ANALYSIS PROCEDURE

SODIUM HYPO CHLORITE SOLUTION

(1) Determination of Available Chlorine :-

Dissolve 2to 3gr. of Potassium Iodide Crystals in 50 ml of water in a 250 ml conical flask. Add 10 ml of Acetic Acid, then pipette out the aliquot of sample into the solution, keeping the tip of the pipette beneath the surface of the solution until drained.Titrate at once with 0.1 N standard sodium thiosulphate solution until the iodine colour is nearly gone, then add 1 ml of starch indicator solution and complete the titration to the disappearance of the blue colour.

(a) Available Chlorine (as Cl) Percent mass by Volume $= \frac{A\ N\ X\ 3.546}{V}$

(b) Sodium Hypochlorite (as NaOCI) Percent mass by Volume $- \frac{A\ N\ X\ 3.722}{V}$

A : Volume in ml of standard sodium Thiosulphate Solution required for titration of the sample.

N : Normality of the standard sodium Thiosulphate solution

V : Volume in ml of original sample in aliquot used.

2) Deterermination of Free Alkali :-

Place 50 ml of 10% Barium Chlorine solution and 30 ml of 3% Hydrogen peroxide solution in a 250 ml conical flask add 10 drops of phenolphthalein indicator solution and neutralize with Caustic Soda solution. Introduce into this neutral mixture 10ml of the sample, shake or stir vigorously for 1 minute, and titrate with 0.1 N Hydrochloric Acid until the pink colour disappears.

Free Alkali (as NaOH) g/l $= \frac{V_1 N\ X\ 40}{V}$

V1 = Volume in ml of standard hydrochloric acid solution required for Titration of sample

N = Normality of standard Hydrochloric Acid.

V = Volume in ml of sample solution

..contd..2….

Determination of Sodium Chlorate :-

Pipette out an aliquot of the sample (same amount as used for available chlorine determination) into a 250 ml stoppered conical flask add. 20 ml of 10% potassium bromide solution followed by 80 ml of concentrated Hydrochloric Acid. Stopper the conical flask and shake well. Allow to

stand for 10 minutes. Add 20 ml of 10% Potassium Iodide solution and titrate the liberated iodine against 0.1 n Sodium Thiosulphate solution using a few drops of starch indicator solution.

Run a blank with all the reagents except the sample by producing in the same manner as that of the test.

$$\text{Sodium Chlorate (as } NaClo_3\text{)} = \frac{(V2\text{-}VI\text{-}A) \times N \times 17.75}{V}$$

V2 = Volume in ml of Sodium Thiosulphate solution used for the test
V1 = Volume in ml of Sodium Thiosulphate solution used for the blank
A = Volume in ml of Sodium Thiosulphate solution used in available chlorine test
N = Normality of the Sodium Thiosulphate Solution
V = Volume in ml of original sample solution in aliquot used

(4) Determination of Iron :-

Weigh 50 grams of the sample and evaporate it almost to dryness. Dilute it to 30 ml, add about 30 mg of ammonium persulphate and 15 ml of butanolic potassium thiocyanate solution. Make up to 50 ml, shake vigorously for about 30 seconds and allow the layers to separate.. Carry out a control test in another Nessler cylinder using standard Iron solution. Compare the intensity of the colour produced in the butanol layers in the two cylinders.

$$\text{Iron ppm} = \frac{V \times 0.1 \times 1000}{50} = 2XV$$

V = Volume of 0.1 mg per ml standard Iron solution required for the colour comparasion of sample.

-

********* ******* ********

—