

## PureSure System

### Extending the life of the purification cartridge

#### Capacity Gain

In a conventional water purifier, when a purification pack, fed with RO permeate with a conductivity of 35  $\mu\text{S}/\text{cm}$  at 1.5 to 2 litre/minute has reached the stage when output water quality drops below 18.2  $\text{M}\Omega\text{-cm}$ , it is necessary to change the cartridge, in order to maintain water quality. At this point, only about 40 to 45% of its total ion exchange capacity has been used up.

The capacity advantage of the PURELAB Ultra system is illustrated in Figure 1 where in a conventional water purifier the pack would have to be changed after 880 litres when the product water resistivity had dropped to 17.5  $\text{M}\Omega\text{-cm}$ .

In the PURELAB Ultra, the first Labpure purification pack is used until its output quality has decreased to 1  $\text{M}\Omega\text{-cm}$ , using about 80% of the total cartridge capacity, 1590 litres in the example shown. Output quality from the system is maintained at 18.2  $\text{M}\Omega\text{-cm}$  by the second Labpure purification pack.

Over 80% greater utilisation of resin capacity is achieved by this means. The relative gain depends on the quality of the feedwater and the flowrate. The poorer the feed quality and the faster the flow, the smaller is the proportion of primary purification pack capacity that is

used before the output quality drops below 18.2  $\text{M}\Omega\text{-cm}$  and the greater the capacity advantage with the PURELAB Ultra. The PURELAB Ultra enables a high output flow rate of 2.0 litre/minute to be achieved with high resin utilisation.

When the quality of the output from the first Labpure purification pack has fallen to 1  $\text{M}\Omega\text{-cm}$  the first pack is still removing over 95% of the ions from the feed (with a conductivity of 20  $\mu\text{S}/\text{cm}$  or greater). The second pack is only removing the remaining few % of ions. The overall effect is that less than 5% of the polishing pack's capacity is used in gaining 80% extra from the primary purification pack.

This is demonstrated in Figure 2 which shows the water quality in  $\text{M}\Omega\text{-cm}$  against usage in thousands of litres for both a PURELAB Ultra Labpure pack, which was fitted new in the primary pack position, and a Labpure pack which was first used in the polishing position. If the capacity of the polishing cartridge had been significantly used, then one would have expected to find the capacity curve shown to be significantly to the left of that of the new cartridge. In practice they are virtually identical, confirming that use of the cartridge in the polishing position has a negligible effect on its capacity and that the extra capacity achieved from the primary purification pack is fully realised.

Figure 1

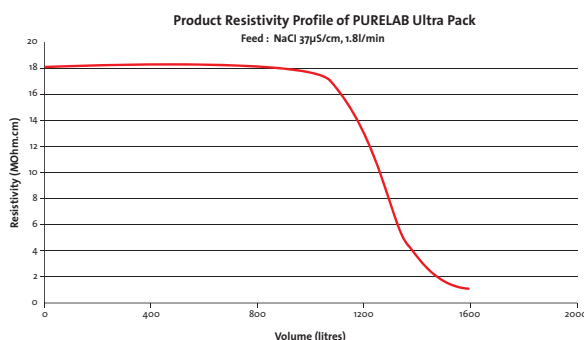
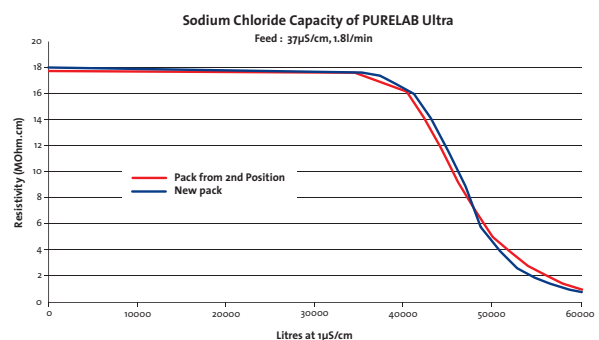


Figure 2



For more information and to order your copy of the Pure LabWater Guide go to [www.elgalabwater.com](http://www.elgalabwater.com)