

## CARBON DIOXIDE (CO<sub>2</sub>) DETERMINATION TEST

When CO<sub>2</sub> dissolves in water, it forms Carbonic Acid, a very weak acid. This can lead to corrosion in high turbulence areas, and in some areas where free water will collect.

### Equipment:

#153-14 Graduated Cylinder, 50 ml x 1 ml, glass

#220-01 Phenolphthalein Indicator sol'n, 8 oz none- Sodium Hydroxide sol'n, 0.045N, 16 oz

### Procedure:

1. Insure that all glassware is clean.
2. Add 5 - 10 drops of Phenolphthalein Indicator solution to a 50 ml graduated cylinder.
3. Add 25 ml of fresh water sample. If the sample turns pink or red in color no Carbon Dioxide is present.
4. If the sample remains colorless, titrate with Sodium Hydroxide 0.045N solution. Gently swirl the solution until a definite pink color develops throughout the sample and remains permanent for 30 seconds. This is taken as the end point.

### Calculation:

For 25 ml samples sizes:

$$\text{mg/L CO}_2 = \text{Milliliters of Sodium Hydroxide} \times 39.6$$

For other sample sizes:

$$\text{mg/L CO}_2 = \frac{\text{Milliliters Sodium Hydroxide} \times 0.045 \times 22,000}{\text{Milliliters of Sample}}$$

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