**Coupling solution for scanning the flat phantom surface with curved linear arrays**

In the Phase I phantom study we (re)learned that refraction as the acoustic pulses travel through the coupling medium into the phantom can cause errors in acoustic beam spacing and therefore shear wave speed estimates. To minimize this effect during the Phase II phantom study we have agreed to use salt water (sodium chloride in distilled (or deionized) water as the coupling medium. The chart below shows that, for coupling to a phantoms with a sounds speed of about 1540 m/s (as in the case of the Phase II phantoms), salinity of 45ppt (4.5g of salt in 100mL of water) is appropriate.

The equation used for saline is found in from J.R. Lovett, J. Acoust. Soc. Am. 63, 1713-1718, 1978 (equation 3). The equation for sound speed in pure water is found in GS Kell, J. Chem. Engng. Data (1975), also in Kaye and Laby (5th) p29. The Lovett equation suggests we need a salinity of about 45 (4.5g of NaCl in 100mL of water; NB: sea water has salinity of about 35).

