Our Sacs are Leak Proof

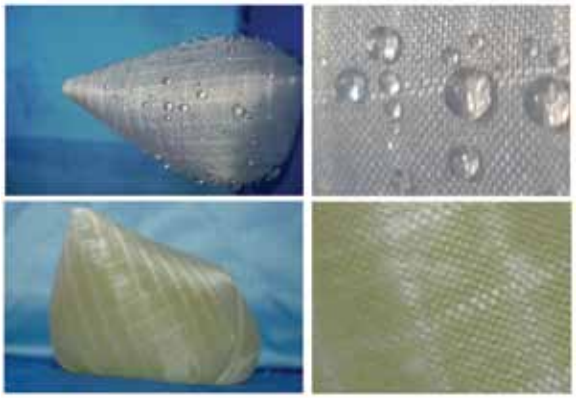
Espiner Medical sac material is rendered “leak proof” by a special application of inert polyurethane. This will support a column of water 80cms high without leakage and for practical purposes renders the sac impermeable.

This picture shows a sac under full extraction pressure.

There is no “sweating” or leakage of fluid.
The sewn seams, covered with polyurethane tape, are intact and the contents of the sac are clearly seen.

Bench tests are carried out on sterile sacs ready for despatch.

A sac is half filled with water and the mouth pulled through a 5mm trocar puncture site in solid foam.The external mouth is twisted to close the sac as tightly as possible, and maximal manual extraction force is applied. This is always in excess of that which is possible in a laparoscopic procedure. Photographs are taken of the sac surface.



This shows the “sweating effect”.

Beads of water slowly appear on the surface of the sac. The sealed seams are inspected and noted to be intact and free from leaks.

When egg albumin is used in place of water and the same withdrawal forces are applied, no “sweating” or leakage is seen. This suggests that the phenomenon is related to molecular size.

The gram molecular weight (GMW) of water is 18 and that of alanine, an aminoacid, is 89. there are 585 aminoacids in one molecule of albumin; the GMW of albumin is 66.000 Bilirubin, excreted from the liver, and present in bile, has a GMW of 584.

Water is thus the only body fluid which can pass through our sac material and then only under significant pressure. We can conclude from our tests that the sacs are impermeable to all other biological fluids and suspensions.

These conclusions will not hold true if there has been any damage to the polyurethane lining inside the sac caused by the passage of instruments.

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