

## High Quality Silicone Properties In An Ultra Thin Film Format - SILFILM

The Rubber Company supply a range of SILFILM - ultra thin silicone film sheeting material. We manufacture this film from 100% silicone, in order to combine the high-quality properties found in silicone in a film format. This opens up new avenues for silicone materials to be used in highly specialised applications.

### Key Features & Properties

- Consistent layer thickness as low as 20 µm
- Constant mechanical and electrical properties over long periods of use
- Resistant to oxygen, ozone and ultraviolet radiation
- Heat resistant up to 200°C
- Low-temperature flexibility down to approx. - 45°C
- Solvent-free
- High gas and water-vapor permeability
- Chemically inert
- Low glass transition temperature
- High dielectric strength
- High specific resistivity
- Highly elastic, low modulus

Our precise and ultra thin silicone film materials are produced using addition curing, solid silicone rubber grades using a unique manufacturing process. The roll-stock film is available in a range of thicknesses as low as 20 micrometres. SILFILM is manufacturing using 100m% silicone under cleanroom conditions. This enables us to produce extremely homogeneous films in a consistent, uniform thicknesses with no flaws. The thickness of the film across the entire width and length of the roll deviates from our specification by no more than plus or minus 5 percent. Despite being incredibly thin and flexible, SILFILM ultra thin film features many of the typical characteristics found in high quality silicone elastomers. The combination of properties in an ultra thin format provides the key to a variety of technical applications.

SILFILM ultra thin silicone film is especially suited for use in as a dielectric medium in applications that employ electroactive polymers (EAPs). Common uses include:

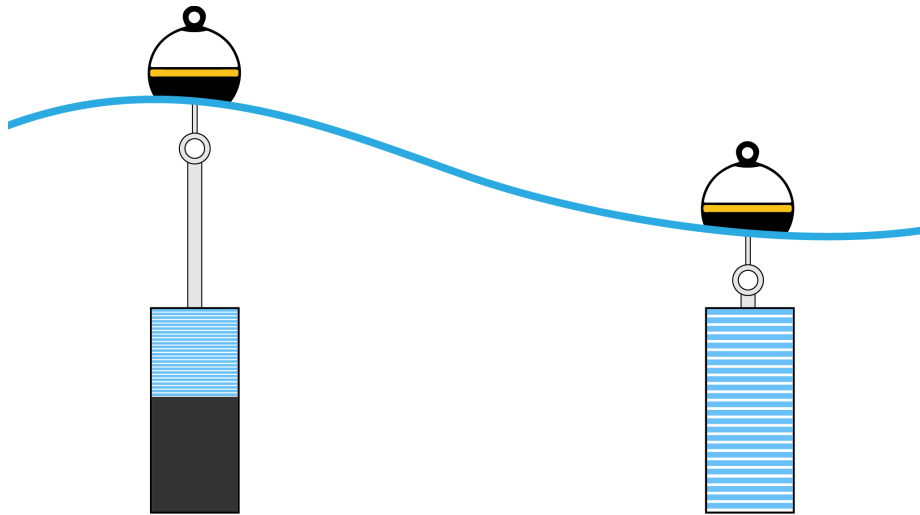
- Actuator technology ("artificial muscle")
- Generator technology (energy harvesting)
- Sensor technology ("smart sensing")

However, it is worth noting that the properties found in our ultra thin silicone film enables it to be used in a number of new applications. SILFILM is highly transparent, chemically inert and highly permeable to gas and water vapor. This makes it suitable for use in a number of electronic manufacturing, packaging, protection and functional membrane applications.



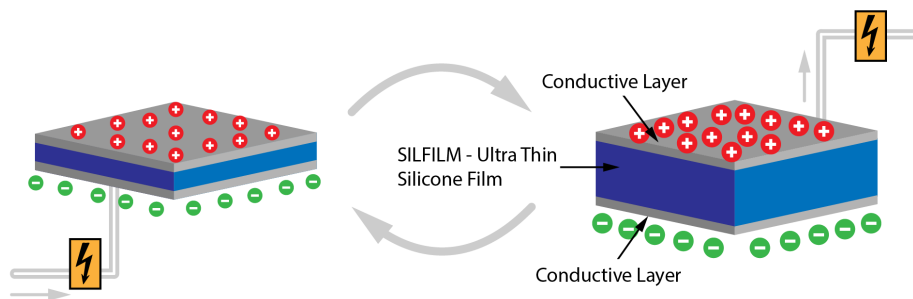
The information contained on this product information sheet is to be used as guidance. The advice is given in good faith and does not constitute any guarantee or recommendation for suitability. The Rubber Company cannot be held liable for any damage caused by incorrect installation. We hereby reserve the right to change the technical information herewith without notification or prior agreement.

SILFILM ultra thin silicone film can greatly enhance a number of applications. From generators for wave power plants to artificial muscles and touchscreens for blind people. The potential uses for ultra thin silicone film are virtually endless. Below is one example of how SILFILM can make these ideas a reality.



A buoy is connected to the generator. Within the generator, there are thousands of sheets of SILFILM ultra thin film that press against each other and then separate in response to the action of the waves.

Located on the seabed, the main compartment of the energy converter contains thousands of SILFILM ultra thin silicone film stacked on top of each other. Each film has a conductive layer, and are connected to each other. The motion created by the waves first presses the films together, which brings two electrodes closer to each other. A voltage is then applied using an external source, with one of the electrodes becoming positively charged and the other negatively. In the wave trough, the sheets of ultra thin silicone film relax and expand again, causing the electrodes to separate. Thus, the mechanical energy from the wave is converted into useable electrical energy.



SILFILM ultra thin film absorbs voltage at the wave crest. This energy is then drawn off in the wave trough. SILFILM serves as a dielectric medium, return spring and carrier for electrodes, ensuring durability over millions of cycles

The information contained on this product information sheet is to be used as guidance. The advice is given in good faith and does not constitute any guarantee or recommendation for suitability. The Rubber Company cannot be held liable for any damage caused by incorrect installation. We hereby reserve the right to change the technical information herewith without notification or prior agreement.