

# Ti Application Note No. T- 39

**Title:** Free alkali in sodium hypochlorite

**Summary:** Determination of free alkali in sodium hypochlorite by potentiometric titration with hydrochloric acid using a combined glass electrode.

**Sample:** Sodium hypochlorite solution

**Sample Preparation:** None, see under «Analysis».

**Instruments and Accessories:** 702, 716, 736 or 751 Titrino or 726 Titroprocessor, 6.0233.100 combined glass electrode

**Analysis:** Pour ca. 80 mL dist. water into a beaker, then add 4.00 mL sample and drop by drop ca. 5 mL  $w(\text{H}_2\text{O}_2) = 30\%$  to destroy the active chlorine contained in the sodium hypochlorite. Titrate with  $c(\text{HCl}) = 0.1$  mol/L to the second equivalence point.

**Calculation:**  $\text{g/L NaOH} = \text{EP2} * \text{C01} * \text{C02} / \text{C00}$

EP2 = titrant consumption in mL to reach the second EP

C00 = 4.00 (sample size in mL)

C01 = 40 (M(NaOH) in g/mol)

C02 = 0.1 (concentration of the titrant in mol/L)

**Remarks:** Sodium carbonate constitutes the main component of free alkali in sodium hypochlorite. When the sample is titrated with HCl, two equivalence points are obtained, the first of which corresponds to NaOH and the second to  $\text{Na}_2\text{CO}_3$ . However, per definition the total content of free alkali is given as NaOH.

**Result:**

AVG(3) = 7.48 +/- 0.03 g/L NaOH