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Sodium Hypochlorite Solution

CAS RN[®]: 7681-52-9.—A solution of sodium hypochlorite (NaClO) in water. Usually yellow to yellowish-green in color. Has an odor of chlorine. Is affected by light and gradually deteriorates. Store it in light-resistant containers, preferably below 25°. [CAUTION—This solution is corrosive and may evolve gases that are corrosive and toxic. It is a powerful oxidant that can react violently with reducing agents. It is irritating and corrosive to skin and mucous membranes.]

Assay: Transfer about 3 mL to a tared, glass-stoppered iodine flask, and weigh accurately. Add 50 mL of water, 2 g of potassium iodide, and 10 mL of acetic acid. Insert the stopper in the flask, and allow to stand in the dark for 10 min. Remove the stopper, rinse the walls of the flask with a few mL of water, and titrate the liberated iodine with 0.1 N sodium thiosulfate VS, adding 3 mL of starch TS as the endpoint is neared. Each mL of 0.1 N sodium thiosulfate consumed is equivalent to 3.722 mg of NaClO: NLT 5.25% is found. If it is desired to calculate the percentage of available chlorine, note that each mL of 0.1 N sodium thiosulfate consumed is equivalent to 3.545 mg of available chlorine.

Calcium: Transfer 10.0 g to a 150-mL beaker, dissolve in 10 mL of water, and add 5 mL of hydrochloric acid and 2 g of potassium iodide. Heat the mixture for 5 min, cool, and add 2 mL of 30% hydrogen peroxide. Evaporate to dryness, cool, and add 2 mL of hydrochloric acid and 2 mL of 30% hydrogen peroxide. Rinse the inner walls of the beaker with a few mL of water, and evaporate to dryness. Take up the residue in 20 mL of water, and filter if necessary. To the filtrate add ammonium hydroxide until the solution is just alkaline, then add 4 drops of ammonium hydroxide and 5 mL of ammonium oxalate TS: any turbidity produced within 15 min does not exceed that in a blank containing 0.1 mg of added calcium carried through the entire procedure (0.001%).

Phosphate (Reagent test): Transfer 2 g to a beaker, and add 5 mL of hydrochloric acid and 2 g of potassium iodide. Heat the solution for 5 min, and cool. Add 2 mL of 30% hydrogen peroxide, and evaporate the solution to dryness. Rinse the walls of the beaker with a few mL of water, and add 2 mL of hydrochloric acid and 2 mL of 30% hydrogen peroxide. Evaporate again to dryness: the residue shows NMT 0.01 mg of PO₄ (5 ppm).

Auxiliary Information - Please [check for your question in the FAQs](#) before contacting USP.

| Topic/Question | Contact | Expert Committee |
|------------------------------|--|------------------|
| SODIUM HYPOCHLORITE SOLUTION | Margareth R.C. Marques Principal Scientific Liaison | HDQ Headquarters |

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