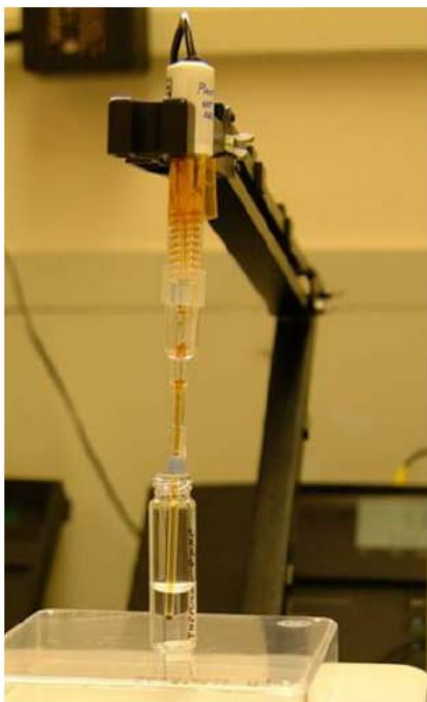


New Orion Micro pH Electrode: Part of the Hunley Submarine Conservation Effort



Nestor Gonzalez, a chemical engineer and Clemson University faculty member on the Hunley Conservation Team, is one of the beta-test users for the new Orion 8220BNWP ROSS® Micro pH Electrode. At the Warren Lasch Conservation Center in Charleston, South Carolina, he is researching the corrosion and conservation of metals as well as non-metallic artifacts recovered from the H.L. Hunley submarine, raised in August 2000. The Hunley was the first submarine ever to sink an enemy ship, but mysteriously disappeared on February 17, 1864, shortly after sinking the USS Housatonic.

As part of the conservation effort, chlorides are removed from artifacts by subcritical fluid extraction in sodium hydroxide solutions at pH 11.5 – 13.1. Removal of chloride is essential since chloride increases the corrosive effect of oxygen. The process is monitored by measuring the pH in 4 mL sample vials using Orion electrodes. Mr. Gonzalez has found that the accuracy of the pH readings is very good and response is fast. Performance checks with

pH buffers demonstrate that the micro pH electrode doesn't drift. The combination of ROSS® pH electrode technology with the micro-size sensor gives results that are fast, accurate, and drift-free for small sample sizes.

This is the latest support provided by Thermo to the Hunley Conservation Team. Prior to raising the Hunley, in situ corrosion potential measurements were carried out with Orion electrodes and the assistance of Steve West, Director of Research.

Image from Friends of the Hunley website.

