



Calculation of Free Carbon Dioxide

The free carbon dioxide content of any water may be calculated using the following formula if the pH and alkalinity are known.

$$\log_{10} \text{CO}_2 = 6.2878 + \log_{10} \text{Alkalinity as CaCO}_3 - \text{pH}$$

A typical soft water with an alkalinity of 20mg/l (as CaCO₃) and a pH of 6.1 would therefore have a free carbon dioxide content of :-

$$6.2878 + 1.301 - 6.1 = 1.4888$$

$$\text{Antilog}_{10} \text{ of } 1.4888 = 30.8 \text{ mg/l CO}_2$$

Obviously, the pH or the alkalinity can be calculated by simple transposition of formulae if the other two parameters are known.