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.

Properties of ELASTOSIL® Film

- Flexible at low temperatures
- High stretch recovery
- Constant permittivity
- Good dielectric properties
- Outstanding precision of +/- 5%
- Selective gas-permeable
- Heat-resistant
- Different thicknesses as low as 20 micron
- Permanently elastic

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.

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
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.

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.

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

---

Wacker Chemie AG, 81737 München, Germany, Tel. +49 89 6279-1741, Fax +49 89 6279-1770
info@wacker.com

The data presented in this medium are in accordance with the present state of our knowledge but do not absolve the user from carefully checking all supplies immediately on receipt. We reserve the right to alter product constants within the scope of technical progress or new developments. The recommendations made in this medium should be checked by preliminary trials because of conditions during processing over which we have no control, especially where other companies’ raw materials are also being used. The information provided by us does not absolve the user from the obligation of investigating the possibility of infringement of third parties’ rights and, if necessary, clarifying the position. Recommendations for use do not constitute a warranty, either express or implied, of the fitness or suitability of the product for a particular purpose.