Determination of Sodium chlorite:

50 PPM to 1500 PPM Concentration

Alcide Corporation

September 13, 1995
1.00 Scope

Solutions containing sodium chlorite at 50-1500 ppm can be assayed for sodium chlorite concentration by titration of the iodine released in the presence of potassium iodide and hydrochloric acid.

2.00 Equipment

250 mL Erlenmeyer flasks
Stir bars and magnetic stirrer
50 mL buret
Buret stand
Buret clamp
100 mL graduated cylinders/ or balance capable of weighing 250g

3.00 Reagents

Potassium iodide crystals (KI)
6N hydrochloric acid (HCl)
0.025N sodium thiosulfate, certified titrant (Na₂S₂O₃)
Starch indicator solution

4.00 Safety

4.10 Use normal precautions in using glassware, reagents and electrical equipment. For specific details, refer to the appropriate MSDS or to a toxicity manual.

4.20 Always wear safety glasses and chemical gloves when handling samples. Handle all hot equipment with gloves or tongs.

5.00 Procedure

5.10 Weigh sample into a tared 250 mL Erlenmeyer flask. Record weight to nearest 0.1 mg.

5.20 Add approximately 2 g KI. Add stir bar and stir until crystals dissolve (about 1 minute).
5.30 Add 1 mL of 6N HCl. Stir for 30 seconds.

5.40 Continue stirring and titrate liberated iodine with standardized 0.025N Na₂S₂O₃ (Sodium thiosulfate). When most of the brownish iodine color has faded, add 2 mL starch indicator solution and titrate to a clear endpoint. (Allow adequate mixing time between additions of titrant near endpoint.) Record volume titrated (V).

6.00 Calculation

\[
(V \text{ in mL} \ Na_2S_2O_3) \times 0.025 \times 90.45 \times 1000 = \text{ppm NaClO}_2
\]

where:
- 0.025 is the normality of the titrant
- 90.45 is the molecular weight of NaClO₂
- 1000 is conversion factor from mg/g to ppm
- 4 is milliequivalents Na₂S₂O₃ per NaClO₂

7.00 Suggested sample size

For 50-250 ppm, use 100 g sample
For 250-500 ppm, use 50 g sample
For 500-1100 ppm, use 20 g sample
For 1100-1500 ppm, use 15 g sample
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