

Service Reference

Topic: Measure Surface Resistance of a Ion-exchange membrane

Please read all the instructions listed below carefully to familiarize yourself with the project before attempting to perform any of the work or unpacking any further.

The purpose of this reference is to describe the nature of the test method required to perform the measurement using portable test equipment. The Surface resistance of the membrane will increase with age, loading conditions, experience from contamination events, and high temperature occurrences. A good time to take this measurement the first time is in year three since the TECTRON™ Membrane Electrode was installed. It is OK if the Electrode has already been replaced, since the 316L stainless steel Electrode does not contribute much to the increase in the Surface Resistance of the membrane. In some cases with more inert Electrode materials, the same is not true and the surface conductivity has to be checked separately from that of the membrane. These tests have to be conducted during the operation of the ED tank with the largest load, faster conveyor speed, and thickness ED film requirement.

1. The voltmeter and modified probe measures the voltage drop from the Electrode Tab to a point about ½ way down the Membrane Shell on the side facing the ware. Usually there are about eight of the setups, all on the same side of the ED tank.
2. A clamp-on ammeter is used to measure the current going to the same Cell. A person from UFS places a clamp-on ammeter on the Cell and records both the voltage drop and current. They then move over the next Cell and record its' data and so on.
3. The results are then analyzed and the customer receives a report on the estimated Surface Resistance of the membrane and an estimate of how many years of operation can be expected.
4. The eight probes are moved to eight more Cells and the process is repeated until a good sample size is recorded.
5. Contact UFS Corporation for more information.

