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SPECIFICATION FOR BAKING POWDER

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BUREAU OF CEYLON STANDARDS

SPECIFICATION FOR BAKING POWDER

S.L.S. 230 : 1973

(Attached AMD 125)

Gr.4

BUREAU OF CEYLON STANDARDS
53, DHARMAPALA MAWATHA,
COLOMBO 3.

Sri Lanka Standards are subject to periodical revision in order to accommodate the progress made by industry. Suggestions for improvement will be recorded and brought to the notice of the Committees to which the revisions are entrusted.

This Standard does not purport to include all the necessary provisions of a contract.

BUREAU OF CEYLON STANDARDS
53, DHARMAPALA MAWATHA,
COLOMBO 3.

Telephone: **26055**
26054
26051

Telegrams: **"PRAMIKA"**

SRI LANKA STANDARD SPECIFICATION FOR BAKING POWDER

FOREWORD

This Sri Lanka Standard Specification has been prepared by the Drafting Committee on Baking Powder. It was approved by the Agricultural and Chemicals Divisional Committee of the Bureau of Ceylon Standards and was authorised for adoption and publication by the Council of the Bureau on 12th November, 1973.

In the preparation of this standard, due consideration has been given to the provisions of the Ceylon Food and Drugs Act No. 25 of 1949 and is subject to the provisions under the Act wherever applicable.

Reference to existing standards in other countries like India and Central Africa has been made in the preparation of this standard and the information obtained therefrom is acknowledged.

1. SCOPE

1.1 This standard prescribes the requirements and methods of test for baking powder.

2. INGREDIENTS

2.1 The material shall contain the following ingredients

(i) Sodium bicarbonate.

(ii) Acid reacting component and

(iii) Edible starch.

2.1.1 'Acid reacting component'—The acid reacting component shall be any one or a combination of the following.

2.1.1.1 Sodium acid pyrophosphate with or without mono acid calcium phosphate.

2.1.1.2 Mono acid calcium phosphate with or without dicalcium orthophosphate.

2.1.1.3 Potassium hydrogen tartrate or tartaric acid or a mixture of both.

3. REQUIREMENTS

3.1 All ingredients used in the preparation of the product shall be pure and in every way fit for human consumption.

3.2 The material shall be in the form of a free flowing, white and odourless powder. It shall be free from dirt or fungus infestation and adulterants.

3.3 The material shall also conform to the requirements given in Table 1.

Table 1 — Requirements for Baking Powder

Sl. No.	Characteristic	Requirements	Reference to Methods of Test
I	Residual CO_2 per cent by mass maximum	1.5	Appendix A
II	Available CO_2 per cent by mass Minimum	8	Appendix B
III	Arsenic parts per million, maximum	1	SLS 313*
IV	Lead parts per million, maximum	2	SLS 312**
V	Fluorine parts per million, maximum	15	Appendix C

* SLS 313: Method for the determination of Arsenic.

** SLS 312: Method for the determination of Lead.

4. SAMPLING

4.1 General Requirements of Sampling

4.1.1 In drawing, preparing, storing and handling samples, the following precautions and directions shall be observed.

4.1.2 Samples shall be taken in a protected place not exposed to air, dust or soot.

4.1.3 The sampling instrument shall be clean and dry when used.

4.1.4 Precautions shall be taken to protect the samples, the material being sampled the sampling instrument and the containers for samples from adventitious contamination.

4.1.5 The samples shall be placed in clean odourless and dry glass containers. The sample containers shall be of such a size that they are almost completely filled by the sample.

4.1.6 Each container shall be sealed air tight after filling and marked with full details of sampling, batch or code number, name of the manufacturer and other important particulars of the consignment.

4.1.7 Samples shall be stored in such a manner that the temperature of the material does not vary unduly from the normal temperature.

4.2 Scale of Sampling

4.2.1 **Lot** — All the containers in a consignment belonging to the same batch of manufacture shall constitute a lot.

4.2.1.1 Samples shall be tested from each lot for ascertaining conformity of the material to the requirements of the specification.

4.2.2 The number of containers to be tested from a lot shall depend on the size of the lot and shall be in accordance with Table 2.

Table 2 — Number of containers to be selected for sampling

Total No. of containers in the lot (N) (1)	No. of containers to be selected (n) (2)
3 to 50	3
51 to 200	4
201 to 400	5
401 to 650	6
651 and above	7

4.2.3 The containers to be selected for sampling shall be chosen at random from the lot and, for this purpose, random number tables shall be used. In case such tables are not available, the following procedure may be adopted.

Starting from any container, count them as 1, 2, 3 .....r and so on in a systematic manner. Every rth container thus counted shall be chosen r being the integral part of N/n where N is the total number of containers in the lot and n the number of containers to be selected (see Table 2).

4.3 Test Samples

4.3.1 Preparation of Individual Samples — Empty out the contents of the container on a sheet of paper and mix thoroughly. Cone and quarter as often as necessary till about 15 g of the material is left. Each part so obtained shall constitute an individual sample representing the container and shall be transferred immediately to thoroughly clean and dry containers, sealed air tight and labelled with particulars given in 4.1.6.

4.3.2 Preparation of a Composite Sample— From the material from each selected container remaining after the individual sample has been taken, equal quantities of material shall be taken and mixed together so as to form a composite sample weighing not less than 160 g.

4.3.3 Tests for available carbon dioxide and residual CO_2 shall be conducted on each of the individual test samples (see 4.3.1).

4.3.4 Tests for arsenic, lead and fluorine shall be conducted on the composite sample (see 4.3.2).

4.4 Criteria for Conformity

4.4.1 The lot shall be declared to be in conformity with all the requirements of this specification, if it satisfies the tests as indicated in Clauses 4.3.3 and 4.3.4.

5. PACKING AND MARKING

5.1 Packing— The material shall be packed in clean, dry and air tight containers under strictly hygienic conditions.

5.2 Marking— The following particulars shall be clearly and indelibly marked on each container.

(a) The words Baking Powder.

(b) Constituent (s) of the acid reacting component.

(c) Name and address of the manufacturer.

(d) Batch or code number and date of manufacture.

(e) *Nett mass of the contents in grammes.

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* The following pack sizes for Baking Powder have been recommended by the National Metrication Board:

100 g, 500 g, 2 kg, 10 kg, and 50 kg.

APPENDIX - A

DETERMINATION OF RESIDUAL CARBON DIOXIDE

A-1 PROCEDURE

A sample of 2 g of baking powder shall be treated with 25 ml of water and evaporated to dryness on a boiling water bath and subsequently treated with a further 25 ml of water and evaporated in the same manner. The residual carbon dioxide shall be the mass of carbon dioxide evolved when the sample so treated is further treated with excess of dilute sulphuric acid at room temperature, the evolution being completed by boiling or by means of reduced pressure.

The carbon dioxide may be determined either gravimetrically, volumetrically or gasometrically.

APPENDIX - B

DETERMINATION OF AVAILABLE CARBON DIOXIDE

B-1 PROCEDURE

Available carbon dioxide shall be determined by ascertaining the difference between the total carbon dioxide and the residual carbon dioxide. The total carbon dioxide is determined by ascertaining the mass of carbon dioxide evolved when the baking powder is treated with excess of dilute sulphuric acid at room temperature. The evolution being completed either by boiling for five minutes or by means of reduced pressure. The carbon dioxide may be determined either gravimetrically volumetrically or gasometrically.

APPENDIX - C

DETERMINATION OF FLUORINE

C-1 APPARATUS

C-1.1 Distillation apparatus consisting of a Claissen flask (250 ml capacity) with the side arm connected to a condenser,

preferably by a ground glass joint. The straight neck of the flask carries a rubber stopper fitted with a thermometer and a steam inlet tube, both of which extend to within 5 mm of the bottom of the flask. The side neck is stoppered.

C-1.2 Steam generator.

C-1.3 Nessler cylinders (100 ml capacity).

C-2 REAGENTS

C-2.1 Fluorine free lime.

C-2.2 Silver sulphate (solid).

C-2.3 Sodium hydroxide solution (0.05N).

C-2.4 Hydrochloric acid (0.05N).

C-2.5 Thorium nitrate solution (0.025%).

C-2.6 Alizarin red S solution (0.01%).

C-2.7 Standard sodium fluoride solution (0.0221g/litre; 1 ml = 10μ g F.)

C-2.8 Perchloric acid (60%).

C-3 PROCEDURE

Weigh accurately about 2g of the baking powder into a platinum basin and mix with 1g fluorine free lime and 50 ml water. Evaporate on a water bath, char and ignite at 600°C. Introduce into the Claissen flask some fragments of glass, 0.2g silver sulphate, 7 ml of water and 15 ml of perchloric acid. Assemble the apparatus and heat the flask until the temperature reaches 120-125°C. Then connect the steam supply and maintain the distillation at 137–140°C. The steam should be generated from water made alkaline with sodium hydroxide. Distil 150 ml in 30 min. steaming out the condenser towards the end of the distillation. Discard the distillate. Distil a further 150ml and titrate the apparatus blank by the method given below. The blank should not exceed 1.5μg F. After cooling, transfer the acid in the Claissen flask to a clean beaker and rinse the flask out with water, rejecting the rinsings.

Transfer the dry ash to the flask, washing with 5ml of water acidified with a few drops of the acid from the beaker. Add the rest of the acid, while keeping the flask cool, rinse down with 2 ml of water and distil 150 ml as before. Titrate 50 ml of the distillate with 0.05N sodium hydroxide in a Nessler tube using methyl orange as indicator until the colour matches that of a similar tube containing water and the same amount of methyl orange.

Transfer the remaining 100ml of the distillate to a Nessler cylinder and add sufficient 0.05N hydrochloric acid to make the total acidity equal to 5 ml of 0.05N acid. Prepare a control cylinder containing 5.0ml of 0.05N hydrochloric acid and water and add to both the test and control cylinders exactly 2.0ml alizarin S solution. Then from a burette and thorium nitrate solution to the test cylinder until a slight pink colour persists as compared with the yellow of the control cylinder. Add the same volume of thorium nitrate solution to the control cylinder, which should become more pink than the test solution. Then add slowly to the control cylinder, from a burette standard sodium fluoride until the tints of test and control solutions exactly match. From this titration calculate the amount of fluorine in 150 ml of distillate, subtract the apparatus blank and calculate the amount of fluorine as p.p.m.

Note:— With baking powder containing phosphates, phosphoric acid is liable to be carried over into the distillate and interfere with the titration due to combination with the thorium nitrate. Therefore, for samples where the amount of phosphate in the distillation flask exceeds 0.5g (as P_2O_5), the following modification should be carried out :—

Collect two successive 150ml fractions of distillate. If the second fraction shows an appreciable phosphate content, evaporate the first 150ml to dryness in the presence of a further gramme of fluorine free lime and re-distil to give 150 ml of distillate. Then titrate the purified distillate as described above to obtain the amount of fluorine in the sample.

AMENDMENT NO. 1 TO SLS 230 : 1973 SPECIFICATION FOR BAKING POWDER

EXPLANATORY NOTE

The existing Sri Lanka Standard Specification for Baking powder does not specify the date of minimum durability as a marking requirement. Since the efficacy of baking powder decreases with time it was felt that this marking requirement is useful. Therefore this amendment is brought to introduce the date of minimum durability as a marking requirement in baking powder.

AMENDMENT NO. 1 APPROVED ON 1989-12-14

SLS 230 : 1973 SPECIFICATION FOR BAKING POWDER

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Clause 5.2 Marking

Include the following requirement

f) Date of minimum durability, preceded by the words "BEST BEFORE".

SLS CERTIFICATION MARK

The Sri Lanka Standards Institution is the owner of the registered certification mark shown below. Beneath the mark, the number of the Sri Lanka Standard relevant to the product is indicated. This mark may be used only by those who have obtained permits under the SLS certification marks scheme. The presence of this mark on or in relation to a product conveys the assurance that they have been produced to comply with the requirements of the relevant Sri Lanka Standard under a well designed system of quality control inspection and testing operated by the manufacturer and supervised by the SLSI *which includes surveillance inspection of the factory, testing of both factory and market samples.*

Further particulars of the terms and conditions of the permit may be obtained from the Sri *Lanka Standards Institution, 17, Victoria Place, Elvitigala Mawatha, Colombo 08.*

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SRI LANKA STANDARDS INSTITUTION

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The principal objects of the Institution as set out in the Act are to prepare standards and promote their adoption, to provide facilities for examination and testing of products, to operate a Certification Marks Scheme, to certify the quality of products meant for local consumption or exports and to promote standardization and quality control by educational, consultancy and research activity.

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