

PROCESSING CONSIDERATIONS FOR MESH FABRICS

Cleaning

Materials are supplied to our customers in bulk form. Fabrics have been cleaned to remove machine oils and fiber finishes used in the manufacturing process. However, cleaning of your finished medical devices is required before final packaging. The devices should be cleaned using a method compatible with the product composition and manufacturing environment after you have finished fabricating your devices and prior to packaging.

A common technique is to use an ultrasonic tank or circulating bath with a cleaning solution. The solution can be an aqueous system that uses a nonionic surfactant solution. A 70% Isopropyl alcohol solution can also be used. Precautions must be taken if using an ultrasonic cleaner with solvent. The ultrasonic cleaner must be rated for use with solvents or a secondary sealed container can be used in a conventional cleaner where the solvent is not in direct contact with the walls of the tank. A closed cleaning system or one with a condensing chiller can be used with a solvent, such as bromothane. A cycle time of 5 minutes should be adequate. If using a nonionic surfactant solution, then at least two rinse cycles with purified water should be used to remove residual cleaning solution. Very little surfactant is required as fiber finishes and machine oils have already been removed. After washing, the products will need to be dried. A cabinet dryer at a temperature of about 100° C can be used to facilitate drying. Super critical fluid extraction is also a very good cleaning technique. The exact cleaning method employed will need to be verified for your specific product and application.

Cutting

Mesh fabrics can be cut by many means, including:

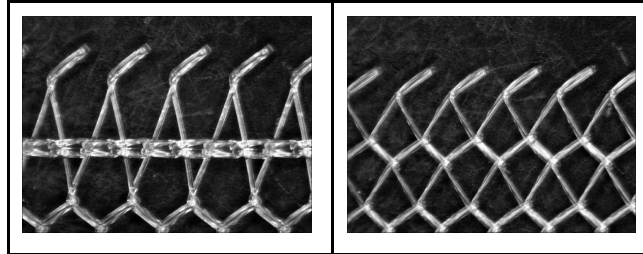
- Laser
- Ultrasonic
- Steel Rule Die
- Hot Die
- Razor Knife
- Scissor

Laser cutting has become the most widely used technique due to its versatility and ability to seal the cut edges. Laser cutters can cut any shape and seal the edges while doing so. Sealed edges reduce shedding of cut loops at the fabric edges and do not generate debris in the cutting process.

If cuts or slits are created in our polypropylene mesh fabrics in the machine (warp) direction during the fabrication process or by the end user, it is advisable to place a reinforcing stitch at the end of the cut to prevent it from separating further. Certain styles of our polypropylene mesh fabrics may be more prone to this, such as PPKM301, PPKM403, PPKM501, PPKM601, PPKM603,

PPKM606, and PPKM801. These fabrics have a specific direction of manufacturing. Cuts or slits can be made in the direction of the first-knit end of the mesh that will prevent the mesh from separating. Please contact us if you have any questions or concerns regarding this.

The separating or splitting feature of these specific styles of mesh is useful in resizing the mesh. It is a useful technique for producing narrow webs or tapes of fabric that have formed looped edges as opposed to cut loop edges. The resultant edges are softer and produce less debris as compared to cut edges.



Relaxation

The mesh fabrics may undergo relaxation when they are cut from the supply rolls, that is, they may retract in length and expand in width by a few percent.

The mesh is wound into rolls under tension. Even though the tension is low, the fabric can stretch slightly. When the fabric is unwound from the roll, it may retract due to relaxation. If this relaxation is a concern for your final part dimensions, then we recommend that you unwind the fabric from the roll and allow it to relax without any tension. You can cut the fabric into sheets at this point if it is required for your cutting process. Warm temperature conditioning or mechanical agitation in an unrestrained state will facilitate relaxation.

Sterilization

Polypropylene-based products can be sterilized using steam autoclave, carbon dioxide super critical fluid, and ethylene oxide (EtO). Polypropylene must not be sterilized using irradiation techniques, such as gamma or beta irradiation, as the polymer will be significantly degraded. The exact sterilization method employed will need to be evaluated for your specific product and application.

Shelf Life Stability

Engineering resins, like polypropylene, are very stable and durable polymers. Polypropylene can degrade if it is exposed to strong oxidizing agents and radiation, such as ultraviolet and gamma radiation. It is very stable to water and many chemicals and is very stable when stored under normal room and warehouse conditions. Avoid excessive heat and exposure to direct sunlight.