Alkalinity(P), (M) and (OH) - (ppm CaCO$_3$)

Reagents

Use reagent pack **RGPK002**:

Alkalinity Titrant - **A003**
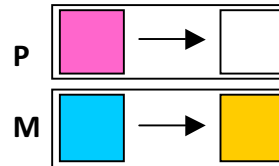Phenolphthalein Indicator - **A011**
4.5 Indicator - **A004**

Method

1. Filter the sample if necessary and select an appropriate sample size based on the required ppm per drop of Alkalinity Titrant as follows:

Sample size	PPM per drop
5ml	80ppm
10ml	40ppm
20ml	20ppm
40ml	10ppm
80ml	5ppm

2. If chlorine or bromine is in use add 10 drops of Dechlorinating reagent (A009).
3. Add 3 - 5 Drops of Phenolphthalein Indicator, if the sample develops a pink/purple then it has an Alkalinity (P).
4. Moisten and wipe the tip of the Alkalinity Titrant dropper to ensure it is clean and then add it one drop at a time to the sample (counting the number of drops) until the colour changes from pink/purple to colourless. Note the number of drops which will be used to calculate the Alkalinity (P)
5. Add 3 - 5 drops of 4.5 Indicator to sample and swirl to mix.
6. Continue to add more drops of Alkalinity Titrant carrying on the count from the number at Step (4), until the colour changes from blue through green to orange/yellow. Note the total number of drops taken to reach this end point.
7. Calculate the Alkalinities using the following formulae:

   Alk(P) = Total No. of drops at Step(4) x PPM per drop for sample size

   Alk(M) = Total No. of drops at Step(6) x PPM per drop for sample size

   Alk(OH) = 2 x Alk(P) - Alk(M)

Example

For a 20ml sample

No. of drops from Step (4) = 36

No. of drops to Step (6) = 48

ALK (P) = 36 X 20 = 720

ALK (M) = 48 X 20 = 960

ALK (OH) = 2 X 720 - 960 ppm = 480 ppm

Note – If Alk(M) = Alk(P) then all the Alkalinity is in the hydroxyl (OH) form. If 2 x Alk (P) is less than Alk(M) then there is no Alk(OH).
The Carbonate Alkalinity can be calculated using the formula:
Alk(CO$_3$) = 2 x (Alk(M) - Alk(P))