

Preparation and Calibration of IAPSO Seawater Standard

Preparation: Surface seawater is collected from the North Atlantic and then pumped through filters (0.2mm) into a PVC lined tank and thoroughly mixed. Once purified by filtration and UV irradiation, distilled water is added to adjust the salinity, and the water is sealed in pre-washed glass bottles (capacity ca.200cm³).

Calibration: The electrical conductivity ratio of each batch is compared to that of a defined standard potassium chloride (KCl) solution using a modified high precision salinometer.

In accordance with the recommendations of the UNESCO, ICES, SCOR, and IAPSO Joint Panel on Oceanographic Tables and Standards (UNESCO Technical Papers in Marine Science, No. 36, 1981) the Standard Seawater label displays a conductivity ratio (K15) value where:

$K15 = (\text{Conductivity of Std. Seawater at } 15^{\circ}\text{C and } 1\text{atm.}) / (\text{Conductivity of KCl soln. (32.4356g/kg) at } 15^{\circ}\text{C and } 1\text{ atm.})$

Each Standard Seawater batch is directly traceable to the standard defined KCl solution.

Calculation: Conductivity ratios should be converted to Practical Salinities using the current International Oceanographic Tables, Volume 3, and the equations contained therein (UNESCO Technical Papers in Marine Science, No.39).