2105 Sodium Chloride Content by Silver Nitrate Titration (AASHTO T260-6 modified)

2105.1 Sample Preparation

1. Using the dry salt from the moisture test grind the sample with a mortar and pestle or mechanical grinder to a #20 minus.
2. Weigh 10 g of ground salt into a 400 ml beaker and record as sample weight "A" to the nearest 0.01g.
3. Add 250 ml deionized water and 1 ml concentrated nitric acid to the sample. Stir to dissolve for 20 minutes.
4. Filter sample into 1000 ml volumetric flask using a glass funnel and Whatman #1 filter paper. Rinse filter paper several times with deionized water.
5. Dilute sample to mark and mix well. This is the working solution for chemical analysis.
6. Pipette with volumetric pipette 10ml of sample into 250 ml beaker for Method A or titrator cup for Method B. Dilute with 80 ml deionized water and add 3 ml of concentrated nitric acid.
7. Determine NaCl content using either Method A or B below.

2105.2 Method A – Potentiometric Titration

AASHTO - T 260 Section 5.4.1 Method I

Follow method with exception of leaving out the standard NaCl solution and using 0.1 N silver nitrate solution.

2105.3 Method B – Automatic Titrator

AASHTO - T 260 Section 5.4.3 Method III

Use 0.1 N silver nitrate solution and run sample in accordance with instrument manufacturer's recommendation.

2105.4 Calculation

$$\% \text{ NaCl} = \frac{(3.5453 * \text{ml } AgNO_3 * \text{normality } AgNO_3)}{\text{sample weight}} * 1.648 * 100$$

Note 1: For Treated Salt - The above method determines the total chloride content including the chloride from the treating agent. To correct for this run 1707.5 (below) and perform the following calculation.

$$\% \text{ NaCl (corrected)} = \% \text{ NaCl} - (1.227 * \% MgCl_2)$$