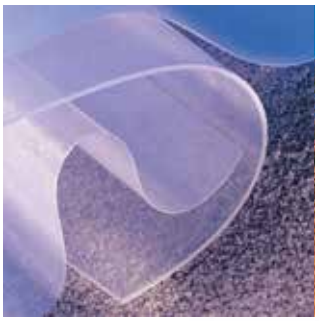
SHEETING

Custom sheeting, manufactured by SSF to client specifications, is used in a variety of medical devices. Discs punched from vulcanized elastomeric sheets are key components in various types of valve assemblies, mesh-reinforced sheeting is integrated as sewing rings on artificial heart valves, and laminated sheeting containing both vulcanized and unvulcanized layers is used to seal tissue expanders and mammary devices.

SSF produces sheeting using 2 very different processes.

HCR Calendaring: High consistency rubber (HCR) is formed into various types of sheeting using a calendaring process. In this process the silicone is fed through multiple rollers to produce a film of uniform thickness. The film is then transferred onto a carrier sheet and may be cured or left uncured. The calendaring process is capable of producing a variety of sheeting including combinations of vulcanized, unvulvanized, reinforced or non-reinforced products. Calendared sheeting may be pigmented and a number of surface finishes are possible.



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SSF specialty silicone fabricators
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Knifecoating

By 1990 it was quite clear to us that the calendaring processes could not meet the diverse needs of our sheeting clients. SSF invested heavily in the in-house design and manufacture of proprietary equipment that could produce films of precise thicknesses from different types of silicone. While sheeting produced by calendaring processes is limited to clay-like HCR material, the knifecoating equipment and processes developed by SSF in the early 1990's can produce sheeting and films from a number of different silicone materials including liquid silicone rubber (LSR), dispersions, and gels.

In this process a vacuum-assist system secures a plastic film against a precisely levelled carrier belt. Silicone material is pumped at a precise rate behind a vertical blade. As the film advances, the blade spreads the silicone into a film of the desired thickness. The carrier plastic and silicone then advances through a hot air vulcanizing (HAV) chamber where the rubber is vulcanized. A protective top sheet, fed from a reel outside the HAV, is automatically and continuously applied to the upper surface of the cured film. The cured sheeting is then spooled as finished product.

SSF's knifecoating capabilities are unique and offer several advantages over the more widely used calendaring process. Entirely closed-loop process; silicone is pumped from sealed containers into an evacuated chamber, cured, and spooled. The risk of particulate contamination due to environmental exposure is greatly reduced. The process is continuous, producing larger batch sizes at lower cost. Sheeting thickness is more precise, accurate, reproducible, and capable of producing silicone film as thin as .001 inches.

SSF's proprietary knifecoating technology is leveraged in our line of custom dermal adhesive gel products which are widely used in applications involving wound management and scar reduction. U.S. patent, 7,645,916, Elastically Deformable Fabric with Gel Coated Surface (2010) recognizes SSF's contribution to this important medical sector.

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