

**MERCURIC NITRATE SOLUTION****PREPARATION**

0.02 *N* Mercuric Nitrate Solution: For chloride determination. Dissolve 3.3 g of reagent grade mercuric nitrate ( $\text{Hg}(\text{NO}_3)_2$ ) in about 100 mL of purified water containing 0.25 mL of concentrated nitric acid (70%  $\text{HNO}_3$ , sp g 1.42). Dilute to 1 L with purified water, and mix.

**STANDARDIZATION**

Dry a quantity of analytical grade sodium chloride ( $\text{NaCl}$ ) 30 minutes at 105 °C; cool in desiccator. Dissolve 0.8241 g of dry sodium chloride in purified water, dilute to 1 L volume, and mix.

Pipet 5.00 mL of the above sodium chloride solution, containing 2.5 mg chloride, into each of three 250 mL glass stoppered Erlenmeyer flasks. Add 85 mL of purified water, 10 mL of diphenylcarbazone indicator solution, 1 mL of 30% hydrogen peroxide solution, and 1.0 mL of 0.5 *N* nitric acid solution (Note 1) to each of the flasks. Stopper flasks and swirl contents. Prepare a reagent blank in a 250 mL Erlenmeyer flask containing 90 mL of purified water, 10 mL of diphenylcarbazone indicator solution, 1 mL of 30% hydrogen peroxide solution, and 1.0 mL of 0.5 *N* nitric acid solution; mix. Titrate the blank with mercuric nitrate solution to the purple indicator end point. Color development near the end point is slow, and as much as 30 seconds should be allowed between titrant drops to facilitate full indicator color development (Note 2). Titrate the three standards in the same manner to the same color end point. Observe and record the titers. Calculate average normality.

**CALCULATION**

$$\text{Normality} = \frac{2.5 \text{ mg}}{(\text{mL Hg}(\text{NO}_3)_2 \text{ Titer} - \text{Blank}) \times 35.45}$$

**MERCURIC NITRATE SOLUTION — continued**

**NOTES AND PRECAUTIONS**

1. Treatment with hydrogen peroxide destroys interfering sulfites by oxidation to sulfates, and the nitric acid addition adjusts acidity to the proper level (pH about 2.5).
2. Care should be exercised as the end point is approached, and it is expedient to observe the reaction mixture over a white surface. End point detection is facilitated by running the blank first, and then titrating the standards to match the color of the blank.