

## **Spices and Condiments – Specification for salt fortified with iodine**

### **1. Scope**

This Sierra Leone Standard specifies the requirements for salt fortified with iodine.

### **2. Reference**

The following references contain provisions applicable to this Sierra Leone Standard. At the time of publication, the editions indicated were valid.

All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

**2.1.** SLS 4 General Standard for the labelling of pre-packaged foods.

**2.2.** SLS 29 Specification for refined edible salt.

### **3. Definition**

For the purposes of this standard the following definitions apply:

#### **3.1**

##### **iodisation**

the process of adding iodine as iodide to salt

#### **3.2**

##### **iodised salt**

salt obtained from iodisation

#### **3.3**

##### **iodation**

the process of adding iodine as iodate to salt

#### **3.4**

##### **iodated salt**

salt obtained from iodation

### **3.5**

#### **lot**

a stated quantity of the consignment presumed to be of uniform characteristics and which will allow the quality to be assessed

## **4. Classification**

Salt fortified with iodine shall be classified as:

(a) Iodised salt

(b) Iodated salt

## **5. Requirements**

### **5.1 General**

The iodine shall be added in the form of iodate usually as potassium, or sodium salt.

### **5.1 Other requirements**

**5.2.1** The moisture content should be 1% by mass, maximum.

**5.2.2** When determined in accordance with annex A, iodine content shall be between **50 - 100ppm** at factory level and it is expected to be between **30 - 50ppm** at the retail level.

**5.2.3** Iodated salt shall also conform to the requirements of SLS 29.

**5.2.3** Iodised salt shall also conform to the requirements of SLS 29.

## **6. Packaging and labelling**

### **6.1 Packaging**

**6.1.1** The products shall be packed in woven polypropylene or high density polyethylene (HDPE) bags having an inner polyethylene liner.

**6.1.2** For retail packages, the product shall be packaged in not more than 1Kg bag or container, which shall be protective against absorption of moisture and contamination.

### **6.2 Labelling**

The packages shall be securely closed and marked in accordance with SLS 4. In addition each package shall bear the following:

**6.2.1** Name 'IODATED/IODISED SALT'. The word IODATED/IODISED shall accompany the word 'SALT' in identical type and in immediate conjunction therewith.

**6.2.2** Name and address of manufacturer, producer or distributor.

**6.2.3** Lot/ Batch number.

**6.2.4** Date marking.

**6.2.5** Net weight in metric system.

**6.2.6** Caution Note – Store in cool and dry place, away from direct sunlight.

**6.2.7** List of ingredients in descending order of proportion.

## **7. Criteria for compliance**

### **7.1 Criteria for compliance**

The lot shall be considered as complying with the requirements of this specification if it satisfies all the criteria given in this standard SLS 32

## **ANNEX A**

### **Determination of Iodine**

#### **A-1 Principle**

Iodine in salt is liberated by the addition of bromine water. Liberated iodine is titrated with sodium thiosulphate with starch as indicator.

#### **A-2 Reagents**

**A-2.1** Methyl orange indicator – Dissolve 0.01 g methyl orange in water and dilute to 100 mL.

**A-2.2** Dilute sulphuric acid – approximately 1 M.

**A-2.3** Bromine water - Saturated aqueous solution. Determine the approximate concentration (milligram of bromine per millilitre) by adding (from a burette) measured volume to a flask containing 5 mL of 10 percent potassium iodide solution and 5 mL dilute sulphuric acid and titrating the liberated iodine with 0.05 M sodium thiosulphate solution. 1 mL of 0.05 M  $\text{Na}_2\text{S}_2\text{O}_3$  = 8 mg of bromine = 12.7 mg of iodine.

**A-2.4** Sodium sulphite solution – approximately 1% (m/v).

**A-2.5** Phenol solution – approximately 5% (m/v).

**A-2.6** Potassium iodide solution – approximately 10% m/v.

**A-2.7** Standard sodium thiosulphate solution – 0.0025 M. Prepare 0.05 M solution by dissolving 25 g of sodium thiosulphate A.R. grade in 1000 mL of water. Further, dilute 50 mL of this solution to 1000 mL to give 0.0025 M solution.

**A-2.8** Starch solution (freshly prepared) – 1% m/v.

**A-2.9** Sodium chloride solution – Dissolve 40 g A.R. grade sodium chloride (free from iodine) in water and make up the volume to 200 mL.

**A-2.10** Potassium iodide for control determination – Dissolve 0.3280 g potassium iodide in water and make up the volume to 250 mL. Dilute 50 mL of this solution to 250 mL, and use 5 mL (ie. 1.0 mg iodine or 1.308 mg potassium iodide) for control determination.

#### **A-2.11 Concentrated sulphuric acid**

#### **A-3 Preparation of sample solution**

Dissolve approximately 50 g of material, accurately weighed in water and make up the volume to the mark in a 250 mL one-mark graduated flask. Take 100 mL of this solution for test.

#### A-4 Procedure

Pipette 100 mL of the prepared sample solution (A-3) into 200 mL conical flask. Neutralise to methyl orange indicator with dilute 1 M sulphuric acid. Add bromine water dropwise from burette in a quantity equivalent to 20 mg of bromine. After a few minutes, destroy most of the remaining free bromine by adding sodium sulphite solution dropwise while mixing to pale yellow colour. Wash down the neck and sides of the flask with water and completely remove free bromine by the addition of 1 or 2 drops of phenol solution.

Add 1 ml of dilute sulphuric acid and 5 ml of potassium iodide solution and titrate the liberated iodine against standard sodium thiosulphate solution, adding 1 mL starch solution near the end of titration. Carry out a blank determination on reagents and make one or more control determinations, using 100 mL sodium chloride solution to which has been added appropriate quantity of potassium iodide control solution.

#### A-5 Calculation

$$\text{Iodine (I), ppm} = \frac{52875 V_1 - V_2 M}{m}$$

Where :  $V_1$  = volume in mL of standard sodium thiosulphate solution required for the test with the prepared sample solution.

$V_2$  = volume in mL of standard sodium thiosulphate solution required for the blank determination.

$m$  = weight in g of the material taken in A-3.

$M$  = Molarity of standard sodium thiosulphate solution.

