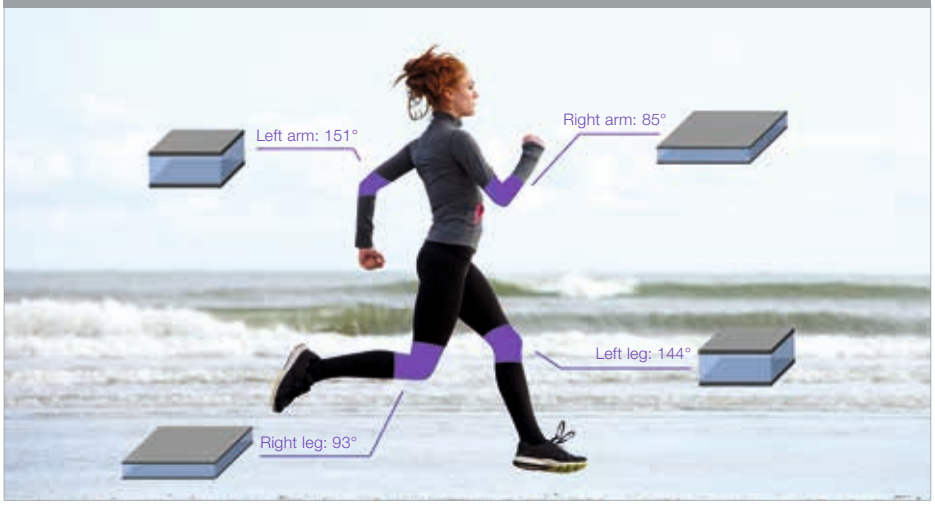
Generators: A pile of several hundred stacks of flexible capacitors consisting of dielectric silicone films can be used to transform movement into electrical power. Thus, silicone films enable novel power generators.

ELASTOSIL® Film Used as a Dielectric Medium



With electrodes applied on the top and bottom of ELASTOSIL® Film the ELASTOSIL® Film itself serves as a dielectric medium. When the electrodes are charged, they attract each other, compressing the ELASTOSIL® Film.

ELASTOSIL® Film Used in Wearables



Example of a sensor-equipped sports motion capture clothing based on ELASTOSIL® Film

ELASTOSIL®

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