

If the saltwater in the fish tank is 0.05 wt% NaCl, what is the mass fraction of salt in the water after 1 cm³ of water with 2.0 wt% NaCl is added? Assume that the temperature of the water is 20 °C and that the density can be estimated as

$$\rho = 998.208 + 714.29 X_s \frac{\text{kg}}{\text{m}^3}$$

where X_s is the mass fraction of salt. Assume that the fish tank has an inside diameter of 1.6 inches, and that the water depth is 1.5 inches.