

Below are the natural logarithms of the 4 constants used in the above calculation. The constants all depend on temperature, T in Kelvin, and salinity, S in g/kg.

$$\ln K_H = -60.2409 + \frac{9345.17}{T} + 23.3585 \ln\left(\frac{T}{100}\right) + S \left[0.023517 - 0.00023656T + 0.0047036 \left(\frac{T}{100}\right) \right]. \quad (1)$$

$$\ln K_1 = 2.18867 - \frac{2275.0360}{T} - 1.468591 \ln(T) + \left(-0.138681 - \frac{9.33291}{T} \right) S^{0.5} + 0.0726483S - 0.00574938S^{1.5}. \quad (2)$$

$$\ln K_2 = -0.84226 - \frac{3741.1288}{T} - 1.437139 \ln(T) + \left(-0.128417 - \frac{24.41239}{T} \right) S^{0.5} + 0.1195308S - 0.00912840S^{1.5}. \quad (3)$$

$$\ln K_b = (-8966.90 - 2890.51S^{0.5} - 77.942S + 1.726S^{1.5})/T - 0.0993S^2/T + (148.0248 + 137.194S^{0.5} + 1.62247S) + (-24.4344 - 25.085S^{0.5} - 0.2474S) \ln(T) + 0.053105S^{0.5}T \quad (4)$$