

**AMENDMENT NO. 3 APPROVED ON 2001-06-19
TO SLS 79 : 1987**

**SRI LANKA STANDARD SPECIFICATION FOR EDIBLE COMMON SALT
(ORDINARY, WASHED AND IODIZED)**

Page 18

Clause – Appendix M

Insert the revised appendix M

APPENDIX M

DETERMINATION OF IODINE

M.1 REAGENTS AND MATERIALS

M.1.1 *Methyl orange indicator solution*

Dissolve 0.01 g of methyl orange in water and dilute to 100 ml.

M.1.2 *Phosphoric acid*, analytical reagent grade, approximately 85 per cent (m/V) solution.

M.1.3 *Bromine water*, saturated aqueous solution

Determine the approximate concentration (milligram of bromine per millilitre) by adding from a burette a measured volume to a flask containing 5 ml of 10 percent (m/V) solution of potassium iodide and 5 ml of dilute sulfuric acid and titrating the liberated iodine with 0.1 mol/l solution of sodium thiosulfate. One millilitre of 0.2 mol/l solution of sodium thiosulfate is equivalent to 8 mg of bromine or 12.7 mg of iodine.

M.1.4 *Salicylic acid*

M.1.5 *Potassium iodide*

M.1.6 *Sodium thiosulfate, standard volumetric solution*
 $c(\text{Na}_2\text{S}_2\text{O}_3) = 0.005 \text{ mol/l}$

Prepare 0.1 mol/l solution by dissolving 25 g of analytical reagent grade sodium thiosulfate in 1000 ml of water. Dilute 50 ml of this solution to 1000 ml.

NOTE : Sodium thiosulfate solution should be standardized.

M.1.7 *Starch solution, freshly prepared 1 percent (m/V) solution.*

M.1.8 *Sodium chloride analytical reagent*

M.1.9 *Potassium iodate*

M.1.10 *Sulfuric acid, approximately 1 mol/l*

M.2 **QUALITATIVE TESTS FOR IODATE AND IODIDE**

M.2.1 **PROCEDURE**

M.2.2 Transfer about 2 g of salt to a test tube and dissolve in 10 ml distilled water.

M.2.3 Add about 1 ml of 10 percent KI solution and 2 ml of 1 M sulphuric acid and few ml of starch solution

M.2.4 If iodate is present the solution turns blue due to the liberation of iodine

M.2.5 Estimate the amount of iodate as given in Procedure M.3

M.2.6 If there is no blue colour, there is no iodate in the salt. The salt may have iodide or may not be iodised.

M.2.7 To check for the presence of iodide

M.2.8 Transfer about 2 g of salt to a test tube and dissolve in 10 ml distilled water

M.2.9 Add about 1 ml of 10 percent KIO₃ solution, 2 ml sulphuric acid and few ml of starch solution

M.2.10 If iodide is present the solution turns blue due to the liberation of iodine

M.2.11 Estimate the amount of iodide as given in Procedure M.4

M.2.12 If there is no blue colour, there is no iodide in the salt. The salt may have iodate or may not be iodised

M.2.13 If there is no blue colour by both tests then the salt does not have iodide or iodate

NOTE : These qualitative tests must be carried before an opinion is expressed.

AMD 281

M.3 **PROCEDURE** (If iodine is added as IODATE)

- M.3.1 Weigh 10 g salt accurately and dissolve in 100 ml distilled water in a 250 ml conical flask which can be stoppered.
- M.3.2 Add 2 ml of 1 mol/l sulfuric acid to the solution. Add 5 ml 10% (m/V) potassium iodide and stopper immediately. Shake it well and keep in dark for 5 minutes.
- M.3.3 Titrate this solution with a standard sodium thiosulfate solution 0.005 mol/l, to a light straw colour and add 2 ml of 1 per cent starch solution and continue titration to a colourless end point.
- M.3.4 Carry-out a blank test using 10 g of analytical grade sodium chloride.

M.4 **PROCEDURE** - (If iodine is added as IODIDE)

- M.4.1 Weigh 10 g salt accurately and dissolve in 100 ml distilled water into a 250 ml conical flask which can be stoppered. Neutralize to methyl orange indicator (M.1.1) with phosphoric acid (M.1.2) and add 1 ml in excess.
- M.4.2 Add excess bromine water (M.1.3) to give approximately 20 mg to 25 mg bromine and boil the solution gently until colourless and then for 5 minutes more. Add a few crystals of salicylic acid (M.1.4) and cool the solution to room temperature. Add 1 ml of phosphoric acid (M.1.2) and approximately 0.5 g of potassium iodide (M.1.3) and titrate the liberated iodine with standard sodium thiosulfate solution (M.1.6) adding starch solution (M.1.7) near the end of titration. Carry out a blank determination on reagents and make one or more control determinations, using 100 ml of sodium chloride solution (M.1.8).

M.5 **CALCULATION**

$$\text{Iodine as I, mg/kg} = \frac{21150 (V_1 - V_2) \times C}{m}$$

- V_1 - Volume in ml of standard sodium thiosulfate solution required for the sample.
- V_2 - Volume in ml of standard sodium thiosulfate required for blank determination.
- C - Concentration in mol/l of the sodium thiosulfate solution.
- m - Mass in g, of the sample taken (dry basis)