Question #57853, Chemistry / General Chemistry

Why the conductivity of a conductometry probe decreases if you shake the solution in which it is kept?

Answer:

When you shake the probe in solution moderately, thickness of ionic layer on the probe electrode decreases due to the “washing off” the ions from its surface. It affects the potential of electrode, as well as the conductivity curve which you observe. Certain time has to pass for the probe to restore its normal value of potential due to electrophoretic and relaxation effects of ionic atmosphere.

And if you shake the probe vigorously, which means that air is mixed with your solution, certain gases such as O_2 and CO_2, normally present in the air will dissolve in water and affect the pH of solution or polarize the electrode. In this case it will also take some time to reach the normal working equilibrium, and you will see a temporary decrease of conductivity.