



SILPURAN®

SILPURAN® FILM

# PURE SILICONE FILMS FOR INNOVATIVE MEDICAL APPLICATIONS

# ULTRATHIN SILICONE FILM FOR MAXIMUM PROTECTION

## A New Product Form for Silicone Elastomers

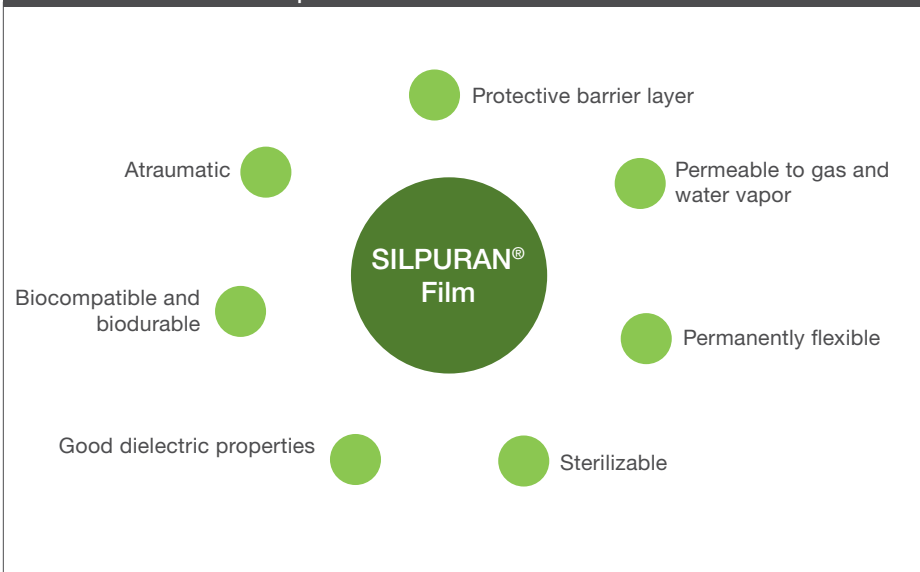
SILPURAN® Film from WACKER is an exceptionally skin-compatible, protective film made of crosslinked silicone rubber, specially developed for the health-care industry. Available in a variety of thicknesses (20 µm to > 400 µm), this film is manufactured under cleanroom conditions using innovative production technology.

SILPURAN® Film possesses all the familiar properties of a medical-grade silicone rubber:

- Biocompatible
- Chemically stable
- Resistant to heat
- Flexible at low temperatures
- Transparent
- Permanently elastic

In addition, like conventional silicones, SILPURAN® Film is permeable to gas but not to water. Water rolls off the film in the form of beads, but water vapor and gases such as oxygen diffuse through the membrane, making SILPURAN® the perfect choice for manufacturing breathable, atraumatic wound dressings that provide optimum support for the healing process. This novel silicone film can also be used as a gas-permeable membrane in other medical devices, such as heart-lung machines. One impressive feature of SILPURAN® Film is its ability to maintain constant electrical resistance and a good comparative tracking resistance across a broad range of temperatures.

## Overview of SILPURAN® Properties



These dielectric characteristics are especially interesting in medical technology applications, such as those involving the use of electroactive polymers (EAPs). In certain circumstances, EAPs will alter their shape as soon as an electric voltage is applied. This principle affords a way to develop high-precision, efficient sensors and actuators from silicones for use in applications such as novel prostheses with artificial muscles that not only replicate linear movements, but also reproduce natural motion. Innovative EAP sensors can also be used for creating smart bandages.

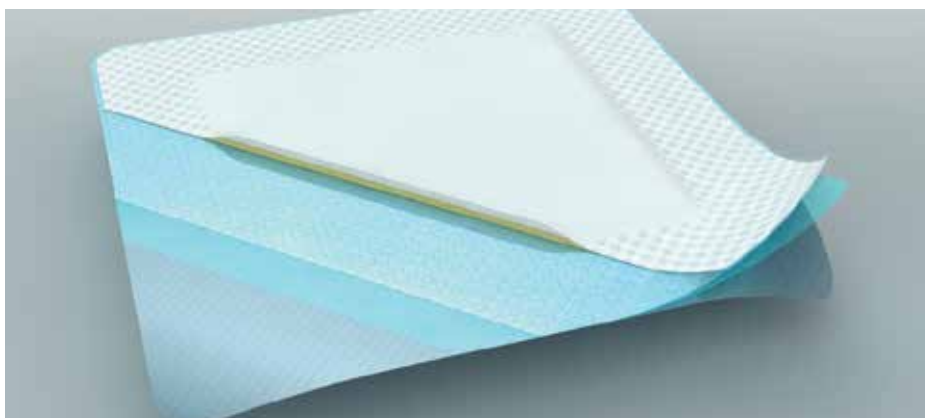
## Enhancing Functionality with SILPURAN®

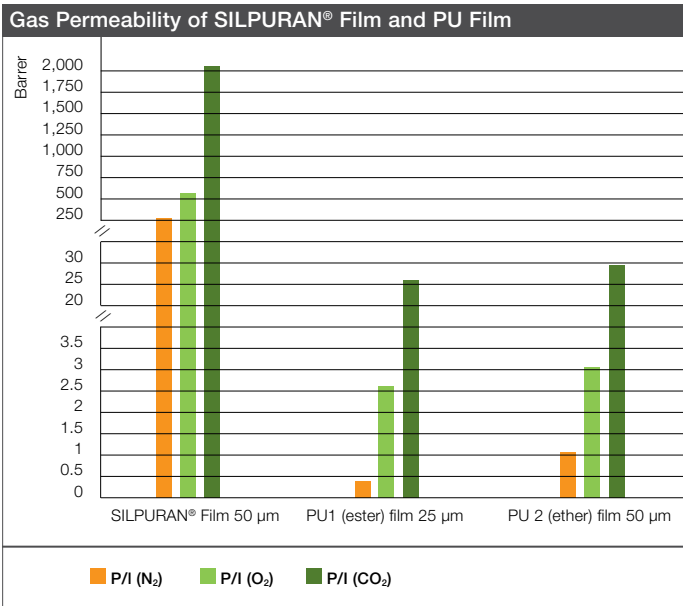
SILPURAN® Film can be functionalized with products from the extensive SILPURAN® portfolio for example by coating it with SILPURAN® adhesives.

## Form of Delivery and Processing

SILPURAN® Film is

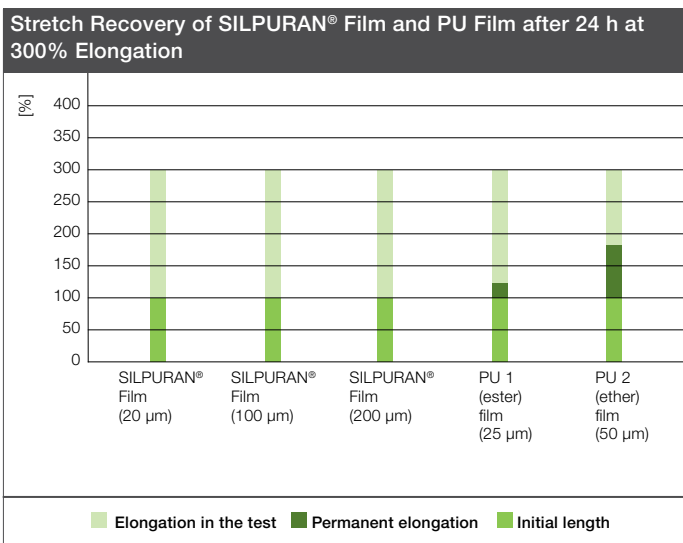
- produced under cleanroom conditions (currently on a pilot-plant scale of 250 mm width)
- supplied to customers as sheets or as roll stock on a carrier film, from which it can be easily removed for further processing





### Gas Permeability and Selectivity

SILPURAN® Film is water repellent but selectively permeable to gases. This permeability is significantly higher than that of other polymers.



### Stretch Recovery

The elastic recovery of silicone – and therefore of SILPURAN® Film – is extraordinarily good compared to that of other materials.

**Product Characteristics of SILPURAN® Film 2030**

Starting material	Addition-curing silicone rubber
Layer thickness	20 µm – 400 µm
Shore A (DIN ISO 7619-1)	27
Elongation at break (ISO 527-3)	450%
Tear strength (ASTM D624 B)	10 N/mm
Compression set 22 h/100 °C (ISO 815-B)	5%
Water vapor permeability (JIS 1099 A1)	3,000 g/m <sup>2</sup> /24 h at 20 µm 1,200 g/m <sup>2</sup> /24 h at 50 µm 800 g/m <sup>2</sup> /24 h at 100 µm
Suitable for food contact (BfR/FDA) <sup>1</sup>	Yes
Biocompatibility (USP class VI, ISO 10993)	Yes

<sup>1</sup> BfR recommendation:  
"XV. Silicones" / FDA CFR 21 § 177.2600  
"Rubber articles intended for repeated use"

These figures are only intended as a guide and should not be used in preparing specifications.

**Highest Medical Standard**

The SILPURAN® product range fulfills the most rigorous medical demands. It is free of organic plasticizers, can be sterilized and carries a number of certificates. Selected tests according to ISO 10993 and USP Class VI certification ensure biocompatibility and the highest safety levels for both users and processors.

**WACKER**

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